

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

AN INVESTIGATION OF THE PHONOLOGICAL AWARENESS  
SKILLS OF THIRD GRADE XHOSA LANGUAGE SPEAKERS,  
WITH SPECIAL REFERENCE TO THEIR LEVELS OF SPELLING  
AND READING SKILLS IN ENGLISH

---

SHEILA ALLEN

A research report presented to the Department of Education, Applied Language and Literacy Studies, University of Cape Town, in partial fulfilment of the requirements for the degree MPhil in Education.

2006

## DECLARATION

I, Sheila Joyce Allen, hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise), and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

I empower the University of Cape Town to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

*SgAllen*

Signature

*2005.02.14*

Date

University of Cape Town

## ACKNOWLEDGEMENTS

The writer wishes to thank the following:

The Centre for Applied Language and Literacy Studies and Services in Africa (CALLSSA), for funding received during the course of this masters programme.

The Western Cape Education Department for granting approval to conduct this research, the school children who made this study possible, and the principal and teachers who welcomed me to their school.

My supervisor, Mastin Prinsloo, for his patience when no work was forthcoming, and for his kind, sympathetic support when times were difficult. I will always be grateful for his gentle encouragement and confidence in my abilities to complete this dissertation.

Professor Rochford for kindly supplying the factor matrix data, and Kultwano Ramaboa for her statistical input.

Shelley O'Carroll for her enthusiastic, lively interest in the field of phonological awareness, and her professional generosity in sharing research papers and tests.

My daughter Louise for the time spent proofreading, and for printing the coloured graphs. Her husband Terry for his help compiling them. My daughter Bev for patiently teaching me Microsoft Excel, and for coming to the rescue whenever things went wrong. Thank you all for your loving support and willingness to help wherever you could.

My parents for their love and support, with special thanks to my mother Gwen, for instilling in me the desire to achieve academically, and for making me believe anything was possible.

Finally, my husband Don, who, in spite of ill health, never let me give up the dream of obtaining this degree. His practical assistance and intelligent, insightful suggestions were an invaluable help during the writing of this dissertation. No words can describe my love and gratitude.

## ABSTRACT

The aim of the study was to examine the relationship between phonological awareness skills and literacy levels in disadvantaged third grade Xhosa language speakers who are learning to read and write in English.

Most of the learners in this study were unable to read and write much beyond the Grade 1 level. Their scores on the auditory blending test were satisfactory, but performance on other phonological awareness measures was poor. The results of this study indicate that phonics and phonological awareness are closely interrelated.

Many of the literacy problems experienced by these learners appear to be a direct result of limited experience with the sound system of English and an incomplete knowledge of sound-symbol relationships. Differences in the phonemic repertoire between isiXhosa and English contribute towards difficulties in vowel pronunciation and discrimination, and with onset-rime awareness. The learners presented with poor auditory analysis of sounds in spoken words and with difficulties determining where word boundaries fall. They appear to use analogies involving both initial and final consonant clusters in their reading, but were not always able to transfer this knowledge to their written work. The learners' limited vocabulary in English, their lack of knowledge of sight words and poor performance on words with complex orthographic encoding resulted in a need for them to focus on 'decoding' printed information while paying little attention to the meaning of what was being read.

The results of the study indicate that the emergent literacy approach is an inappropriate model of literacy development for this group of isiXhosa learners. Phonics programmes, based on an awareness of the phonemic structure of English words and the differences between the two languages need to be implemented to improve literacy development.

## TABLE OF CONTENTS

DECLARATION	i
ACKNOWLEDGEMENTS	ii
ABSTRACT	iii
LIST OF TABLES	viii
LIST OF FIGURES	x
LIST OF APPENDICES	xi
TABLE OF CONTENTS	v
CHAPTER ONE	
1. Introduction	1
2. Language proficiency and literacy development	3
3. Defining phonological awareness	5
4. Phonological awareness and literacy development	7
5. Phonological awareness and the emergent literacy model	13
6. Second language learning and phonological awareness	15
7. The Xhosa language	16
8. Black South African English (BSAF)	16
CHAPTER TWO	
METHODOLOGY	
1. Introduction	19
2. Aims	20
3. Subjects	21
3.1 Procedure for subject selection	21
4. Data collection	23
4.1 Test of letter knowledge, phonetically regular words, initial and	

	Final blends, long and short vowels, digraphs.	23
4.2	ESSI Reading and Spelling Tests	24
4.3	Burt Word Reading Test	24
4.4	Reading Comprehension Test	25
4.5	Sight Words: Sentence Dictation Test	26
4.6	Controlled free-writing task	27
4.7	Diagnostic Dictation Test	27
4.8	Rhyming Subtests	28
4.9	Auditory Blending Test	28
4.10	Test of Auditory Analysis Skills	28
5.	Recording procedures and interpretation of test results	29
5.1	Test of letter knowledge, phonetically regular words, initial and final blends, long and short vowels, digraphs	30
5.2	ESSI Reading and Spelling Tests	32
5.3	Burt Reading Test	32
5.4	Reading Comprehension Task	34
5.5	Sight Words: Sentence Dictation Test	34
5.6	Controlled free-writing task	34
5.7	Diagnostic Dictation Test	34
5.8	Rhyming Subtests	35
5.9	Auditory Blending Test	36
5.10	Test of Auditory Analysis Skills	37

## CHAPTER THREE

### RESULTS

1.	Tests assessing literacy development	39
1.1	Knowledge of names and sounds of letters of the alphabet	39
1.2	Oral reading of phonetically regular words	46
1.3	Oral reading of words containing consonant digraphs	48
1.4	Oral reading of words containing initial blends	52

1.5	Oral reading of words containing final blends	55
1.6	Oral reading of words containing long and short vowel sounds	58
1.7	Oral reading of words containing vowel digraphs	61
1.8	Oral reading of words containing vowel-consonant digraphs	63
1.9	Results of ESSI Reading and Spelling Tests	66
1.9.1	ESSI Reading Tests	66
1.9.2	ESSI Spelling Tests	67
1.9.3	Comparison of ESSI Grade 3 reading and spelling scores	69
1.10	Results of the Burt Reading Test	70
1.11	Results of the silent reading comprehension test	70
1.12	Results of the sentence dictation task (sight words)	72
1.13	Results of the controlled free-writing task	75
2.	Tests assessing phonological awareness	79
2.1	Diagnostic Dictation Test	79
2.2	The Auditory Blending Test	79
2.3	The TAAS Auditory Analysis Test	79
2.4	The PAT (Rhyming subtests: Discrimination and Production)	81
3.	Statistical analysis of the data	83
3.1	Interrelationships between the measures	83
3.2	Facility and discrimination indices	86
3.3	Factor analysis	88
3.4	Analysis of subject performance	90

## CHAPTER FOUR

### DISCUSSION

1.	Introduction	94
2.	Test assessing literacy development	94
2.1	Knowledge of the names and sounds of letters of the alphabet	94
2.2	Reading	97
2.3	Spelling and written work	100

3.	Tests assessing phonological awareness	102
4.	Relationship between literacy skills and phonological awareness	103
5.	Statistical analyses of the data	104
6.	Limitations of the present research	108
7.	Implications for future research	108
8.	Conclusions	109
<b>REFERENCES</b>		112
<b>APPENDICES</b>		125

University of Cape Town

## LIST OF TABLES

### CHAPTER TWO

<i>Table 1:</i>	<i>Mean stanine scores for the FSSI Spelling Tests</i>	22
<i>Table 2:</i>	<i>Equivalent age bands (EAB) for the Burt Word Reading Test</i>	33
<i>Table 3:</i>	<i>Interpretation of Raw Scores on the Roswell-Chall Auditory Blending Test</i>	37
<i>Table 4:</i>	<i>TAAS interpretation of raw scores</i>	38

### CHAPTER THREE

<i>Table 5:</i>	<i>Oral reading—knowledge of the sounds and names of the alphabet</i>	40
<i>Table 6:</i>	<i>Oral reading error analysis – letters of the alphabet (Letter confusions)</i>	42
<i>Table 7:</i>	<i>Oral reading error analysis – letters of the alphabet (Verbalisations, additions of sounds and refusals)</i>	44
<i>Table 8:</i>	<i>Oral reading of phonetically regular words</i>	47
<i>Table 9:</i>	<i>Oral reading error analysis – words containing consonant digraphs</i>	50
<i>Table 10:</i>	<i>Detailed error analysis – consonant digraphs</i>	51
<i>Table 11:</i>	<i>Oral reading error analysis – words containing initial blends</i>	54
<i>Table 12:</i>	<i>Oral reading error analysis – words containing final blends</i>	56
<i>Table 13:</i>	<i>Oral reading error analysis – words containing long and short vowels</i>	59
<i>Table 14:</i>	<i>Oral reading error analysis – words containing vowel digraphs</i>	62
<i>Table 15:</i>	<i>Oral reading error analysis – words containing vowel digraphs</i>	64
<i>Table 16:</i>	<i>Results of the FSSI Reading and Spelling Tests and the Burt Reading Test</i>	68
<i>Table 17:</i>	<i>Results of the silent reading comprehension test</i>	71
<i>Table 18a:</i>	<i>Results of the sentence dictation task (sight words) (Sentences 1, 2 and 3)</i>	73
<i>Table 18b:</i>	<i>Results of the sentence dictation task (sight words)</i>	73

	<i>(Sentences 4, 5 and 6)</i>	74
<i>Table 19a:</i>	<i>Controlled free-writing task (Pictures 1,2 and 3)</i>	76
<i>Table 19b:</i>	<i>Controlled free-writing task (Pictures 4, 5 and 6)</i>	77
<i>Table 20:</i>	<i>Hearing and recording sounds in words – Cluy's dictation task</i>	80
<i>Table 21:</i>	<i>Phonological awareness tests</i>	82
<i>Table 22:</i>	<i>Facility and discrimination values</i>	87
<i>Table 23:</i>	<i>Factor analysis: Eigenvalues</i>	89
<i>Table 24:</i>	<i>Factor matrix</i>	90
<i>Table 25:</i>	<i>Subject performance: Cluster averages on the 23 measures</i>	92

University of Cape Town

## LIST OF FIGURES

### CHAPTER THREE

Fig. 1:	Oral reading: subjects' knowledge of letter names and sounds	39
Fig. 2:	Oral reading: confusions between letters of the alphabet (group)	41
Fig. 3:	Oral reading: knowledge of phonetically regular words (group)	46
Fig. 4:	Subjects' knowledge of phonetically regular words	46
Fig. 5:	Oral reading: knowledge of consonant digraphs (group)	48
Fig. 6:	Oral reading: subjects' knowledge of consonant digraphs	49
Fig. 7:	Oral reading: knowledge of initial blends (group)	53
Fig. 8:	Oral reading: subjects' knowledge of initial blends	55
Fig. 9:	Oral reading: knowledge of final blends	55
Fig. 10:	Oral reading: subjects' knowledge of final blends	57
Fig. 11:	Oral reading: knowledge of long and short vowels (group)	58
Fig. 12:	Oral reading: subjects' knowledge of long and short vowels	60
Fig. 13:	Oral reading: knowledge of vowel digraphs (group)	61
Fig. 14:	Oral reading: subjects' knowledge of vowel digraphs	63
Fig. 15:	Oral reading: knowledge of vowel-consonant digraphs	65
Fig. 16:	Oral reading: subjects' knowledge of vowel-consonant digraphs	65
Fig. 17:	Oral reading: comparison of subjects' ESSI reading scores for Grades 1-3	67
Fig. 18:	Written spelling: comparison of subjects' ESSI spelling scores for Grades 1-3	67
Fig. 19:	Comparison of subjects' Grade 3 (second term) ESSI reading and spelling performance	69
Fig. 20:	Silent reading - comprehension test	72
Fig. 21:	Comparison of subjects' scores on the Roswell-Chall, TAAS and PAT tests	81
Fig. 22:	Tree diagram of the 23 test measures	84
Fig. 23:	Tree diagram of 19 subjects	91

## LIST OF APPENDICES

	Page
Appendix 1: Test of letter knowledge, phonetically regular words initial and final blends, long and short vowels, and digraphs	125
Appendix 2: ESSI Reading and Spelling Tests	127
Appendix 3: Burt Word Reading Test (New Zealand Revision)	129
Appendix 4: Comprehension Task	130
Appendix 5: Controlled free-writing task	131
Appendix 6: Clay's diagnostic test (Hearing sounds in words)	132
Appendix 7: PAT Rhyming subtests (Discrimination and Production)	133
Appendix 8: Roswell-Chall Auditory Blending Test	134
Appendix 9: TAAS (Test of Auditory Analysis Skills)	135
Appendix 10: Appendix 10: Intercorrelations between literacy skills and phonological awareness	136

## CHAPTER ONE

### 1. Introduction

During October and November 2004, the Western Cape Education Department (WCED) undertook a major study of Grade 3 learners to determine if there had been an improvement in literacy and numeracy performances since the last study in 2002. More than 34 000 Grade 3 pupils in 1 093 schools were assessed. A media press report released by the WCED on May 24 2005, stated that 39.5% of learners passed the literacy test at the Grade 3 level compared to 35.3% in 2002 (Witbooi, 2005). According to Witbooi, these results still fall far short of what is required from learners at this level and that there is “a need for greater coordination, monitoring and ongoing evaluation”.

The children in the present study are a group of nineteen Grade 3 Xhosa language speakers who were part of the WCED study mentioned above. They live in the Western Cape in an informal settlement consisting mainly of shack dwellings. The language of teaching and learning in the school they attend is English, which is introduced at the pre-school level. This approach to education means that right from the start the children learn everything through the medium of the English language, including how to read and write. This ‘straight-for-English’ model (Heugh, 2005a; Heugh, Siegruhn, & Pluddemann, 1995, p. viii; Macdonald, 2001, p. 68) is one in which speakers of languages other than English, begin and continue their schooling in English, which is usually a second or third language. According to class teachers at this particular school, children have had little or no experience of English before starting school and very few of them come from homes where books and reading are a part of life. At the time of this study, none of the teachers at the school were isiXhosa speakers; they were Afrikaans first language speakers who could also speak English.

The decision to choose English as the medium of instruction in the target school was made by the school principal and parents of children attending the school. This decision was made despite the fact that although the class teachers speak fluent Afrikaans and English, they are unable to communicate with the learners in their home language, isiXhosa. Xhosa is introduced as a subject in Grade 4; at the time of the study, the three Grade 4 classes at the school were unable to begin these lessons, as the school had been unable to find a teacher. The only teacher in the school who could speak isiXhosa was the 'support' teacher who came to the school a few hours a week to give small groups of children extra lessons in Mathematics and English. The strategy of 'code switching', switching between students' home language and the medium of instruction (Alidou and Brock-Utne, 2005), was therefore unavailable to the classroom teachers as a means to help the children understand what was being said in English and to encourage participation in classroom activities. The situation at this particular school suggests that literacy teaching and learning is hampered by serious communications problems faced daily by teachers and learners.

The scope of this dissertation excludes a discussion of the quality of teaching and method of literacy instruction. Although these are important variables in literacy acquisition, they are excluded in order to focus on how children in the target group read and spell. The researcher, a qualified remedial teacher, has a sound foundation in the techniques of using and interpreting the diagnostic and informal tests used in the research. Errors in oral reading, written language and comprehension skills of learners are categorised in order to identify problematic areas and to determine to what extent, if any, errors in reading and written language, made by Xhosa language speakers, can be linked to the phonological awareness of sounds in the English language. The concept of phonological awareness has been included because of the "near incontrovertible evidence" that links it to reading and spelling achievement (Stahl & Mckenna, 2000, p. 1), and because children learning English as a second (or third) language have typically been excluded from studies involving phonological awareness (Pijper, 2003; Stuart, 1999).

## 2. Language proficiency and literacy development

According to the Constitution of the Republic of South Africa, Act 106 of 1996, everyone has the right to receive a basic education in the official language of his or her choice in Public educational institutions, where that education is reasonably practicable. In most South African schools, however, the medium of instruction is English and indigenous languages are taught as subjects (Buthelezi, 2002; Kamper, Mahlobo, & Lemmer, 2003).

Research indicates that English language proficiency is seen as essential for general academic achievement, career prospects and successful functioning in a multilingual society (Buthelezi, 2002; Kamper et al., 2003; Mda, 2004). Parents are reluctant to move away from English as the language of learning and teaching as it is viewed as the 'language of opportunity'. Murray (2002, p. 438) notes that many parents in South Africa believe that the home language is learnt quite adequately at home and that it is the "job of the school to teach English".

According to Appel and Muysken (1987), when second-language learning is part of a process of language shift away from the first or 'home' language, 'subtractive bilingualism' results and the first language is in danger of being replaced by a national language. As a result of poor performances among learners, and a concern that the domination of English poses a possible threat to indigenous languages, there has been a change in attitude towards a wider appreciation and utilization of African languages (Buthelezi, 2002; De Klerk, 1995; Mda, 2004; Murray, 2002). According to de Klerk (1995, p. 56), overwhelming evidence from all over the world indicates that children need to develop advanced skills in their own language "before they can function academically in a second language, where this is a language of power, e.g. English". De Klerk argues that replacing the first language with English has never worked anywhere in helping children to achieve. Citing the *Threshold Project* research conducted by Carol Macdonald (1985 to 1990), as well as David Langhan's report on medium-of-instruction policies in African countries, de Klerk concludes that there is "not a single known case of successful straight-for-L2 policy on a national scale anywhere on the continent" (de Klerk, 1995, p. 56).

Heugh (2005a, p. 6) holds similar views on literacy development. She argues that “children cannot learn through a second language before they have developed sufficient proficiency or competence in this language to make this possible”. Language is the most important factor in the process of learning (Alidou & Brock-Utne, 2005; Brock-Utne & Holmarsdottir, 2004; Heugh, 2005a). According to these authors, we cannot expect children to acquire knowledge and skills when they are taught in a language they cannot understand. Their research indicates that a child will normally need 6-8 years of learning a language as a subject before it can be used as a medium of instruction. One cannot expect children to begin learning a new language and also to use this language as a medium of instruction at the same time; they will neither learn the new language well enough nor the other subjects taught through this language (Heugh, 2005b). Buthelezi (2002, p. 4) cites Lauglo, 2001, in stating that to teach basic literacy in a language other than the mother tongue is a “recipe for pedagogic disaster”. While not disputing the importance of the English language, Macdonald (2001, p. 70) argues that the most important reason why schooling is not effective for the majority of children in South Africa “is that most children have to *learn through a language other than their own*” (her emphasis).

Smith and Elley (1994) offer an explanation as to why language is critical to literacy development. Citing Clay (1991) and Well’s (1986) longitudinal study of children’s linguistic development, these authors explain that children who have not been active in exploring language will have difficulty in learning to read, and that “slow oral growth in the preschool years means slow reading growth at school” (Smith & Elley, 1994, p. 21). Two behaviours that enable teachers to judge whether a child has reached the “appropriate zone of proximal development for reading instruction” are the ability to carry on a sustained conversation and to retell a short story. Smith and Elley stress that until a child has an extensive oral vocabulary and can comprehend and generate continuous language, he or she is unlikely to make much progress in learning to read.

Murray (2002, p. 443) notes that “the issue of how children learn to read and write should be at the top of our research agenda, but recently it seems to have been eclipsed by concerns about multilingualism”. She argues that we should “not lose sight of the

important task of schools to teach children to read and write". According to Murray (p. 443), researchers should be taking into consideration the relationship between spoken and written varieties of languages in multilingual communities and the implication of this for "enlightening children".

### 3. Defining phonological awareness

Phonological awareness refers to the conscious awareness that spoken language is composed of smaller sound parts, such as words, syllables and 'phonemes', the smallest units of sound (Sensenbaugh, 1996). According to Adams, Foorman, Lundberg, and Beeler (1998), 'phonemes' refer to the small units of speech corresponding to letters of the alphabet. Fromkin, Rodman & Hyams (2003, p. 273) state that phonology is "the study of the ways in which speech sounds form systems and patterns", and that the term *phonology* is used in two ways: as the mental representation of linguistic knowledge, and as a description of this knowledge.

According to Sensenbaugh (1996, p. 1), the term 'phonological awareness' can be considered a broader term than 'phonemic awareness', and refers to an awareness that words consist of syllables, 'onsets and rimes', and phonemes. Nadler-Nir (1997, p. 1) cites several sources in noting that the terms phonological awareness and phonemic awareness have been applied interchangeably and that they refer to an "important metalinguistic skill that is highly predictive of achievement in the early stages of literacy acquisition".

Griffith and Olson (1992, p. 518) stress that "phonemic awareness is *not* synonymous with phonics...It is not learning spelling-to-sound correspondences...It is an understanding of the structure of *spoken* language" (their emphases). Adams (1990), an oft-cited source in the field of phonological awareness, uses the term 'phonemic awareness' almost exclusively. She identifies at least five different levels of phonemic awareness, which have been summarised as follows:

- The most primitive level – that measured by **knowledge of nursery rhymes** – involves nothing more than an ear for the sounds of words. Adams (1990, p. 79) cites earlier research that argues that early knowledge of nursery rhymes varied with the children's own IQs and their parents' education and social class. However, when each of these influences were accounted for, the researchers found that early knowledge of nursery rhymes was strongly related to the development of more abstract phonological skills and of emergent reading abilities.
- At the next level, the "**oddity tasks**" (Adams 1990, p. 76) require the child to compare and contrast the sounds of words for *rhyme* or *alliteration*; this requires not just sensitivity to similarities and differences in the overall sounds of words, but the ability to focus attention on the components of their sounds that make them similar or different. The child is presented with a set of three or four spoken words and asked which of the words is different or does not belong. Sometimes this decision is based on the first sounds of the words (e.g., *pig*, *hill*, *pin* or *give*, *pat*, *girl*, *go*). Sometimes children are asked to use the middle sound (e.g., *pin*, *gun*, *bun* or *bet*, *nut*, *get*, *let*).
- At the third level, the "**blending and syllable-splitting**" tasks (Adams 1990, p. 75) seem to require that the child have a comfortable familiarity with the notion that words can be subdivided into small, meaningless sounds corresponding to phonemes and also with the way phonemes sound when produced in isolation. In blending tasks, the tester provides the segments of the word (e.g., "m/.../a/.../p/") and the student is asked to put them together ("map").
- The "**phoneme segmentation**" tasks (Adams 1990, p. 67) require not only that the child have a thorough understanding that words can be analysed into a series of phonemes but that she or he be able to analyse them. The child must not only know that a syllable can be segmented into phonemes but, to do so, must also have a sufficient sense of what (and how big) phonemes are. Mastery of letter-to-sound correspondence is tested by a 'tapping task'. The test consists of a series of words or syllables, each composed of one to three phonemes. The child is given a wooden dowel stick and asked to tap out the number of phonemes in each syllable.

- The “**phoneme manipulation**” tasks (Adams 1990, p. 71) require still further that the child have sufficient proficiency with the phonemic structure of words that she or he be able to add, delete, or move any designated phoneme and regenerate a word (or a nonword) from the result. For example, children might be asked to say hill without the /h/, monkey without the /k/, nest without the /s/, or pink without the /k/. They may be asked to reorder the phonemes of a syllable or to add some extra phonemes to it.

According to Adams (1990, p. 81), the advantage of the most difficult of these tasks, phoneme manipulation and phoneme segmentation, is that they “yield remarkably strong predictions of and correlations with beginning reading acquisition”. The disadvantage of these tasks is that they are usually unattainable by children who have received no formal reading instruction; the skills they assess could therefore be “causes or merely effects of beginning reading”.

#### **4. Phonological awareness and literacy development**

By the mid 1980s there were several studies showing an association between phonological awareness and reading development (Berninger, Thalberg, DeBruyn, & Smith, 1987; Bradley, 1990; Stuart, 2005). Kjeldsen, Niemi and Olofsson (2003, p. 350) note that the discovery of the connection between phonological awareness and reading acquisition has been characterised as “one of the great successes of modern psychology”. According to these authors, the benefits of systematic phonological training upon reading and spelling skills are consistent across various Western European and North American languages. Ericson and Juliebo (1998) cite further researchers who have demonstrated that phonological awareness may be a reliable predictor of reading success. As Bialystok (2001, p. 165) notes, the attainment of phonological awareness is “the one predictor that has consistently proven to be effective in accounting for children’s early ability to read”.

Although many studies establish a causal link between phonological awareness and literacy development, it is less clear exactly how phonological awareness enables a child to read (Stahl & McKenna, 2000), or even the nature of the tasks used to measure it (Stuart, 2005; Sensenbaugh, 1996). Bradley and Bryant (1983, p. 419) argue that “children who are backward in reading are strikingly insensitive to rhyme and alliteration”. Bryant and Bradley (1985, 50) report that in comparison to other children, backward readers scored “between three and six times worse” in tests involving rhyme detection and production. Aro, Aro, Ahonen, Rasanen, Hietala, and Lyytinen (1999, p. 470) agree with these findings, noting that “awareness of large units such as rhymes would be an important predictor of reading skills in English”. Yopp (1988) grouped phonological awareness tasks into two major categories and identified roles for each in the development of children’s literacy. According to Bialystok (2001, p. 166), the ability to segment and manipulate the sounds of speech, as well as skill with rhyme, predict children’s initial progress in learning to read.

Bryant and Bradley (1985, p. 47) report that children as young as two-and-a-half-years old are capable of producing rhyming words, such as “eggs are deggs”, “enough-duff” and “more-bore”. These authors conclude that children dabble in rhymes, enjoy them and learn about the phonological structure of their language from them. Bradley (1990, p. 86) notes that “little children make up their own words to achieve rhyme in word play”, and that by doing so they practise the skill of analysing words into ‘onset’ and ‘rime’ units. Goswami (1993) defines onsets and rimes as units in spoken syllables that usually include more than one phoneme and that correspond to the graphemes represented by the initial consonant(s) (onset) and the vowels and final consonant(s) (rime) in written words. Goswami (1993, p. 444) reports that “while rimes are mandatory in syllables, onsets are optional: in the word *steel*, the onset corresponds to the grapheme cluster *st-*, and the rime to the graphemes cluster *-eel*; in the word *eel*, a single rime, there is no onset.” Goswami (1991, p. 1993) suggests that onset-rime knowledge enables children to read and spell new words and that they use patterns of known words, or *orthographic analogies*, to decode new words.

Stuart (2005, p. 46) provides a concise update on research into phonological awareness and relations between phonological awareness and reading. She acknowledges that there is consensus among researchers that the development of phonological skills “proceeds from awareness of large units (syllables, onsets and rimes) to awareness of smaller units (phonemes)”, but suggests that further research is needed to clarify other important issues. One of these issues is whether or not prior training in rhyme awareness facilitates phoneme awareness, “which remains an unexplored issue”. She concludes her summary by noting that “to dispirit us all”, a recent paper has suggested that even after thirty years of research, the hypothesis that phoneme awareness actually does influence the development of reading has not been adequately tested, and that it may be argued that phonics, not phonological awareness is what matters most (Stuart, 2005, p. 47).

Support for the importance of phonological awareness comes from a study by Adams et al., (1998), which provides a useful explanation of the possible causal link between literacy development and phonological awareness. These authors note that the realization that sounds are paired with letters, and that spoken language is made up of sequences of these sounds, does not come naturally or easily to human beings. According to these authors, babies become attuned to the phonemes of their *native language* in the first few months of life; sensitivity to sounds and the difference between them supports speech production and reception and is an unconscious activity deeply embedded in the language system. *Conscious* awareness of phonemes is distinct from this activity, however, and many children, especially those from literacy-poor backgrounds, will not achieve phonemic awareness without direct instructional support.

Adams (1990, p. 66) suggests that “deep and automatic encoding of phonemes is the product of the fact that we know them so well, that we have overlearned them even at a very tender age”. According to Adams, “We have so thoroughly automated, so thoroughly mechanised and sublimated, our processing of phonemes that we have attention and capacity for the higher-level meanings and nuances of spoken language”. Adams argues that there is almost no reason why we should pay phonemes conscious attention, unless we

need to learn to read in an alphabetic script: "And there is the rub. To learn an alphabetic script, we must learn to attend to that which we have not learned to attend to".

The significance of learning to read and write in 'alphabetic script' appears to be an important key in understanding the relationship between phonological awareness and literacy development. An alphabetic writing system is one in which there is a relationship between the letters in printed words and the sounds in spoken words (Treiman, Sotak, & Bowman, 2001). According to these authors, once someone has understood the 'alphabetic principle', they can produce "reasonable, if not always fully correct, spelling" and are able to read and decipher a large number of printed words (Treiman et al., p. 860). Stainthorp and Hughes (1999, p. 158) note that there is general agreement that in order to read and write in an alphabetic system, children need to have a good knowledge of the letters of the alphabet; this means being able to discriminate letters visually, name them and know the phonemes they most commonly represent, and that spelling requires that words be segmented into a sequence of phonemes that must be converted into a sequence of graphemes.

Developing readers and spellers must learn to separate the units of speech that are represented by the letters of the alphabet. Differences between the sounds of two phonemes are often very subtle: /b/ and /p/ for example, are very similar in sound, yet can have obvious differences in meaning, as in the words *peg* and *beg*. French, Ellsworth & Amoroso (1995, p. 32), argue that "insensitivity to phoneme sounds" underlies many of the difficulties encountered by poor spellers as well as readers.

Treiman et al. (2001, p. 860) claim that the acquisition of an alphabet system "unfolds in a sequence of stages" and that each stage is "characterised by a particular strategy". Earlier strategies are replaced by more advanced ones as a child progresses. In her discussion of stage models, Nadler-Nir (1997) stresses that children need specific skills at each stage of literacy development or their progress to the next stage will be hampered.

The first stages of literacy development are often called the *prealphabetic* or *logographic stages* and coincide with the development of expressive and receptive language (Treiman

et al., 2001; Nadler-Nir 1997). During this stage, children are unable to take advantage of the systematic relationship between sounds and letters. They rely instead on salient visual attributes of words, such as the 'tail' on the *g* of the word *dog*. One of the children in a study cited by Treiman et al. (2001, p. 860) misread the word *smaller* as "yellow" because of the presence of the "two sticks". According to these authors, children may rely on this reading strategy for some time, especially if they are not explicitly taught how to associate letters and sounds.

During the *partial alphabetic stage*, children begin to form connections between the sounds in spoken words and the letters in printed words (Treiman et al., 2001). The print-to-sound connection is incomplete at this stage. Treiman et al., (2001, p. 860) give the example of a child who may link the *d* of *dish* to the /d/ in the word's pronunciation, but may be unable to relate the remaining letters to phonemes. With experience, the 'print-to-sound' connections become more complete and the child enters what Ehri (1998) calls the *full alphabetic phase*. At this stage all, or almost all of the letters in the written form of a word are linked to the phonemes in its pronunciation. Nadler-Nir (1997, p. 12) stresses that children with poorly developed phonological awareness skills will have difficulty segmenting initial sounds in words and remembering letter-sound relationships. According to her, "they will have to rely on a logographic reading strategy i.e. a rote association between the way a word looks and the way it sounds".

Fromkin, et al., (2003, p. 274) note that a speaker's phonological knowledge includes information about what sound combinations are possible in a language. They explain that native English speakers know that the final sound of the word *ring* cannot occur at the beginning of a word because the phonology of English does not allow the sound in that position. Similarly, these speakers know that certain sound combinations, such as *bn*, are not possible at the beginning of a word, and that *riip* is an impossible word. Words that do not conform to the sound pattern of English are generally difficult to pronounce, but speakers of languages in which these same words do conform to the sound pattern have no difficulty producing them. Fromkin et al., (2003) note that these activities usually takes place at an unconscious level, and are based on the pronunciation patterns that are part of

the grammar of a language. These authors also stress that from the perspective of language acquisition, children who are 'native English speakers' unconsciously know these phonological rules and that these rules are not rules "that someone teaches you in school or that you must obey because someone insists on it" (Fromkin et al., 2003, p. 278).

In South Africa, there is a need for information regarding the relationship that exists between phonological awareness and spelling and reading abilities in children who are not 'native English speakers'. Previous research in South Africa on this topic includes studies by Nadler-Nir (1997) and Pijper (2003). Both researchers are speech-language therapists.

Findings in the Nadler-Nir (1997) and Pijper (2003) studies support international findings regarding the relationship between phonological awareness and performance on reading and spelling measures. According to Nadler-Nir (1997, p. 98), "phonological awareness is a real, trainable construct which is intimately linked to the process of becoming literate". Both studies advocate providing children with phonological awareness training within the first six months of Grade One. Pijper (2003, p. 87) stresses that speech-language therapists have "an increasingly important role to play in the educational context of the New South Africa". She also advocates greater collaboration "with educators and other specialists to help the learner with spelling and reading problems" (Pijper, 2003, p. 87). Nadler-Nir (1997, p. 99) notes that resources at less advantaged schools are limited, and that not all children who need intervention will receive help; she advocates "group phonological awareness training" which has the potential for saving the education system time and money.

The subjects in Nadler-Nir's (1997) study were disadvantaged children from Mitchell's Plain who spoke English as their main language; Pijper's (2003) study, conducted in the Pretoria area, included subjects who were required to have a language other than English as their home language. These 'other languages' included one or two subjects in each language group who spoke French, Chinese, Arabic, Afrikaans, Setswana, Tswana, Sotho or Northern Sotho. Neither of these researchers worked with isiXhosa speakers.

## 5. Phonological awareness and the emergent literacy model

Teale and Sulzby (1986, p. vi) use the term '*emergent literacy*' to depict and unify research results following a planning conference that had been conceptualised and funded by the National Institute of Education (USA) in June 1977. This perspective represents what they consider a 'paradigm shift' in that "we are now 'seeing' reading in toddlers' exploration with picture books and 'seeing' writing in their scribbles" (Teal & Sulzby, 1986, p. vii, viii). Knowledge and understanding of emergent literacy is seen as the first step in achieving the much-needed shift from "school-readiness" thinking to a view of children and literacy development that is based on sound, credible theories (Bloch, 1997; Prinsloo & Bloch, 1999; Hannon, 1995; Teale & Sulzby, 1986).

Teale & Sulzby (1986, p. xviii) explain that the term *emergent literacy* was carefully chosen to emphasise that literacy development begins early in life and involves ongoing psycholinguistic processes, and also to emphasize the dynamic relationship between reading and writing skills. The child develops as a 'writer/reader' and it is a misconception that one precedes the other. The process of learning to read is not dependent on special instruction, and reading is considered to be a natural consequence of the child's use of language. This approach builds on the work of Goodman (1986) and embraces many of the concepts embedded in the whole-language approach to literacy development. The latter approach suggests that children learn to read just as they learn to talk, through "constant interaction with family, friends and teachers" (Fromkin et al., 2003, p. 561).

Emergent literacy requires that there is a social context that supports literacy development; children learn written language through active engagement with their world, particularly through play and language interaction with adults. According to Bialystok (2001), studies have left no doubt that family support and early exposure to literacy have profound influence on the child's development of literacy skills. Clay (1972, p. 17) notes that the "most valuable preschool preparation for school learning is to love books" and that reading to preschoolers and the availability of pencils and paper in the home, teaches children the value and function of print.

In a multi-cultural society such as South Africa, we have to be sensitive to the different types of literacy experiences that children bring with them when they first enter school. Nadler-Nir (1997) stresses that the development of emergent literacy necessitates an environment that contains books and literate parents. Citing wider research, Nadler-Nir (1997, p. 9) notes that because phonological awareness skills are so closely linked to literacy development, children from lower socio-economic groups in South Africa have poorer phonological awareness than children from more advantaged communities. Studies conducted in the Cape Town area support the view that learning a language is related to opportunities of speaking that language in the home and play environments, the levels of proficiency of both parents, and reading of books in the target language (Allen, 2003a; 2003b).

Although literature-rich activities and a supportive environment are prerequisites for emergent literacy, they do not guarantee the development of phonological awareness. Gee (1998, p. 8) acknowledges that when children “fail to make good progress in learning to read and write”, they “need help, the quicker, the better”. The help he suggests is Clay’s 1993 Reading Recovery Programme, which incorporates aspects of both phonics and whole language approaches. According to Clay, the specialised teaching techniques she describes are only for children making slower progress than their peers (Smith & Elley, 1994, p. 133).

According to Sensenbaugh (1996, p. 2), whole-language advocates, ‘phonics first’ and even ‘phonics only’ supporters need to admit that not all children develop this necessary ability simply through immersion in a print-rich environment, and that some children will need direct instruction in phonological awareness. Similar views are held by Pumfrey (1991, p. 73), who notes that “serious and prolonged difficulties in reading will almost certainly require intensive and long-term professional support”. Pretorius (2002, p. 98) argues that in the South African learning context, reading problems of ESL (English as second language) learners do not go away if left unattended, and that “the gap between skilled and unskilled readers usually widens as students move up the educational ladder”.

## 6. Second language learning and phonological awareness

According to Bialystok (2001, p. 230) it takes most children 4 to 7 years to attain grade norms in English academic skills. According to her, there is little evidence to support the conjecture that bilingual children establish higher levels of sound awareness by virtue of speaking two languages. Bialystok concludes that the importance of phonological awareness might not be immediately evident in young children who already speak two languages, but that it may do so when children learn a second language. She cites several studies that offer support for this possibility. The children in these studies were native speakers of Spanish and were learning to read in English, their second language. These researchers concluded that the children's levels of phonological awareness and word recognition in Spanish predicted levels of word recognition in English, the second language, and that phonological awareness skills developed in one language transferred to reading ability in another language (Bialystok, 2001, p. 170).

The perceptual processes involved in second language listening form a major consideration in the present study. Two issues need to be addressed in this regard. How well do the isiXhosa learners *perceive* the pronunciation of native English speakers? And how do difficulties in pronunciation of English impact on their literacy development? Tench (2003, p. 147) refers to these perceptual processes as "receptive and productive phonological interlanguage". According to Tench, "errors in decoding in hearing" result from errors in the perception of the phonological composition of words. Similar views are held by Field (2003, p. 325), who suggests that we need to be concerned with "what English sounds like to the non-native listener" and with features that cause obstacles to understanding. Field suggests that a breakdown in understanding can occur at the phonemic, lexical or syntactic levels, but that 'lexical segmentation', or the identification of words in connected speech, is the most common cause of misunderstanding among second-language learners. He notes that "determining where word boundaries fall is a greater problem for the non-native listener than is generally recognised". Field (2003, p. 325) gives the example of a second-language listener who hears "I won't go to London" as "I want to go to London" as a result of a small error based on phoneme discrimination.

## 7. The Xhosa language

Xhosa is one of the Bantu languages comprising the Nguni cluster of languages belonging to the Niger-Congo family (Mesthrie, 2002). It is the second largest indigenous black language in South Africa (de Klerk, 2003), and is one of the eleven official languages of this country. According to Branford and Claughton (2002), Xhosa, like many of the indigenous languages of southern Africa, has borrowed extensively from Afrikaans and English; it is unusual, however, in that words of Khoesan origin also constitute a large proportion of the Xhosa vocabulary. It is estimated that at least one-sixth of Xhosa words start with a click (Branford & Claughton, 2002; Herbert, 2002). These click consonants have been incorporated within the phonological system and “exhibit a three-way opposition: dental [ʘ], (pre) palatal [ǀ] and lateral [ǁ]” (Herbert, 2002, p. 299). The clicks are articulated in various manners: plain, breathy, aspirated, and nasalised.

## 8. Black South African English (BSAE)

Black South African English (BSAE) is a variety of English commonly used by mother-tongue speakers of South Africa's indigenous African languages in areas where English is not the language of the majority (de Klerk & Gough, 2002, p. 356). De Klerk (2002, p. 25) stresses that there are nine different indigenous Black languages, as well as a number of dialects in South Africa and although these languages share some characteristics the language groups themselves differ quite considerably.

De Klerk (2002, p. 25) notes that BSAE is also usually referred to as a ‘new’ English and that restricted contact with native-speaker norms has resulted in certain characteristic patterns of pronunciation and syntax. Mesthrie (1999, p. 5) argues that differences in syntax and accent do not necessarily occur because speakers have not mastered a standard construction or pronunciation; these differences are “instances of blending in with the local (linguistic) ecology”, a “feature of style”. “In needing to sound like English (a

language which satisfies the need for communication outside one's home), and in needing to sound local, a synthesis between target language (TL) and mother tongue phonetics is desirable" (Mesthrie, 1999, p. 7).

According to de Klerk & Gough (2002, p. 360) the phonology of BSAE deviates from sE (standard English) in many ways:

A. Vowels:

1. The vowels in words such as STRUT, BATH and PALM tend to be merged to /a/.
2. The vowels in TRAP, DRESS and NURSE tend to be merged to /e/.
3. The vowel in the set LOT and THOUGHT is /o/.
4. The contrast between long and short vowels may be lost, so that the vowels in FLEECE and KIT may both be /i/. The vowels in FOOT and GOOSE may both be /u/.
5. Among the diphthongs, the vowels in PRICE, MOUTH and CHOICE may be extended over two syllables, giving [aji], [awu] and [oji] respectively.
6. The monophthongs [e] and [o], raised allophones in Nguni, may be used as the vowels for FACE and COAT.
7. As stress is non-phonemic in Bantu languages, schwa tends to be realised as a full vowel (typically /a/ as in *mother*, but it may also take on spelling pronunciations as in /e/ for *seventy*).

B. Consonants:

1. The only English phonemes lacking in local African language consonantal systems are /ð/ and /θ/. These are typically pronounced as dental or alveolar stops [d] and [t].
2. The /r/ sound is trilled (as opposed to an approximant).
3. Stops appear to have a later voice onset time in comparison to white South African English (WSAE), and may also tend to be devoiced in word-final position. This may result in voiced stops being perceived as voiceless.

De Klerk and Gough (2002, p. 360) cite Jacobs (1994), who claims that the cumulative effect of the above consonantal and vowel features “is an increase in homophony and a fairly drastic decrease in intelligibility” when English is spoken. These authors also cite Wright (1996), who notes that these characteristics (tracable to the mother tongue) have become established as norms of spoken BSAE, “with consequential lowering of levels of comprehensibility” (p. 360). According to de Klerk and Gough (2002, p. 361), tone, stress and intonation also appear to affect the intelligibility of BSAE. Word stress is very often on the penultimate syllable, “following the phonological rule in Bantu languages where this syllable is lengthened”. Examples given by de Klerk and Gough are *se'venty*, *hospi'tality* and *cig'arette* (with a resultant full vowel rather than schwa). These authors note that their experience with BSAE-speaking students of linguistics indicates “a very marginal ability to assign native-speaker stress patterns to words” (de Klerk & Gough, 2002, p. 361).

De Klerk and Gough (2002) argue that BSAE leans towards syllable rather than stress timing, probably as a result of native-language prosodic patterns. They note that “there is very little vowel reduction in connected speech as such, tone groups tend to very short and phonological prominence is far more common than in WSAE” (de Klerk & Gough, 2002, p. 361). These authors demonstrate these features as follows: I think that *MAYbe*//*SOME* of the *PEOPLE* are *comPLAINing*// about that *SECTION*. [KEY: // - tone group boundary; CAPS- prominence; CAPS and italic - focal prominence].

## CHAPTER TWO

### METHODOLOGY

#### 1. Introduction

A battery of standardised and informal tests was used to assess the literacy development and phonological awareness skills of 19 isiXhosa speaking Grade 3 learners, who are being taught through the medium of English. Profiles of test scores were used to indicate strengths and weaknesses in individual and group performances on these tests. A 'profile' is a set of different measures of an individual or group, each of which is expressed in the same unit of measurement, such as percentiles, ranks and standard scores (Kerlinger, 1986). Profiles have been widely used in education settings to indicate a student's performance on a set of test scores such as reading and writing (Ding, 2001).

There is no absolute agreement about the term 'phonological awareness' or the means of measuring it (Muter, Hulme, Snowling, & Taylor, 1997; Stainthorp & Hughes, 1999). The phonological tasks presented to the subjects in the present study fall along a continuum of development, judged by various researchers as ranging from shallow to deep (see Chapter One).

For the purpose of this study, the stage model of reading is adopted (Muter, Snowling, & Taylor, 1994; Stahl & Murray, 1998). In the earliest stage of reading development, children rely on context and on partial visual features of a word; they then emerge into the alphabetic or phonetic stage of reading development and are able to apply sequential grapheme to phoneme correspondence rules; the final orthographic or morphemic stage is reached when children develop a reading vocabulary by applying rules and a knowledge of pronunciation of complex orthographic sequences. According to this model, there are two possible ways of reading a word. If a word is familiar, it will be accessed directly since the letters in the words

are represented in the mental lexicon of the reader; if a word is unfamiliar, and there is no orthographic representation in the mental lexicon, the strategy adopted by the reader is more complex. According to Muter et al., (1994, p. 293), “the alternative strategy is by indirect access in which the letter identities of a printed word are first segmented into graphemes, after which a phonological representation is assembled by applying grapheme to phoneme correspondence rules”.

## 2. Aims

The aims of the research are:

1. To determine the relationship that exists between the phonological awareness skills of third grade isiXhosa speakers and their levels of literacy development, with special reference to reading and spelling in English. As far as can be established, previous research has not examined this relationship in isiXhosa learners in an English-medium education setting.

In order to realise the main aim, the following sub-aims were formulated:

2. To determine individual levels of reading and spelling abilities using standardised and non-standardised tests.
3. To determine the phonological awareness abilities of individual learners.
4. To determine whether successful recognition of letter sounds and names (as used in the English language) and phonological awareness is predictive of literacy performance.

5. To determine, by conducting an in-depth error analysis of the mistakes made by individual learners, which areas cause problems in literacy development. Some of the areas examined include: vowels and consonants, consonant and vowel digraphs, initial and final blends, reversal and rotation of letters, transposition of letters, omission and addition of letters, phonetic spelling, and knowledge of spelling rules.

### **3. Subjects**

The subjects were 19 Grade 3 learners, 12 females and 7 males, from a primary school in Hout Bay. Their ages ranged from 8.2 to 12.8 years (mean age 9.6 years). They spoke isiXhosa as their main language. The children had no apparent hearing, articulation, visual, physical or emotional abnormalities. All subjects had been at this school for at least a year. Interviews with the school principal and class teacher indicated that the school had limited financial resources and that the children were from disadvantaged backgrounds. All the subjects reside in the nearby informal settlement, which consists mainly of shack dwellings. Nadler-Nir (1997) reports that research in South Africa and in Australia has demonstrated strong socio-economic status differences in phonological awareness, indicating a need to control this variable. In view of these research findings, a relatively homogeneous group in terms of socio-economic and educational background was selected for the present study.

#### **3.1 Procedure for subject selection**

Only isiXhosa speakers who had spent at least one full year at the school were considered for the study. In order to select a homogeneous group, the following groups were excluded from the study:

- Children from the Coloured community whose home language was Afrikaans.

- Children from Malawi and other African countries.
- Children who attended the 'support' class for remedial tuition.

The ESSI Grades 1, 2 and 3 (2<sup>nd</sup> term) Spelling Tests were then administered to 66 selected learners in the three Grade 3 classes. Results of these tests indicated that in one class 77% of learners scored below a stanine of 3 on the Grade 3 (2<sup>nd</sup> term) spelling test; in another, this figure was 72% and in the third class 36,8%. As seen in Table 1, the average stanines for the three classes were 1.9, 2.2 and 2.7 respectively. Only one child in Class A scored a stanine of 5 (the highest stanine scored in this class) for the Grade 2 test; in Class B, one child scored a stanine of 5 and another scored a 6 (the highest stanine scored in this class). In Class C, one child scored a stanine of 5 and three scored stanines of 6 at the Grade 2 level.

*Table 1*

*Mean stanine scores for the ESSI Spelling Tests*

Class	Grade 3			Subjects
	Grade 1	Grade 2	Grade 2 <sup>nd</sup> term	
Class A	3.2	1.9	1.9	22
Class B	4.6	2.0	2.2	25
Class C	5.1	2.7	2.7	19
Group average	4.2	2.2	2.3	n=66

In order to minimize disruption to the school during the testing procedure, it was decided to select a group of children from one of the three classes, instead of all three. Based on the results of the ESSI Spelling Tests, it was decided to use the learners in Class C as the research

subjects. Although their over-all results were also weak, more children in this class attempted to spell words while writing the tests, making an analysis of their errors more meaningful.

#### **4. Data collection**

A number of normative and criterion-referenced tests were employed in order to examine the literacy and phonological awareness skills of the subjects. A description of the tests, and the motivation for their inclusion, is given below.

##### **4.1 Test of letter knowledge, phonetically regular words, initial and final blends, long and short vowels, digraphs (See Appendix 1)**

An informal test containing sets of letters and words representing different sound-symbol relationships was used to assess the subject's knowledge of sound/symbol correspondence.

Learning to read an alphabetic writing system involves the ability to assign phonemes to individual graphemes (Ehri, 1998; Gattuso, Smith & Treiman, 1991; Goswami, 1998; Siegel, 1998). Ehri (1998, p.13) defines graphemes as "functional letter units symbolising phonemes". Goswami (1998, p. 79) refutes Adams', 1990, claim that knowledge of the alphabet is separate from phonological knowledge, and insists that "alphabet knowledge seems to precede the simplest level of phonological awareness". Ehri (1998) and Goulandris and Snowling (1995) agree, noting that knowledge of individual letters is important for beginner readers, but that further reading and spelling development requires knowledge of groups of letters, such as the *th*, *sh*, *ch*, *ea*, and *ow* digraphs. Knowledge of short vowels (for example, the sound of *i* in *pin*, and the *u* in *plum*), consonant blends (*bl*, *pr*, *sw*, *spr* etc.) or vowel digraphs (*oa*, *ow*, *ee*, *ea*, *au*, *aw*, *ew* etc.), may also be incomplete in readers who have "poor sublexical processing skills" (Goulandris & Snowling, 1995, p. 110). Based on these research findings, the tests used in the present study are considered to have criterion related validity.

#### 4.2 ESSI Reading and Spelling Tests (See Appendix 2)

These tests were used to assess the oral reading and written spelling abilities of the research subjects. Esterhuyse (1997) developed this test for South African children from former model C schools. A list of 20 to 25 single reading and spelling words is provided for each grade from grade 1 to grade 7. According to the Test Manual, the rationale for these tests is based on the assumption that learners' ability to read and write is a valid criterion for their achievement levels in school subjects and more specifically in language subjects (Esterhuyse 1997, p. 1). A further assumption made by Esterhuyse is that learners who experience reading or spelling problems at school also tend to experience learning problems, which impede their subsequent achievement and scholastic progress. To be an effective reader, a learner must be able to recognize a word quickly – this is known as the sight word vocabulary of the reader. The aim of the screening tests is to determine the appropriate *word grade list* for a given learner.

#### 4.3 Burt Word Reading Test (See Appendix 3)

The Burt Word Reading Test (1981, New Zealand Revision) is a standardized test and is an individually administered measure of a child's word recognition skills. The test consists of 110 words printed in differing sizes of type and graded in order of difficulty. The child reads as many words as he can and continues until ten consecutive words are read incorrectly. The test assists teachers in estimating a child's reading achievements. The authors of this test emphasize that word recognition is only one aspect of the reading process, and that successful reading involves achievement in a number of areas such as comprehension, vocabulary and speed of reading as well as word recognition.

#### 4.4 Reading Comprehension Task (See Appendix 4)

A passage entitled 'Soccer', consisting of six short sentences, accompanied by a picture of a small boy playing soccer, was chosen to test the learners' ability to comprehend sentences written in English. The passage was chosen from a book of stories for reading comprehension for grades 2-3 'beginner readers' (Frank Schaffer Publications, 1980, p.13). The text was available to the learners to refer to during the test and they were not asked to answer the questions from memory. The questions tapped information that was explicitly stated in the story.

According to Bowyer-Crane and Snowling (2005, p. 190), the goal of reading is *understanding*, "a process that goes beyond decoding" and one that involves comprehension processes at the word, sentence and text levels. Although the questions that accompanied the 'Soccer' passage could be answered on the basis of literal information provided, comprehension of the text still depended on what Bowyer-Crane and Snowling (2005, p. 192) refer to as "cohesive inferences", which rely on linguistic cues present in the text, such as anaphora and pronoun resolution. Yule (1997, p. 130) defines anaphora as "subsequent reference to an already introduced entity". For example, in order to form a coherent representation of the sentence 'He has played for two years', learners would need to infer that 'he' refers to the word 'Bob' in the first sentence. Similarly, understanding of the sentence 'They play games on Thursdays' requires an understanding of the referential relationship between the words 'the team' and 'they'. Bowyer-Crane and Snowling (2005) argue that children with difficulties in reading comprehension have a poorer understanding of anaphoric devices than skilled readers do.

#### 4.5 Sight Words: Sentence Dictation Test

According to Rudginsky and Haskell (1997), sight (learned) words are words that cannot be sounded out. According to these authors, very often students are able to spell words correctly when the words are dictated in a list, but misspell them when they write them in sentences.

Many of these words are commonly used in writing and are likely to be used by children as they write, 'regardless of differing socio-economic status, race, and ability levels' (Graham, Harris & Loynachan 1994, p. 210). Research indicates that instruction in the spelling of high-frequency words also increases the ability to recognise these words (Dulaney, 1987).

The following sentences, chosen from Rudginsky and Haskell's (1997, p. 33) 'Sight Word List I' were dictated to the learners: The sight words are in italics.

- *Come and have some of your milk.*
- *Do not go there again.*
- *Does he want any of these books?*
- *She goes there many times.*
- *What was she doing?*
- *Where were you?*

The sentences contain 23 different sight words. The words *come, of, do, go, he, she, was,* and *you* are included in the Graham et al. (1994, p. 213) 'Grade 1 Word List' of seventy-seven words. The words *have, your, there, want, any, goes, many, what,* and *doing* are included in their list of 160 words in the 'Grade 2 Word List'; *again* and *where* are included in the list of 98 words in the 'Grade 3 Word List'.

#### 4.6 Controlled free-writing task (See Appendix 5)

The free-writing task, adapted from the Literacy Learning Programme Series, "English at Home, Grade 2" (Swanepoel, 1998, p. 28), was used to evaluate the expressive written language skills of the subjects. The focus of the 'free-writing' activity is on the free flow of ideas and the communication of meaning (Clarence-Fincham, Hart, Inglis & Jackson, 2002). According to Lerner (1981, p. 343) the ability to write down ideas requires many prerequisite skills, such as "facility in oral language, ability to read, some skills in spelling, a legible handwriting, and some knowledge of the rules of written language."

This particular series of pictures was chosen because they represent everyday activities the research subjects might be familiar with - the daily routine of getting up in the morning, dressing, eating and going off to school.

#### 4.7 Diagnostic Dictation Test (See Appendix 6)

Clay's (1985, p. 38) dictation test indicates a child's ability "to go from the analysis of sounds in spoken words to written forms for representing these sounds". This task identifies a child's ability to hear phonemes in words, and should not be confused with conventional dictation tests that evaluate spelling skills. Credit is given for every phoneme that is written correctly, even though the word may not be correct. Scores give some indication of the child's ability to analyse the sounds in words he hears, and to decide which are the most appropriate letters to use to represent these sounds. For this reason, Clay does not regard this as either "a true dictation or spelling test" (Clay 1985, p. 38).

#### **4.8 Rhyming Subtests (See Appendix 7)**

The Rhyming Subtest consists of two tasks, Discrimination and Production. These tasks are part of The Phonological Awareness Test (Robertson & Salter, 1997). The Discrimination task measures the ability to identify rhyming words presented in pairs. The Production task assesses the ability to provide a rhyming word when given a stimulus word. The importance of rhyming has been discussed in detail in Chapter One. The Phonological Awareness Test was designed to be administered to children between the ages of 5 years, 0 months and 9 years, 11 months. According to the test manual, the test may be administered to children older than 9 years as it provides useful information for planning instructional programmes to meet these individuals' needs.

#### **4.9 Auditory Blending Test (See Appendix 8)**

This test, developed by Roswell-Chall (1997), is used to evaluate a child's ability to blend sounds to form words when the sound is presented orally. According to the test manual, this test gives an estimate of a student's ability to blend sounds into whole words even if the student has not yet learnt to associate the sounds with the corresponding letters. Roswell and Chall note that the test is particularly useful for judging the ease or difficulty with which students will learn phonics. The authors suggest that the test be used in Grades 1 through 4, and for older students who are still having problems with word recognition and analysis skills.

#### **4.10 Test of Auditory Analysis Skills (See Appendix 9)**

The Test of Auditory Analysis Skills (TAAS) assesses the ability to delete a syllable or sound from a word. According to Rosner (1975, p. 71), the TAAS was designed to provide a way of testing a child's auditory skills, but also "to identify goals for teaching these skills". Auditory

perceptual skills are important for at least two reasons: they enable a child to receive and recall oral communication effectively and they make it possible for a child to be aware of individual sounds that are represented by letters – a skill necessary for learning to read and spell (Rosner, 1975, p. 77).

Foorman and Liberman (1989) note that good readers score significantly higher on the TAAS than poor readers. These authors also report a significant correlation between TAAS scores and the number of regular words spelled correctly. Gattuso et al. (1991) report similar findings. According to these authors, one of the reasons children have difficulty learning to read an alphabetic writing system is because they have difficulty segmenting spoken language into phonemes.

## **5. Recording procedures and interpretation of test results**

Testing took place towards the end of the second school term, over a period of three weeks. The researcher personally administered and scored all the tests. Results were interpreted by using error analysis techniques and statistical analysis of the results.

The following formal and informal tests were administered to the research group as a whole:

- ESSI Spelling Tests
- The Reading Comprehension Task
- Controlled free-writing task
- Diagnostic Dictation Test
- Sight Word Test

Testing was conducted in a classroom, with one child seated to a desk. Desks were arranged in such a way that learners were unable to copy from each other. Posters and charts were

removed from the walls so that children were not distracted during the testing, or able to copy information from them. The researcher provided pencils for the children to use.

The following formal and informal tests were administered individually:

- Tests of letter knowledge, phonetically regular words, initial and final blends, long and short vowels and digraphs.
- ESSI Reading Tests
- Burt Word Reading Test
- The Phonological Awareness Test: Rhyming Subtests – Discrimination and Production
- Roswell-Chall Auditory Blending Test
- Rosner Test of Auditory Analysis Skills (TAAS)

#### **5.1 Test of letter knowledge, phonetically regular words, initial and final blends, long and short vowels, digraphs (See Appendix 1)**

The names of the letters, and the sounds they make, were tested separately. A child received a score of one point for each letter name and each letter sound correctly identified. In the Nadler-Nir study (1997), a child received a score of one for each letter identified, regardless of whether the letter name or sound was given. Simpson and Everatt (2005) report that the same procedure is used in the Dyslexia Early Screening Test, which allows a correct response to be the name *or* sound of the letter. Simpson and Everatt suggest that this may mean that a lack of knowledge of letter sounds or names might be masked by knowledge of the alternative correct response. Similar views are held by Bradley (1990, p. 97) who states that “several studies have shown that a young child’s skill at rhymes together with knowledge of letter names accounts for an appreciable amount of variance in later reading skills”.

In the present study, the alphabet was displayed in front of the child. The examiner then pointed to the first letter, and asked, “Do you know what this is ?” If the child responded by

giving the *name* of the letter, the response was, "Yes, that is right. That is the name of this letter. If you say the alphabet aloud, that is what you will hear when you come to this letter. Listen..." (In the event of the *sound* of the letter being given first, the test proceeded as described, continuing with all the sounds of the letters first.) The examiner then proceeded to give random examples of names of the letters of the alphabet. The examiner then pointed to the next letter on the sheet and said, "What is the name of this letter?" If the response was incorrect (that is, the sound of the letter was given), further examples of letter names were provided. If the child was able to give the names of all the letters presented, the examiner then pointed to the first letter again and asked, "You said the name of this letter just now, do you know what *sound* it makes? If the child was confused, random examples of letter sounds were given.

If the child immediately responded by giving *both* the sound and the name of the letter presented, the test proceeded in a similar manner, with the child supplying both the name and the sound of a letter before proceeding to the next item. The child received a score of one for giving the name of a letter, and for the sound of the letter. The maximum number of points was 50 (the letter *z* was omitted, in error, on the original test sheet).

The procedure for testing phonetically regular words, and words containing blends, digraphs, long and short vowels, was simpler. The examiner pointed to the target word and asked the subject, "Can you read this word?" The subject was allowed to try for as long as (s)he wished. A score of one was given for a correct response. The maximum score for each section is as follows: phonetically regular words (15), consonant digraphs (12), initial blends (21), final blends (12), long and short vowels (16), vowel digraphs (12), and vowel-consonant digraphs (12).

## **5.2 ESSI Reading and Spelling Tests (See Appendix 2)**

The Grade 1 reading words were placed in front of a learner. A loose sheet of paper was used to ensure that only one word was visible at a time, according to instructions outlined in the manual (Estehuyse & Benkes, 1997, p. 4). Pointing to the first word the examiner said, "I want you to read a few words for me. Some words are easy, but others are more difficult. Don't worry if you can't read them all, just do your best". The learner was allowed to read the words one-by-one while he/she moved the loose sheet of paper downwards. The reading of a specific list of words was terminated if the learner had made 6 or 7 consecutive failures. Whenever possible, the learner was encouraged to continue reading the words, even though mistakes were made. According to the Manual, "the tester may allow as many words to be read as deemed necessary, should further information be required for more comprehensive qualitative evaluation" (Estehuyse 1997, p. 5).

The spelling tests were administered to the learners in a group situation. The words in the grades 1, 2 and 3 spelling lists were read according to the instruction in the Manual. One mark was allocated for a correct response and zero for an incorrect one. All correct responses were summated to determine the individual learner's raw scores for spelling and reading. The raw scores were then converted into stanines and percentile ranks by using the appropriate norm tables.

## **5.3 Burt Word Reading Test (See Appendix 3)**

The test was administered to one child at a time, in accordance with the instructions in the test manual. The test is untimed and the child is permitted sufficient time to analyse the words and to make 'trial' responses. Gilmore et al., (1981) note that some children who are very slow readers show an ability to analyse and synthesize words if given enough time. These authors also suggest that this test should be considered as providing an estimate of word recognition

skills and that it is inaccurate to refer to a derived score on the test as a 'reading age' (Gilmore et al., 1981, p. 3). The manual states repeatedly that reading is a complex set of skills and that the test provides a measure of only one aspect of these skills.

The interpretation of raw scores (i.e., the number of words read correctly) is made with reference to the information presented in the Teachers Manual. Only the scores that fell within the range of those scored in the present study are given in Table 2. The Manual notes that pronunciation of consonants, vowels and accents must be correct, but that "concessions must be made for children...from markedly different language backgrounds". The Printed Record Forms, supplied with the test, were used for recording responses to the test.

*Table 2*

*Equivalent Age Bands (EAB) for the Burt Word Reading Test*

Score	Boys & Girls	Score	Boys & Girls	Score	Boys & Girls
22	6.00-6.06	30	6.08-7.02	38	7.04-7.10
23	6.01-6.07	31	6.09-7.03	39	7.05-7.11
24	6.02-6.08	32	6.10-7.04	40	7.06-8.00
25	6.03-6.09	33	6.11-7.05	41	7.07-8.01
26	6.04-6.10	34	7.00-7.06	42	7.08-8.02
27	6.05-6.11	35	7.01-7.07	43	7.09-8.03
28	6.06-7.00	36	7.02-7.08	44	7.10-8.04
29	6.07-7.01	37	7.03-7.09	45	7.11-8.05

#### **5.4 Reading Comprehension Task (See Appendix 4)**

There are six questions in the test; a score of one was allocated for each correct answer. Subjects were encouraged to answer in full sentences, but were not penalised for giving one-word answers. Use of language, punctuation marks, vocabulary and spelling were evaluated to assess literacy development.

#### **5.5 Sight Words: Sentence Dictation Test**

This subtest consists of six sentences. Each sentence was dictated slowly and clearly. The subjects wrote down the spoken words and were encouraged to use correct spelling and punctuation. A score of one was given for a word spelled correctly, including the two phonetically regular words 'and' and 'not'. The maximum number of points was 31.

#### **5.6 Controlled free-writing task (See Appendix 5)**

Marks were not allocated for the free-writing task. Subjects were asked to write a sentence describing what was happening in each of the pictures. Verbal encouragement was given to assure them that there were no 'right answers', and that everyone's story would be different. The ability to express ideas in words, vocabulary development, sentence construction and punctuation were taken into account when evaluating the writing skills of the subjects.

#### **5.7 Diagnostic Dictation Test (See Appendix 6)**

The two sentences selected for this assessment were taken from Form F. (Clay, 1985, p. 39):  
*The boy is riding his bike. He can go very fast on it. According to the instructions, one point*

was scored for each sound (phoneme) the child analysed. The maximum score was 37. According to Clay (1985, p. 38), one mark is taken off if a child makes a change in letter order, for example, 'gonig' for 'going'. Alternatives are accepted, such as 'skool' for 'school', 'tace' for 'take'. If a letter did not have a number underneath it in the scoring standards, then it received no score, even if a preceding letter was omitted. Additions did not affect scoring as long as numbered letters were included. Raw scores were converted to stanine groups (Clay 1985, p. 40).

### 5.8 Rhyming Subtests (See Appendix 7)

The rhyming Subtest consists of two tasks, Discrimination and Production. Discrimination measures the ability to identify rhyming words presented in pairs. Production measures the students' ability to provide a rhyming word when given a stimulus word. The procedure for administering the test is given in the Test Manual (Robertson & Salter, 1997):

#### **Discrimination:**

Say to the student, "I'm going to say two words and ask you if they rhyme. Listen carefully. Do these words rhyme? Fan/man". If the student responds with "no", say, "Fan/man. Yes, they do rhyme." If the student responds with something other than "yes" or "no", repeat the question to elicit a *yes* or *no* response. Give no other prompts. Proceed immediately to the test items using the stimulus phrase, "Do these words rhyme?" Circle the student's correct response on the test form or write an alternative response beside the item. Give a score of 1 for a correct response. Give a score of 0 for an incorrect response.

#### **Production:**

Say to the student, "I'm going to say a word and I want you to tell me a word that rhymes with it. You can make up a word if you want to. Tell me a word that rhymes with *bat*." The student may respond with any word that rhymes with *bat* (rat, sat, lat,

etc.) If the student responds correctly, say, "Yes, bat and \_\_\_ do rhyme." If the student responds incorrectly, say, "Bat rhymes with hat." Give no other prompts. Proceed to the test items. Write the student's response on the blank line beside each item on the test form. Give a score of 1 for each response that correctly rhymes with the stimulus word. Give a score of 0 for each incorrect response. (p. 21)

### 5.9 Auditory Blending Test (See Appendix 8)

The test was administered according to the Test Manual. It was administered individually and the entire test presented orally. The examiner said, "I'll say the parts of a word. You guess what the word is. What word is this? S-ing." The examiner paused for one second between the parts of the word. The child should respond with "*sing*", said as a whole word without pausing between syllables. If the response was correct, it was acknowledged. If the child repeated the word in parts, the examiner said, "Say it faster, like this, sing." If the child responded incorrectly, the examiner said, "S-ing is sing." No other prompts were given. Each word was read with a one-second pause between the parts of words.

In order to perform the task, the children had to be able to blend the sounds together to produce the word, but they did not have to identify or manipulate the sounds. They did not see the words and their responses were recorded on the answer sheets provided in the test manual. The raw scores on this test were interpreted according to the information presented in the table below.

Table 3

*Interpretation of Raw Scores on Roswell-Chall Auditory Blending Test*

	Inadequate Blending (Total Scores)	Adequate Blending (Total Scores)
Grade 1	0-6	7-30
Grade 2	0-10	11-30
Grade 3	0-14	15-30
Grade 4	0-18	19-30
Grade 5 or above	0-25	26-30

**5.10 Test of Auditory Analysis Skills** (See Appendix 9)

There are two demonstration items. Rosner (1975) provides the following instructions for administering the test items:

Say to the child, "Say *cowboy*." (Now pause and allow him to respond.) Then say, "Now say it again but don't say *boy*." Give him time to respond. (The correct answer is *cow*.) If the answer is correct, move on to the second demonstration item. If he does not get the first item correct, see if you can explain it to him. But if it requires more than a simple explanation, stop testing...If both demonstration items are answered correctly, the next item can be presented...Do not give hints with your lips. Speak distinctly, but do not stress any particular sounds. When you get to the items that ask the child to "Say the word, but don't say /.../. (a single sound)" you are to say the sound of the letter, *not the letter name*. (p.77)

The TAAS starts at a relatively simple level. The child is asked to analyse a two-syllable, compound word into syllables, then three-syllable words are used. The child is then tested with "a more refined unit of analysis, the phoneme, the single sounds" (Rosner, 1975, p. 72).

The raw scores on this test were interpreted according to the information presented in the table below (Rosner, 1975, p. 79). The test was given to each child individually and the results recorded on a prepared form. (See Appendix 9)

*Table 4*

*TAAS interpretation of raw scores*

TAAS Score	Expected for Children in:	Level
1	Kindergarten	1
2-3	Kindergarten	2
4-6	Grade 1	3
7-9	Grade 1	4
10-11	Grade 2	5
12	Grade 3	6
13	Grade 3	completed

## CHAPTER THREE

### RESULTS

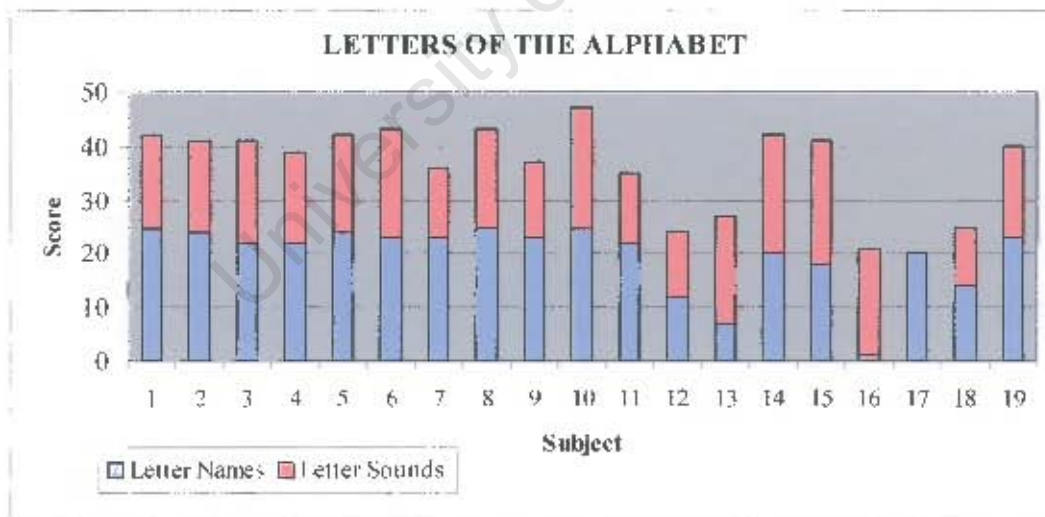
#### 1. Tests assessing literacy development

##### 1.1 Knowledge of the names and sounds of letters of the alphabet.

Twenty-five letters were tested (the letter z was omitted in error on the original test material). The full results are shown in Table 5. At the time of testing, none of the 19 subjects knew all the sounds and names of the letters. The mean score for knowledge of letter names was 19.6/25 (78,4%), and for letter sounds, 16.4/25 (65,6%). Fig. 1 shows the comparison of the subjects' knowledge of letter sounds and names.

Fig. 1

##### Oral reading: subjects' knowledge of letter names and sounds





Subjects 16 and 17 performed poorly on the letter knowledge test: subject 16 knew the name of one letter only (*y*) and subject 17 knew none of the letter sounds. Subject 10 scored the highest with an accuracy rate of 94%.

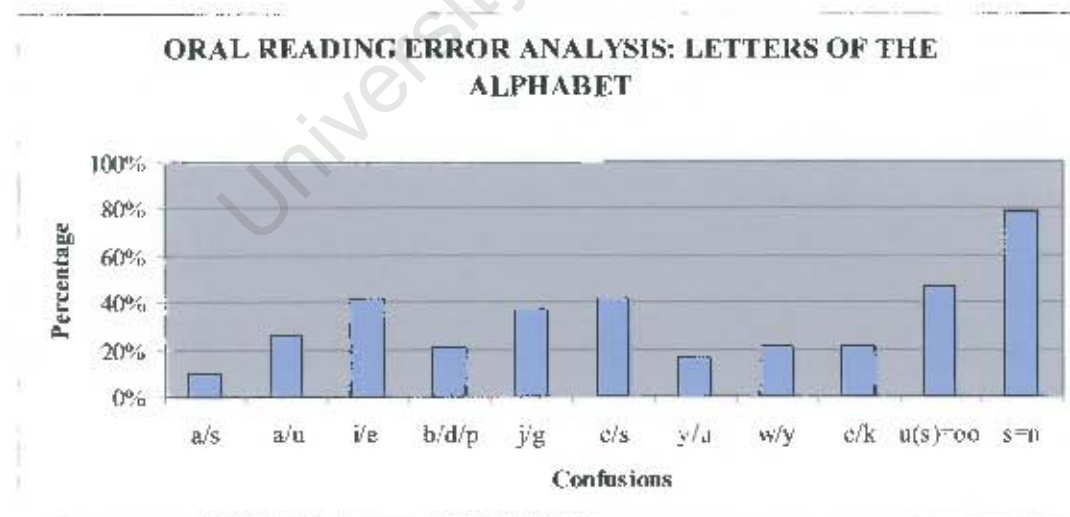
The names of four letters in particular caused most problems for the learners. Thirty seven percent of the group were unable to correctly identify the names of letters *i*, *u*, *c*, and *w*. Thirty two percent of the group were unable to identify the name of letter *j*.

More than half of the subjects (52,6%) could not identify the sounds of six letters: *a*, *u*, *c*, *q*, *x* and *y*. Only one subject in the group identified the sound of *x*; five identified the sound of *u*.

An error analysis of this task indicates that many learners confuse the sound of a letter with its name, and incorrectly identify some of the letters (Table 6). Fig. 2 illustrates some of these error patterns.

Fig. 2

**Oral reading: confusions between letters of the alphabet (group)**



s = sound of the letter    n = name of the letter

**Table 6: Oral reading error analysis - letters of the alphabet**

Subjects	Letter confusions														Total Errors
	n= name of the letter							s = sound of the letter							
	a/e	a/u	i/e	b/d/p	j/g	c/s	y/u	w/y	c/k	u(s)=oo	s=n	s=n	n=s		
1	a(s)=e(s)	no	no	no	g(s)=j(n)	c(s)=s(s)	no	no	no	yes	3	e,x,y	none	5	
2	no	no	no	no	no	c(s)=s(s)	no	no	no	yes	2	a,x	none	3	
3	no	no	no	no	j(n)=g(n)	no	y(n)=u(n)	no	no	no	2	u,c	none	3	
4	no	no	i(s)=e(n)	see notes	j(n)=g(n)	c(s)=s(s)	no	no	no	no	2	e,o	none	5	
5	no	no	e(s)=i(n)	no	j='tch'	no	no	no	no	yes	4	i,o,x,y	l=q	5	
6	no	a(s)=u(s)	e(s)=i(s)	d(s)=b(s)	no	no		w(n)=y(n)	no	no	1	x	none	5	
7	a(s)=e(s)	no	i(s)=e(n)	no	no	no	no	no	c(n)=k(n)	no	6	d,g,l,n, q,y	none	4	
8	no	no	no	b(s)=d(s)	no	c(s)=s(s)	no	no	no	no	4	p,q,u,x	none	3	
9	no	no	no	no	no	no	y(n)=u(n)	no	no	no	6	a,i,o,q, w,y	none	2	
10	no	no	no	no	no	no	no	no	no	yes	0	0	none	1	
11	no	a(s)=u(s)	no	no	g(n)=j(n)	c(s)=s(s)	no	w(n)=y(n)	no	yes	1	x	none	5	
12	no	no	no	no	no	c(s)=s(s)	no	no	c(n)=k(n)	yes	6	a,e,i,o, m,x	none	4	
13	no	a(s)=u(s)	no	no	no	no	no	no	no	yes	2	q,x	none	3	
14	no	a(s)=u(s)	i(n)=e(n)	no	no	no	y(n)=u(n)	w(n)=y(n)	c(n)=k(n)	no	0	0	none	5	
15	no	no	i(n)=e(n)	no	no	s(n)=c(n)	no	no	c(n)=k(n)	yes	1	x	none	5	
16	no	no	no	no	g(n)=j(n)	c(n)=s(s)	no	w(n)=y(n)	no	no	1	x	none	4	
17	no	no	no	b(n)=d(n)	no	no	no	no	no	no	0	0	none	1	
18	no	a(s)=u(s)	i(s)=e(s)	no	no	no	no	no	no	no	0	0	none	2	
19	no	no	i(s+n)= e(n)	no	j(n)=g(n)	no	no	no	no	yes	4	d, j,p,t	none	4	
	2	5	8	4	7	8	3	4	4	9	15	T=45	n=1;	69	
	10%	26%	42%	21%	37%	42%	16%	21%	21%	47%	79%		5%		

Error patterns include the following:

- 79% of subjects gave the names of some letters when requested to give their sounds. Of the 45 errors made, 33% involved vowel sounds. Subjects each made between 1 and 6 errors of this type, with the letter *x* having the highest error rate (10 subjects).
- 47% of subjects incorrectly identified the sound of the letter *u* as “oo”, as in the word *moon*. 42% of subjects are confused between the letters *c* and *s*. Of these, 75% gave the sound of *s* when asked, “What is the sound of this letter” (the letter *c*).
- 42% of subjects are confused between the letters *i* and *e*. Errors include identifying the sound of *i* as “ee”, or as the sound of the letter *e*. The sound of the letter *e* was given as either the sound or name of *i*.
- 37% of subjects are confused between the letters *j* and *g*. Of these, 43% identified the name of letter *j* as the name of the letter *g*. One subject identified the sound of *j* as “tch”.
- 26% of subjects are confused between the letters *a* and *u*. All these subjects gave the sound of letter *u* when asked to give the sound of letter *a*.
- 21% of subjects are confused between the letters *d* and *b*. Subject number 4 made five errors in this category, including rotation and reversal errors involving the letters *p*, *d* and *b*.
- 21% of subjects are confused between the letters *w* and *y*. All the errors in this category involved incorrectly identifying the name of the letter *w* as the name of the letter *y*.
- 21% of subjects are confused between the letters *c* and *k*. They all incorrectly identified the name of the letter *c* as the name of the letter *k*.
- 16% of subjects are confused between the letters *y* and *u*. They incorrectly identified the name of the letter *y* as the name of the name of the letter *u*.

Some subjects gave a whole word, or systematically went through the letters of the alphabet, when asked to identify the sound or name of a particular letter. Sometimes

Table 7: Oral reading error analysis - letters of the alphabet

Subjects	Errors						
	Verbalisations	f	Addition of "uh" sound (with letter sounds)	f	Refusals	f	Notes
1	<i>if</i> = f (s)	1	none	0	none	0	<i>h(s)=he</i>
2	none	0	f;l;p;v	4	q (n) = ?	1	
3	<i>leg</i> =l(s); <i>bed</i> =b(s); <i>omo</i> =o(s); <i>fox</i> =x(s); <i>girl</i> =g(s)	5	none	0	x(s) = ? (even with <i>fox</i> )	1	
4	uses alphabet to remember names of letters	0	none	0	x (s) = ?	1	Rotations/Reversals: b(s)=p(s);b(n)=p(n); d(n)=p(n);d(s)=b(s);p(s)=b(n)
5	none	0	none	0	none	0	
6	none	0	w	1	none	0	
7	uses alphabet; <i>said</i> =s(s)	1	v;m(s)= <i>um</i> ; w(s)= <i>whe</i>	2	h(s)=?	1	
8	<i>said</i> =s(s)	1	v	1	none	0	
9	uses alphabet for e(n); <i>he</i> =h(s)?	1	none	0	h(s)=?(even with <i>he</i> )	1	c(s)=ch;c(n)=ch; y(s)="loo";g(n)="ch"
10	none	0	none	0	h(s)=?;c(s)=?	2	
11	<i>man</i> =m(s); <i>hot</i> =h(s)?; <i>jump</i> =g(s)?; <i>cat</i> =c(s) =s; <i>leg</i> =l(s)	5	v="veh"	1	b(s)=?; h(s)=?(even with <i>hot</i> ); j(s)=?; q(s)=?	4	e(s)=o(n);u(s+n)="oo"
12	<i>cat</i> =c(s)=s(n)	1	none	0	names: b,g,h,j,l,n,p,r,u,v; sounds: s,k,q,w,y,	15	confused between letter names/sounds
13	none	0	none	0	names: a,b,d,e,f,i,k,l,m,n,o,p,r, s,t,u,v,w,	18	confused between letter names/sounds
14	uses alphabet	0	none	0	none	0	h(s)="ur";x(s)=s(n)
15	uses alphabet; <i>hat</i> =h(s); <i>cap</i> =c(s);very slow in naming	2	none	0	names: j,u,v,w,	4	
16	none	0	none	0	names: a,b,d,e,f,h,i,j,k,l,mn,o,p, q,r,s,t,u,v,w	21	x(n)=z(n);y(s)="heh"; v(s)="fee";q(s)="kweh";x(n)=z(n)
17	none	0	none	0	sounds: 24 (doesn't know sounds)	24	h(s)="hih"
18	<i>sun</i> =(s)s; <i>chicken</i> =c(s+n); <i>hot</i> =h(s); <i>Wednesday</i> =y(s)	4	none	0	sounds: e,o,u,j,l,q,t,v,w,x; names: a,i,c,d,f,k,l,m,p,r,w	21	confused between letter names/sounds
19	none	0	none	0	x(s)	1	y(s)=l(s)
	s= sound of letter, n = name of letter f = frequency of errors	21	n=5: 26%	9	n=14=74%	115	

this helped the subject to give the correct response. These ‘verbalisations’ were recorded in Table 7. Some subjects refused to attempt an answer, even when encouraged to try. These errors were recorded as ‘refusals’ in Table 7. The addition of the sound “uh” or “eh” was sometimes made when identifying letter sounds. For example, “veh” and “luh” were given for the sounds of the letters *v* and *l*. Patterns of errors recorded in Table 7 are summarised below:

- 47% of subjects responded by giving whole words when asked to identify the names or sounds of the letters of the alphabet. The letters, and some of these ‘verbalisations’ accompanying the letters were: ‘*Omo*’ (o); ‘*chicken*’ (c); ‘*Wednesday*’ (y); ‘*he*’ (h); ‘*jump*’ (g).
- 26% of subjects systematically went through the letters of the alphabet until they came to the letter they were expected to identify. Of these, 60% also used whole word ‘verbalisations’.
- 26% of subjects added an “eh” or “uh” sound when identifying the sounds of letters. Subjects made between one and four errors of this type; 80% pronounced the sound of *v* as “vuh” or “veh”.
- 74% of subjects refused to identify between one and all of the sounds or names presented. Of these subjects, 21% thought of a word containing the letter in question, but were unable to isolate the sound of the letter. For example, subject 9 verbalised the word “*he*” when asked to give the sound of the letter *h*. Subject 3 gave the word “*fox*”, but was unable to isolate the sound of the letter *x*. Subject 11 gave the word “*hot*”, but could not identify the sound of the letter *h*.
- 37% of subjects gave between one and five responses that were considered particularly weak. For example, the sound of the letter *h* was pronounced as “*hee*”, “*ur*”, “*hih*”; the sound of the letter *y* was given as “*loo*” and “*heh*”. Subject 9 identified the names of the letters *c* and *g* as “*ch*”.

## 1.2 Oral reading of phonetically regular words

Results of this assessment are given in Figs. 3 and 4, and in Table 8.

Fig. 3

**Oral reading: knowledge of phonetically regular words (group)**

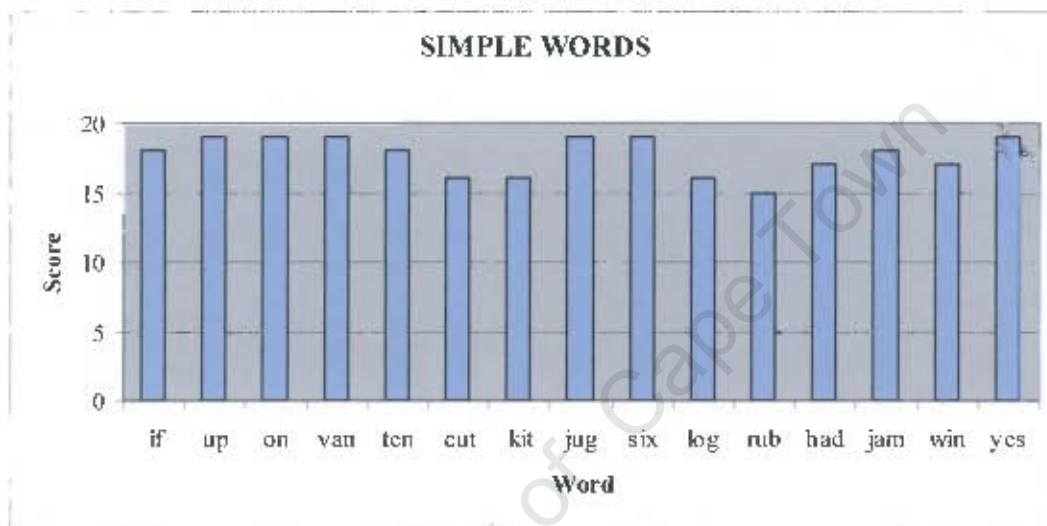


Fig. 4

**Oral reading: subjects' knowledge of phonetically regular words**

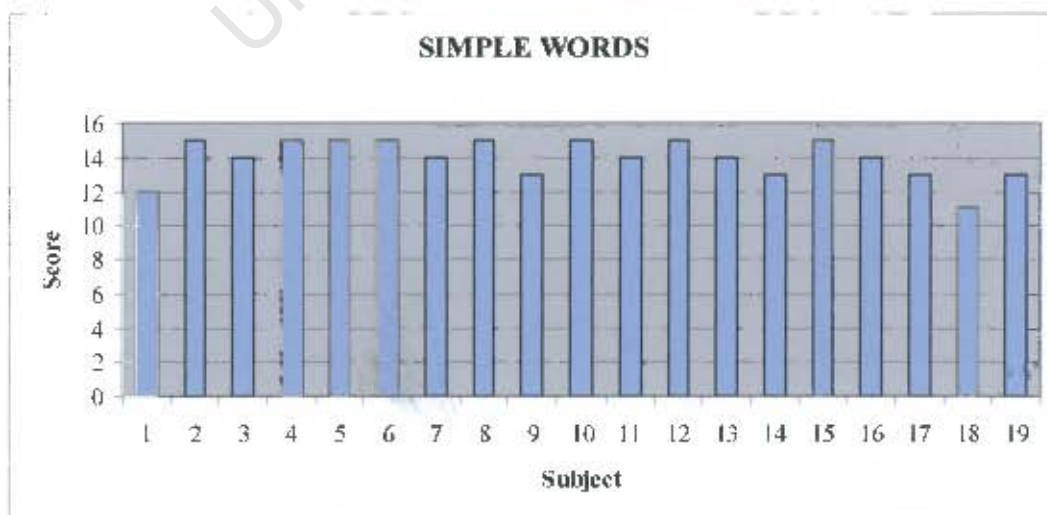


Table 8: Oral reading of phonetically regular words

Subjects	if	up	oo	van	ten	cut	kit	jug	six	log	rub	had	jam	win	yes	Total	Error Analysis and Comments
1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	12	cat :u(s)=a(s); kate :i(s)=a(n); rob :u(s)=o(s). Confusion between vowels sounds
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
3	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	14	leg :o(s)=e(s). Confusion between vowels
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
7	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	14	
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
9	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	13	roob :u(s)=oo; when :i(s)=e(s). Confusion between vowels
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
11	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	14	hand : addition of letter n
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	
13	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	14	ram : substitution
14	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	13	long /lonk : addition of letter n, g/k confusion; jam :a(s)=u(s)
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	Quick, confident.
16	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	14	kitkat : addition of word
17	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	13	den : substitution; cat :u(s)=a(s)
18	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	11	ife :i(s)=i(n); gut :k/g confusion; roob :u(s)=oo; one :i(s)=u(s)
19	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	13	kite :u(s)=i(n); long : addition of letter
18	19	19	19	19	18	16	16	19	19	16	15	17	18	17	19	265	s = sound of the letter n = name of the letter

The results of this test are summarised as follows:

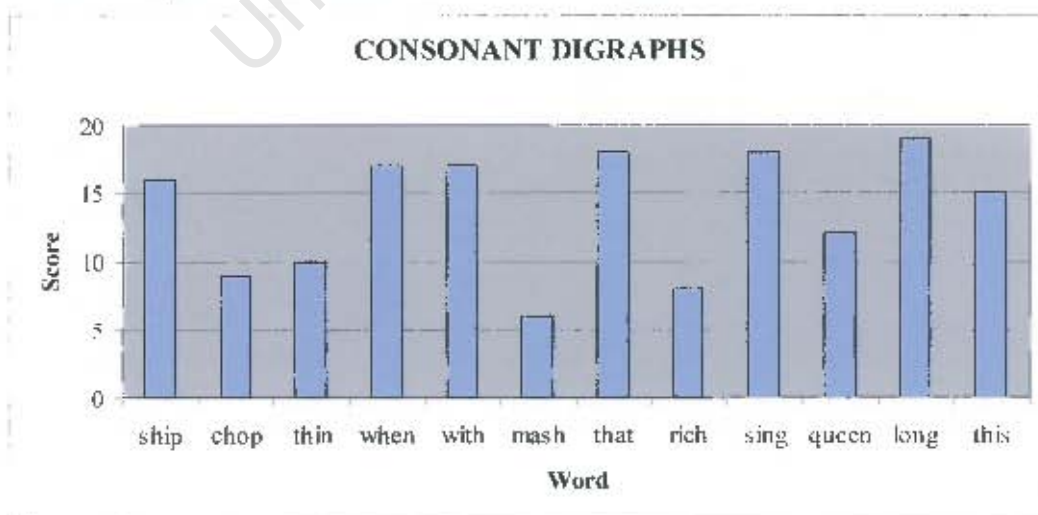
- The group as a whole scored 93% for this assessment task.
- Eight subjects made no errors, five made one error, four made two errors. The lowest score was eleven (subject number 18, who had four errors).
- All subjects read six words correctly. These words are: up, on, van, jug, six, yes.
- The word read incorrectly by 21% of the group was *rub*, which was pronounced *rob*, *rum*, and *roob* (by two subjects).
- Reading errors involved consonant substitutions, such as 'den' for *ten*.
- Four subjects read words incorrectly because of the addition of letters or words. For example, 'hand' for *had*, 'long' (two subjects) for *log*, 'kitkat' for *kit*.
- 60% of words read incorrectly by the group were due to vowel errors. For example, 'cat' for *cut*, 'kate' for *kit*, 'leg' for *log*, 'wen' for *win*, 'jum' for *jam*, 'ife' for *if*, 'wun' for *win*, 'kite' for *cut*.

### 1.3 Oral reading of words containing consonant digraphs

This assessment tested the ability to read words containing the digraphs *sh*, *ch*, *th*, *wh*, *qu* and *ng* (See Figs. 5 and 6 and Table 9).

Fig. 5

#### Oral reading: knowledge of consonant digraphs (group)

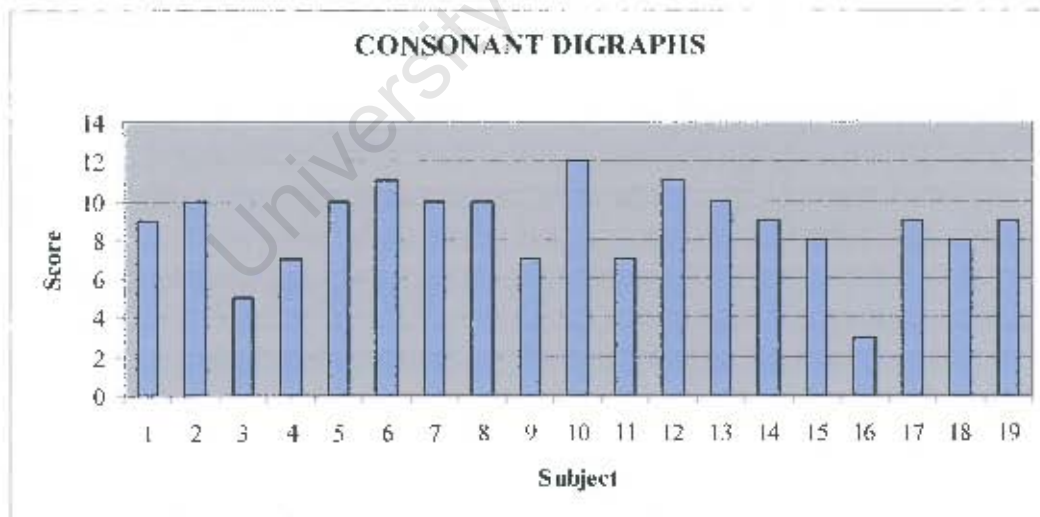


The results of this test are summarised as follows:

- The group as a whole scored 72,3% for this reading task.
- One subject made no errors; two made one error each, five made two errors. The lowest score was 3 (subject 16, with 9 errors).
- All subjects read the word *long* correctly. Words that were read correctly by over 80% of the group were *ship*, *when*, *with*, *that*, and *sing*.
- Two subjects did particularly poorly in this test: subject 16 (9 errors) and subject 3 (7 errors).
- Of the 63 words read incorrectly by the group, 67% of errors involved the digraphs. For example, the word *thin* was read as 'tun', 'tin', 'den', 'theen' and 'ten'. The word *ship* was read as 'slipe' and 'sip'; *queen* as 'keen'; *this* as 'dis', 'dus', 'dees'.
- 52% of words read incorrectly involved vowel sounds. For example, the word *queen* was read as 'quoon'; *chop* as 'chope'.

Fig. 6

**Oral reading: subjects' knowledge of consonant digraphs**



**Table 9: Oral reading error analysis - words containing consonant digraphs**

Subjects	ship	chop	thin	when	with	mash	that	rich	sing	queen	long	this	Total (12)	Error analysis
1	0	1	0	1	1	0	1	1	1	1	1	1	9	<i>slipe</i> : sh=sl, i(s)=i(n); <i>tun</i> : th=t, i(s)=u(s); <i>mosh</i> : a(s)=o(s)
2	1	1	1	1	1	0	1	1	1	1	1	0	10	<i>much</i> : a(s)=u(s), sh=ch; <i>dis</i> : th=d
3	1	0	0	0	1	0	1	0	1	0	1	0	5	<i>Refusal</i> ; <i>then</i> : i(s)=e(s); <i>will</i> : e(s)=i(s), n=ll; <i>muth</i> : a(s)=u(s), sh=th; <i>rish/rush</i> : i(s)=u(s), ch=sh; <i>quoon</i> : ee=u(n); <i>dus</i> : th=d, i(s)=u(s)
4	1	1	0	1	1	0	0	0	1	1	1	0	7	<i>di./theen</i> : th=d, i(s)=e(n); <i>mass</i> : sh=ss; <i>dat</i> : th=d; <i>reck/rike</i> : i(s)=e(s)/i(n); <i>dees</i> : th=d, i(s)=e(n)
5	1	1	1	1	1	1	1	0	1	0	1	1	10	<i>rush</i> : ch=sh, i(s)=u(s); <i>quoon</i> : ee=u(n)
6	1	1	1	1	1	0	1	1	1	1	1	1	11	<i>wosh</i> : m=w, a(s)=o(s)
7	1	0	1	1	1	1	1	0	1	1	1	1	10	<i>shop</i> : ch=sh; <i>rish</i> : ch=sh
8	1	1	1	1	1	0	1	0	1	1	1	1	10	<i>match</i> : sh=tch; <i>rish</i> : ch=sh
9	1	1	0	1	0	0	1	0	1	0	1	1	7	<i>tin</i> : th=t; <i>went</i> : -ith=ent; <i>mashe</i> : a(s)=a(n); <i>rush</i> : i(s)=u(s), ch=sh; <i>pin</i> : qu=p, ee=i(s)
10	1	1	1	1	1	1	1	1	1	1	1	1	12	
11	0	0	0	1	1	1	1	0	1	0	1	1	7	<i>sip</i> : sh=p; <i>shop</i> : ch=sh; <i>den</i> : th=d, i(s)=e(s); <i>rek</i> : i(s)=e(s), ch=k; <i>queue</i> : qu=u(n)?
12	1	0	1	1	1	1	1	1	1	1	1	1	11	<i>shop</i> : ch=sh
13	1	0	1	1	1	0	1	1	1	1	1	1	10	<i>shop</i> : ch=sh; <i>mush</i> : a(s)=u(s)
14	1	0	1	1	1	0	1	1	1	0	1	1	9	<i>shop</i> : ch=sh; <i>much</i> : a(s)=u(s); <i>refusal</i>
15	1	0	0	1	1	0	1	0	1	1	1	1	8	<i>shop</i> : ch=sh; <i>then</i> : i(s)=e(s); <i>match</i> : sh=tch; <i>rish</i> : ch=sh
16	0	1	0	0	0	0	1	0	0	0	1	0	3	<i>sip</i> : sh=s; <i>ten</i> : th=t, i(s)=e(s); <i>win</i> : wh=w, e(s)=i(s); <i>wid/what</i> : th=d/t, i(s)=o(s); <i>mot</i> : sh=t, a(s)=o(s); <i>rush</i> : ch=sh, i(s)=u(s); <i>swag</i> : guessing; <i>quickly</i> : guessing; <i>thats</i> : i(s)=a(s)+addition of s
17	1	0	1	1	1	1	1	0	1	0	1	1	9	<i>shop</i> : ch=sh; <i>rish</i> : ch=sh; <i>keen</i> : qu=k
18	1	0	0	1	1	0	1	0	1	1	1	1	8	<i>chope</i> : o(s)=o(n); <i>then</i> : i(s)=e(s); <i>match</i> : sh=tch; <i>rishe</i> : i(s)=i(n), ch=sh
19	1	0	0	1	1	0	1	1	1	1	1	1	9	<i>crop</i> : ch=c, addition of r; <i>tin</i> : th=t; <i>mass</i> : sh=ss
	16	9	10	17	17	6	18	8	18	12	19	15	165	s = sound of the letter    n = name of the letter

**Table 10: Detailed error analysis - consonant digraphs.**

Identification of errors made in words that were misread by more than 50% of test subjects.

Subjects	chop			
	ch-	-o-	-p	Error
3	refusal			
7	0	1	1	<i>shop</i>
11	0	1	1	<i>shop</i>
12	0	1	1	<i>shop</i>
13	0	1	1	<i>shop</i>
14	0	1	1	<i>shop</i>
15	0	1	1	<i>shop</i>
16	0	1	0	<i>mot</i>
17	0	1	1	<i>shop</i>
18	1	0	1	<i>chope</i>
19	0	1	1	<i>crop</i>
	1	9	9	

**Ten subjects misread this word:**  
 Seven subjects: ch=sh  
 One subject: ch=m  
 One subject: ch=cr  
 One subject: o(s)=o(n)  
 One subject: p=t

Subjects	mash			
	m-	-a-	-sh	Error
1	1	0	1	<i>mosh</i>
2	1	0	0	<i>much</i>
3	1	0	0	<i>muth</i>
4	1	1	0	<i>mass</i>
6	0	0	1	<i>wosh</i>
8	1	1	0	<i>match</i>
9	1	0	1	<i>mashe</i>
13	1	0	1	<i>mush</i>
14	1	0	0	<i>much</i>
15	1	1	0	<i>match</i>
16	1	0	0	<i>mot</i>
18	1	1	0	<i>match</i>
19	1	1	0	<i>mass</i>
	12	5	4	

**Thirteen subjects misread this word:**  
 One subject: m=w (inversion of letter)  
 Eight subjects: vowel error  
 Five subjects: sh=ch  
 Two subjects: sh=ss  
 One subject: sh=t  
 One subject: sh=th

Subjects	rich			
	r-	-i-	-ch	Error
3	1	1	0	<i>rish</i>
4	1	0	0	<i>rek/rike</i>
5	1	0	0	<i>rush</i>
7	1	1	0	<i>rish</i>
8	1	1	0	<i>rish</i>
9	1	0	0	<i>rush</i>
11	1	0	0	<i>rek</i>
15	1	1	0	<i>rish</i>
16	1	0	0	<i>rush</i>
17	1	1	0	<i>rish</i>
18	1	0	0	<i>rishe</i>
	11	5	0	

**Eleven subjects misread this word:**  
 Six subjects: vowel error  
 Nine subjects: ch=sh  
 Two subjects: ch=k

The words that were most frequently misread were: *mash* (68% of subjects), *rich* (58% of subjects) and *chop* (53 % of subjects). A detailed analysis of the errors made in the reading of these words indicates the following (see Table 10):

Errors on the word *mash*:

- 61% of subjects misread the word because of errors involving the vowel sound. Errors include: *mosh*, *mush*, *mashe*.
- 38% of subjects confused the sound of *sh* with *ch*, as in *match*.
- Other subjects identified the sound of *sh* as *ss* (*mass*), *t* (*mot*) or *th* (*muth*).
- One subject inverted the letter *m* – (*wosh*).

Errors on the word *rich*:

- 82 % of subjects who misread the word did so due to confusion between the *ch* and *sh* digraphs: *rish* (5 subjects), *rush* (3 subjects), and *rishe*.
- 54% of subjects who misread the word did so because of vowel errors.
- 18% of these subjects pronounced the *ch* digraph as “*k*”, as in *rek* or *rike*.

Errors on the word *chop*:

- 70% of subjects who misread the word confused the *ch* and *sh* sounds. The most common response was the word ‘*shop*’ (7 subjects).
- Other errors include the words ‘*chope*’ (vowel error), ‘*crop*’ (digraph error), and ‘*mot*’ (substitution and consonant error).

#### 1.4 Oral reading of words containing initial blends (Figs. 7 and 8, Table 11)

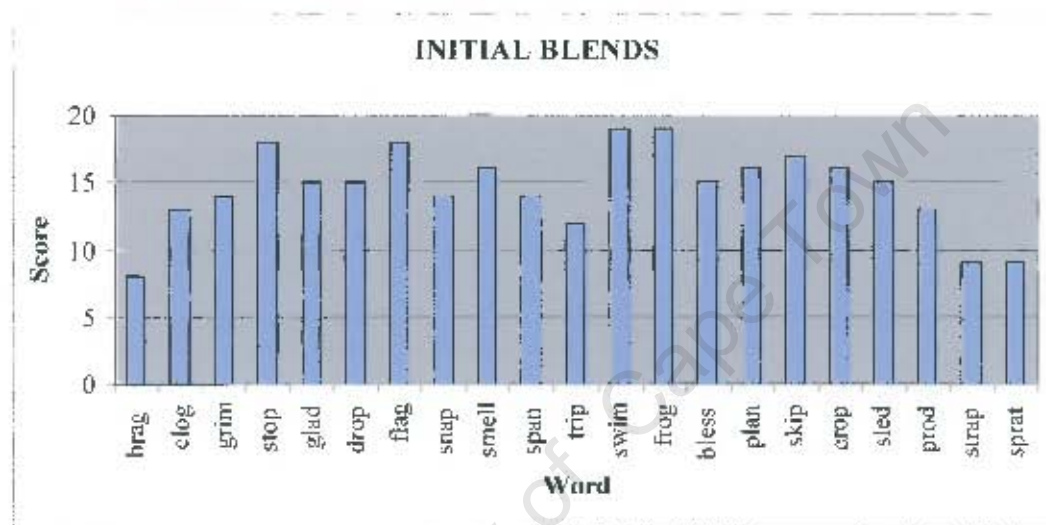
The results of this test are summarised as follows:

- The group as a whole scored 76,4% for this reading task. Scores were higher on words containing two blends such as *br*, *sm*, *sk*, than on words containing three blends, for example, *str* and *spr*.
- Words read correctly by 90% of the group were *stop*, *flag*, *swim*, *frog* and *skip*.

- The word misread by 58% of the subjects was *brag*. Errors on this word include: confusion between the *g* and *j* sounds, such as '*braj*'; vowel errors, such as '*brug*', '*brog*', '*brig*'; letter reversal errors, such as '*drag*', '*drug*'; addition of letters and vowel errors, such as '*bring*'; omission of letters and vowel errors, such as '*big*'.

Fig. 7

**Oral reading: knowledge of initial blends (group)**



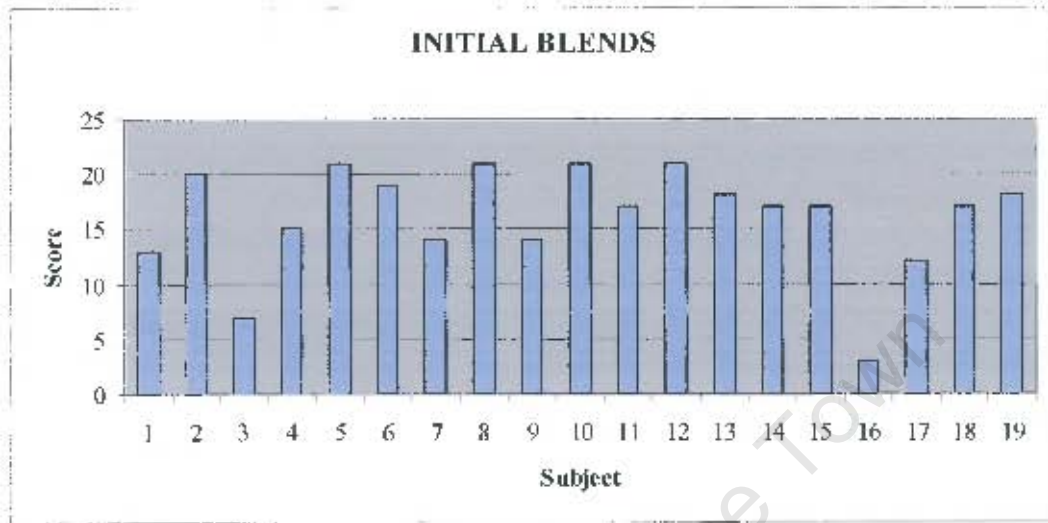
- 53% of subjects in the group misread the words *strap* and *sprat*. The word *strap* was misread as '*stop*', '*strop*', '*stripe*', '*spot*', '*slap*.' The word *sprat* was read as '*srat*', '*shipped*', '*spot*', '*sped*', '*strat*'.
- Of the 94 reading errors made by the group, 47% involved errors on vowel sounds. For example, *trip* was misread as '*stripe*', '*trape*', '*trup*', '*trap*'; the word *smell* as '*smile*'; the word *plan* as '*plane*'; *glad* as '*glod*'.
- Seven subjects misread words because they added letters. For example, *prod* was misread as '*prond*', '*sprod*'; *brag* as '*bring*', *trip* as '*stripe*'; *clog* as '*clonk*'; *sled* as '*slend*'; *strap* as '*stamp*'.
- Six subjects misread between one and ten words due to errors involving omission of letters. For example, *plan* was misread as '*pane*'; *sprat* as '*srat*'; *grim* as '*gum*'; *snap* as '*sad*'; *drop* as '*dop*'; *prod* as '*pod*'; *brag* as '*rag*'; *grim* as '*gim*'; *trip* as '*tip*'.

Table 11: Oral reading error analysis - words containing initial blends

Subjects	brag	clog	grim	stop	glad	drop	flag	snap	smell	span	trip	swim	frog	bless	plan	skip	crop	sled	prod	strap	sprat	Total (n)	Errors
1	0	0	0	1	1	1	1	1	1	1	0	1	1	1	0	1	1	0	0	1	0	13	<i>brag</i> : g=ɹ; <i>clog</i> : g=ʃ; <i>juh</i> : g=j, i(s)=u(s); <i>trape</i> : t(s)=a(n); <i>pane</i> : omiss (ɹ); <i>u(s)=a(n)</i> ; <i>slide</i> : e(s)=i (n); <i>prod</i> : addition (n); <i>sprat</i> : omiss (p)
2	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	<i>drag</i> : b=ɹ
3	0	0	0	0	0	1	1	0	0	0	0	1	1	0	1	1	1	0	0	0	0	7	<i>brag</i> : a(s)=o(s); <i>clk</i> : g=l; omiss vowel sound; <i>grim</i> : omiss (r); i(s)=u(s); <i>spot</i> : s=sp; <i>glid</i> : a(s)=i(s); <i>vad</i> : omiss (n); o=p; <i>sall</i> : omiss (n); <i>thrup</i> : sp=sh; <i>u(s)=u(s)</i> ; o=p; <i>trap</i> : t(s)=o(s); <i>dress</i> : h=d; <i>crass</i> (:); <i>vall</i> : e(s)=u(s); omiss (l); <i>point</i> : guessing + omiss (oi) + subst (om); <i>stop</i> : omiss (r); <i>u(s)=o(s)</i> ; <i>shipped</i> : guessing + spr=sh; o(s)=i(s)
4	1	0	0	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0	15	<i>crim</i> : g=ʒ; <i>drop</i> : omiss(s); <i>blees</i> : e(s)=o(n); <i>pod</i> : omiss (i); <i>trap</i> : a(s)=u(s); <i>spot</i> : omiss (r); u(s)=o(s)
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	
6	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	<i>brag</i> : a(s)=i(s); <i>addit</i> : t(s); <i>brap</i> : d=l
7	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	0	14	<i>smile</i> : o(s)=e(n); <i>spen</i> : a(s)=er(s); <i>stripe</i> : addition (s); <i>u(s)=a(s)</i> ; <i>stop</i> : a(s)=u(s); <i>trap</i> : o=g; <i>tripe</i> : a(s)=i (n); <i>spot</i> : omiss (i); <i>u(s)=o(s)</i>
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	
9	0	0	1	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	0	0	14	<i>Frog</i> : a(s)=o(s); <i>clag</i> : cl=ch; <i>grade</i> : gl=gr; <i>ats</i> =at(n); <i>spone</i> : a(s)=a(n); <i>serp</i> : poor visual analysis and sequencing skills; <i>spot</i> : st=sp; <i>u(s)=a(s)</i> ; <i>spot</i> : sp=en; omiss (r); <i>u(s)=o(s)</i>
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	10	<i>tram</i> : t(s)=a(s); p=m; <i>sprat</i> : addition (g); <i>refusal</i> : unable to blend str - each letter pronounced separately; <i>s-p-e-a-l</i> : letters not blended to form a word
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	
13	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	18	<i>brag</i> : addit (n); <i>spone</i> : a(s)=u(n); <i>strat/strait</i> : unable to blend st - sequencing error; <i>u(s)=a(n)</i>
14	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	17	<i>brag</i> : a(s)=e(s); <i>clank</i> : addition (n); g=k; <i>snape</i> : a(s)=a(n); <i>strod</i> : addition (n)
15	0	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	17	<i>beg</i> : omiss (r); <i>glm</i> : omiss (y); <i>tip</i> : omiss (r); <i>stop</i> : str=s
16	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	complex pattern of errors: e.g. <i>big</i> : bcag; <i>cloug</i> : clag; <i>beer</i> : drop; <i>flag</i> : flag; <i>swim</i> : snap; <i>bag</i> : bless; <i>plan</i> : pnp; <i>serp</i> : swed; <i>slat</i> ; <i>prod</i> ; <i>step</i> : strap; <i>steps</i> : sprat
17	0	1	1	1	1	0	1	0	1	1	1	1	1	0	0	1	0	1	0	0	0	12	<i>drag</i> : v=d; <i>u(s)=u(s)</i> ; <i>trap</i> : d=g; <i>snape</i> : a(s)=a(n); <i>blees</i> : bl=sh; <i>plane</i> : a(s)=u(n); <i>trap</i> : cr=r; <i>repeats for last three words</i>
18	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	0	17	<i>brag</i> : g=ʃ; <i>trap</i> : t(s)=a(s); <i>stamp</i> : st=st; addition (m); <i>spall</i> : spr=sp; addition (i)
19	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	18	<i>glad</i> : u(s)=o(s); <i>snop</i> : u(s)=o(s); <i>snamp</i> : str=st; addition (n)
8	13	14	18	15	18	18	14	15	14	12	19	19	15	16	17	16	15	13	9	9	305	s = sound of the letter; n = name of the letter; omiss = omission of letter/letters; addition = addition of letter/letters	

Fig. 8

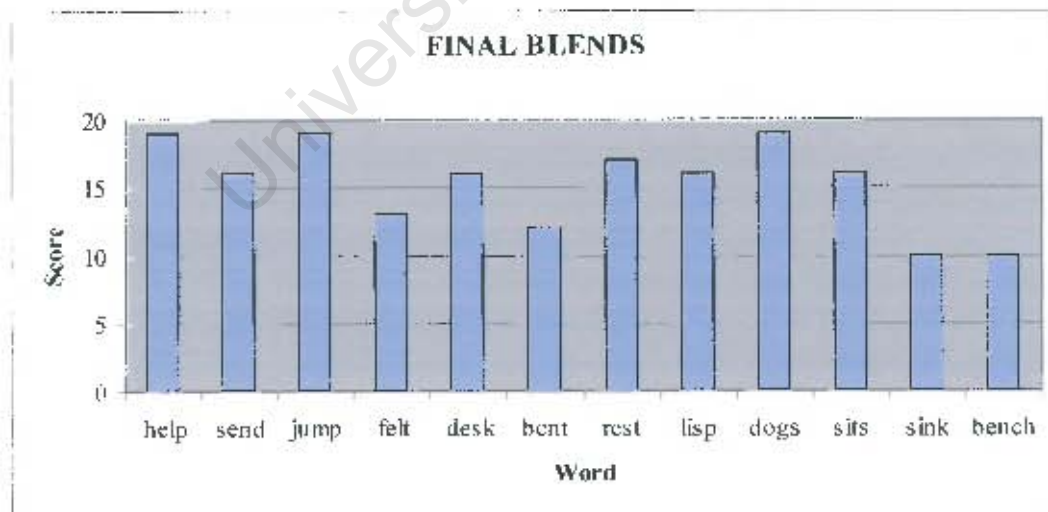
Oral reading: subjects' knowledge of initial blends



1.5 Oral reading of words containing final blends:

Fig. 9

Oral reading: knowledge of final blends (group)



The results of this test are summarised as follows (see Figs. 9 and 10, Table 12):

- The group average for this task was 80%
- Six subjects made no errors.

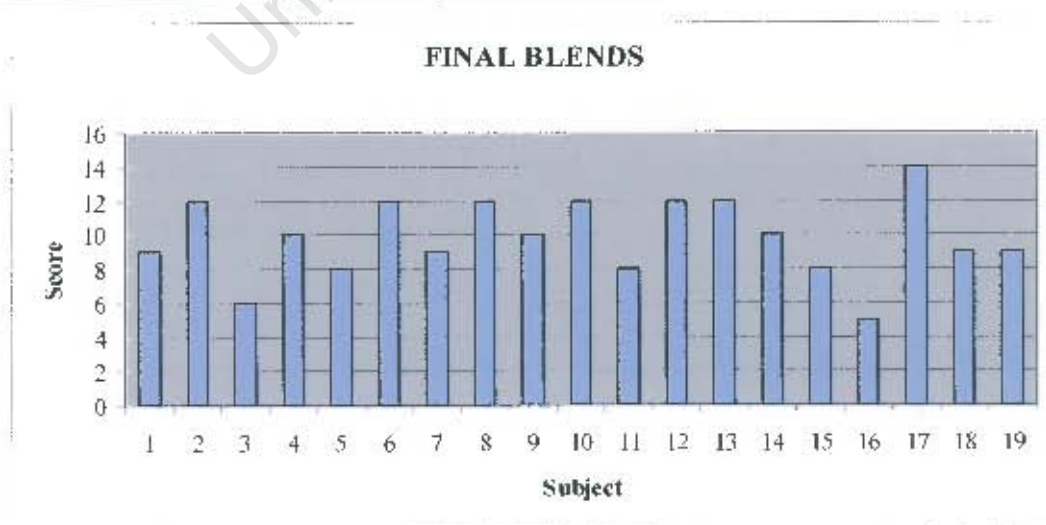
Table 12: Oral reading error analysis - words containing final blends

Subjects	help	send	jump	felt	desk	bent	rest	hisp	dogs	sits	sink	bench	Total (12)	Errors
1	1	1	0	1	0	1	1	1	1	1	1	0	9	flat:sequencing error, c(s)-a(s); dem :b-d; drunch :b-d, addit (r), e(s)-u(s)
2	1	1	1	1	1	1	1	1	1	1	1	1	12	
3	1	1	1	0	1	0	0	0	1	1	0	0	6	fite:guessing, e(s)-i (s); belt :substitution (t=t); rust :e(s)=u(s); lip : omiss(x), sick :nk=ck; refusal (bench)
4	1	1	1	1	1	1	1	1	1	1	0	0	10	sick :nk=ck; brech . addit (r), omission (n)
5	1	0	1	1	0	0	1	1	1	0	1	0	7	stand :addit (l), e(s)-a(s); dusk :e(s)=u(s); bend :t=d; sits :addition (s); hunch :e(s)=u(s)
6	1	1	1	1	1	1	1	1	1	1	1	1	12	
7	1	0	1	1	0	1	1	1	1	0	1	1	9	said :omission (n); bet :omission (n); suck :i (s)-u(s), omission (n)
8	1	1	1	1	1	1	1	1	1	1	1	1	12	
9	1	1	1	1	1	1	1	0	1	1	0	1	10	(sounds out every letter), hisp :i(s)=u(s); stake :guessing, i(s)=a(n)
10	1	1	1	1	1	1	1	1	1	1	1	1	12	
11	1	1	0	1	1	0	1	1	0	1	0	0	8	flat :sequencing error, e(s)=a(s); rust :e(s)-u(s); cttex :guessing, additon of -ies; bench :ch-c
12	1	1	1	1	1	1	1	1	1	1	1	1	12	
13	1	1	1	1	1	1	1	1	1	1	1	1	12	
14	1	1	1	1	0	1	1	1	1	0	1	1	10	bet :omission (n), stink :addition (n)
15	1	1	1	0	1	0	1	0	1	1	0	1	8	belt :substitution (f-b), bet : omission (n); list :substitution (p=t), sick :omission (n)
16	1	0	1	0	0	0	1	1	1	0	0	0	5	set :omission (n), substit d=t; flate :sequencing, e(s)-a(n); dick :guessing, e(s)=u(s), bet : omission (n); sitting :addition (ing); star . : additon (st), i(s)-a(s); bake :guessing, e(s)-a(n), ch-k(n)
17	1	1	1	1	1	1	1	1	1	1	1	0	11	beach :e(s)=e(n), omission (n)
18	1	1	1	1	0	1	1	1	1	1	0	0	9	deky :sequencing error, set :i (s)=e(s), omission (k); beach :e(s)-e(n), omission (n)
19	1	1	1	0	1	1	1	1	1	1	0	0	9	left :sequencing error; snik :sequencing error, beach :c(s)-c(n), omission (n)
19	16	19	13	16	12	17	16	19	16	10	10	10	183	s = sound of letter n = name of letter

- The words *help*, *jump* and *dog* were read correctly by all the subjects.
- Lowest scores were obtained for the words *felt*, *bent*, *sink* and *bench*, where the error rate was between 32% and 47%. The word *bent* was misread as 'bet' (4 subjects), 'belt', 'dent' and 'bend'. The word *felt* was misread as 'flet', 'fight', 'flat', 'belt', 'left' and 'flate'. Errors on the word *sink* include 'sick' (2 subjects), 'suck', 'snake', and 'snik'. Errors on the word *bench* include 'beach' (3 subjects), 'bake', 'benk', 'bunch', and 'drunch'.
- Of the 45 words read incorrectly by the group, 44% involved vowel errors, 31% omission of letters, and 17% addition of letters. Other errors include guessing at words, such as 'bake' for *bench*, and sequencing errors, such as 'deks' for *desk*, 'flat' for *felt*.
- In this test, most vowel errors were made in words containing the letter *e*. Sometimes it was given a short *u* vowel sound as in 'drunch' and 'bunch' for *bench*, 'rust' for *rest* (2 subjects), 'dusk' and 'duck' for *desk*, and 'suck' for *sink*. Sometimes it was pronounced as a short *a* vowel sound, as in 'stand' for *send*, or as long *a* vowel sound, as in 'flate' for *felt*. It was also given a long *e* vowel sound, as in 'beach' for *bench* (2 subjects), or a long *i* vowel sound, as in 'fite' for *felt*.

Fig. 10

**Oral reading: subjects' knowledge of final blends**

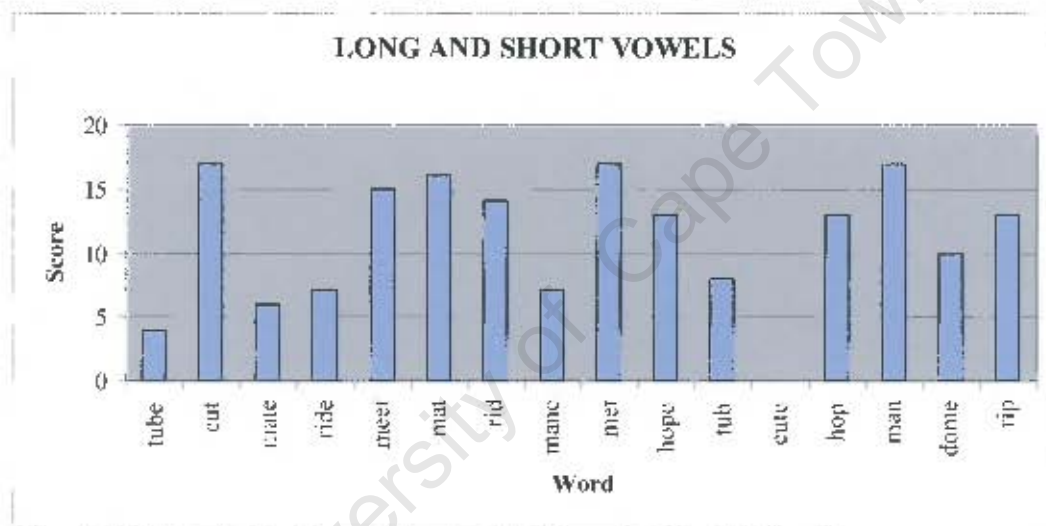


- Only three vowel errors involved the short *i* vowel sound: 'suck' for *sink*, 'lusp' for *lisp*, 'snake' for *sink*.
- No errors were recorded where the *a* and *o* short vowel sounds were incorrectly pronounced, although the words may have been misread because of other errors.

### 1.6 Oral reading of words containing long and short vowel sounds (see Figs. 11 and 12, Table13)

Fig. 11

**Oral reading: knowledge of long and short vowels (group)**



The results for this test are summarised as follows:

- 50% of words presented in this are CVCV words, where all the vowels have long vowel sounds. The group average for these words is 41%.
- 50% of words in this task are phonetically regular, CVC words, as in task 1.2. The group average for these words is 75,4%, compared to 93% for task 1.2.
- The group average for this task is 58%.
- No subject scored full marks. The number of errors for the 16 items presented ranged between 2 and 12 errors.
- The lowest score for the CVC category of words is for the word *tub*, with an error rate of 58%. The word was misread as 'tube' (5 subjects), 'tab' (3 subjects),

Table 13: Oral reading error analysis - words containing long and short vowels

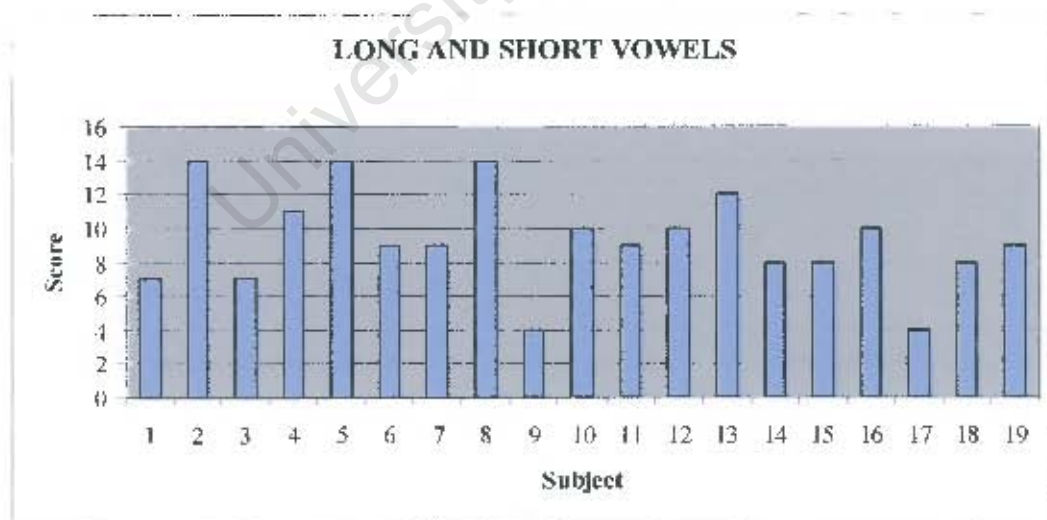
SUBJECTS	tube	cut	mate	ride	meet	mat	rid	mane	met	hope	tub	cute	hop	man	dome	rip	Total (16)	Errors
1	0	1	0	0	0	1	1	0	1	1	0	0	0	1	0	1	7	table: guessing, u(s)=a(n), addition (le); meet: a(n)=e(n); rode: i(n)=o(n); meeting: addition (ing); min: a(n)=i(s); tab: u(s)=e(s); cut: u(n)=u(s); hoop: o(s)=ou; dom: o(n)=u(s)
2	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	14	mebec: addition of e(n); cut: u(n)=u(s)
3	0	1	0	0	1	0	0	1	0	1	0	0	1	1	1	7	tub: u(n)=u(s); mite: a(n)=i(n); mid: i(n)=u(s); nut: o(s)=u(s); rid: i(s)=u(s); man: a(n)=o(s); hop: o(n)=a(s); cut: u(n)=u(s); hap: o(s)=a(s)	
4	0	1	1	0	1	1	0	1	1	1	0	1	1	0	1	11	tub: u(n)=u(s); read: i(n)=e(n); ride: i(s)=i(n); cut: u(n)=u(s); dom: o(n)=o(s); substitution (m=n)	
5	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	14	mebec: addition e(n); tube: u(s)=u(n); kite: u(n)=i(n)	
6	0	1	0	0	1	1	0	1	1	0	0	1	1	0	1	9	tub: u(n)=a(s); mid: u(n)=a(s); rid: i(n)=i(s); mummy: a(n)=e(s); addition of o(n); tab: u(s)=a(s); entry: u(n)=u(s); addition e(n); dom: o(n)=o(s)	
7	0	1	0	1	1	1	0	0	0	1	1	0	1	1	0	9	tub: u(n)=u(s); matty: o(n)=a(s); addition (ay); ride: i(s)=i(n); man: a(n)=u(s); male: o(s)=a(n); cut: u(n)=u(s); ripe: i(s)=i(n)	
8	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	14	tube: u(s)=u(n); cut: u(n)=u(s)	
9	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	4	tab: u(n)=a(n); meet: guessing, a(n)=e(s); addition (s); rid: i(n)=i(s); met: e(n)=e(s); mat: a(n)=a(s); hop: o(n)=o(s); tube: u(s)=u(n); cut: u(n)=u(s); refusals: last three words	
10	0	1	1	1	1	1	0	1	1	0	0	1	1	1	0	10	tub: u(n)=a(s); ride: i(s)=i(n); man: a(n)=a(s); tube: u(s)=u(n); kite: u(n)=i(n); ripe: i(s)=i(n)	
11	0	1	0	0	0	1	0	1	0	1	0	1	1	1	1	9	trun: addit (r+n); omission (h); matty: a(n)=e(s); addit of e(n); rid: i(n)=i(s); matty: ee=a(s); addition e(n); mummy: a(n)=e(s); addition of e(n); hop: o(n)=o(s); cut: u(n)=u(s)	
12	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	10	tub: u(n)=u(s); rid: i(n)=i(s); matty: ee=a(s); addition (er); ride: i(s)=i(n); coat: u(n)=ou; hope: o(s)=o(n)	
13	1	1	0	1	1	1	1	1	1	0	0	1	1	1	1	12	mat: a(n)=u(s); mat: a(s)=u(s); tub: u(s)=ou; coat: u(n)=ou	
14	0	1	0	0	1	1	1	1	1	1	0	0	1	0	0	8	tub: u(n)=u(s); mat: a(n)=u(s); rid: i(n)=i(s); man: a(n)=a(s); cut: u(n)=u(s); hope: o(s)=o(n); dom: o(n)=o(s); ripe: i(s)=i(n)	
15	0	1	0	0	1	1	0	1	0	0	0	1	1	0	1	8	tube: u(n)=u(s); addition (er); met: a(n)=e(s); rid: i(n)=i(s); man: a(n)=u(s); addition (l); hop: o(n)=o(s); tub: o(n)=d; cut: u(n)=u(s); dom: o(n)=o(s)	
16	0	1	0	0	1	1	1	1	1	0	1	0	1	1	0	10	table: guessing, u(s)=a(n), addition (le); met: u(n)=e(s); rot: i(n)=o(s); hop: o(n)=o(s); cow: u(n)=ou; dom: d=b, o(n)=o(s)	
17	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	4	table: guessing, u(s)=a(n), addition (le); cut: u(s)=u(s); mat: a(n)=a(s); read: i(n)=e(n); man: a(n)=a(n); hop: o(n)=o(s); tub: u(s)=a(s); gully: o(s)=u(s); u(n)=a(s); addition of e(n); refusals: last four words	
18	0	1	0	1	1	1	0	0	1	0	0	1	1	0	0	8	table: guessing, u(s)=a(n), addition (le); matty: a(n)=a(s); addition e(n); man: a(n)=u(s); meet: e(s)=e(n); tab: u(s)=a(s); cutter: u(n)=u(s); addition (er); dom: o(n)=o(s); ripe: i(s)=i(n)	
19	1	0	0	0	1	1	1	1	1	0	0	0	1	1	1	9	kite: cot: u(s)=i(n)/o(s); mat: a(n)=a(s); rid: i(n)=i(s); mummy: a(n)=e(s); addition e(n); tube: u(s)=u(n); cut: u(n)=u(s); hope: o(s)=o(n)	
4	17	6	7	15	16	14	7	17	13	8	0	13	17	10	13	177	s = sound of the letter n = name of the letter	

'toob', 'tob' and 'tud'. Examples of errors on other CVC words are: 'hope' (3 subjects), 'hap', 'hop' and 'hoop' for *hop*; 'ride' (4 subjects) and 'rud' for *rid*; 'kite' and 'cat' for *cut*; 'mul' and 'met' for *mat*; 'mate' and 'meet' for *met*.

- The lowest score for CVCV category of words is for the word *cute*. None of the subjects read this word correctly. 79% misread the word *tube*. The word *cute* was misread as 'cut' (11 subjects), 'kite' (2 subjects), 'coot' (2 subjects), 'cutter', 'cout', 'gatty' and 'cutty'. The word *tube* was misread as 'tub' (5 subjects), 'table' (4 subjects), 'tuebee' (2 subjects), 'tabe', 'tab', 'tubber' and 'trum'.
- Examples of other errors on words with long vowel sounds are: *mate* read as 'mat' (4 subjects), 'meet', 'mite', 'met', 'mattay', 'mest', 'metty' and 'matty'; *ride* read as 'rid' (7 subjects), 'rode', 'rud', 'reed' (2 subjects) and 'rot'; *dome* read as 'dom' (4 subjects), 'hom', 'dam' and 'don'. These errors involve reversal of the letter *d*, substitutions for the letter *m*, as well as errors of the vowel sound. The word *meet* was read as 'meeting', 'mer', 'matty' and 'matter'.

Fig. 12

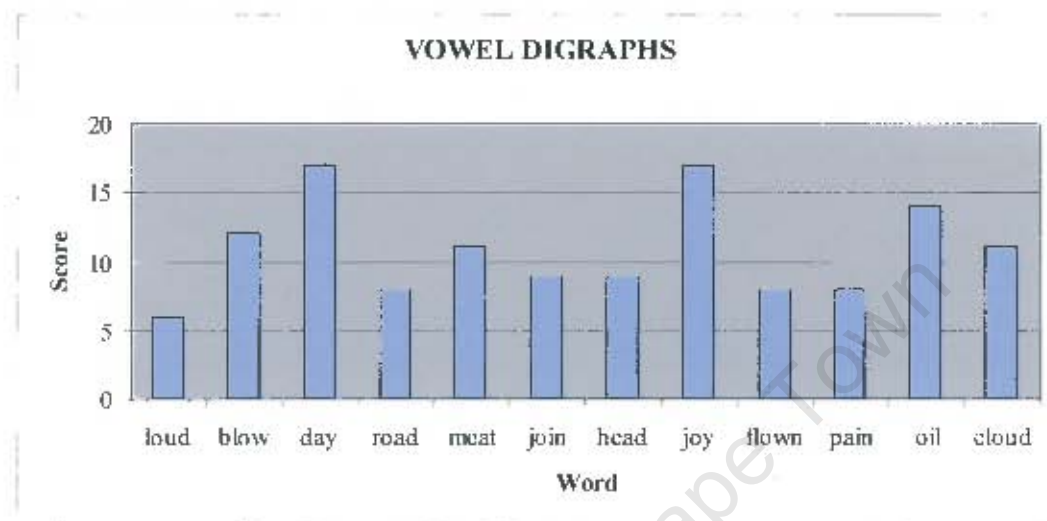
**Oral reading: subjects' knowledge of long and short vowels**



### 1.7 Oral reading of words containing vowel digraphs (see Figs. 13 and 14, Table 14)

Fig. 13

#### Oral reading; knowledge of vowel digraphs (group)



The results of this test are summarised as follows:

- The group average for this task was 57,4%.
- Highest scores were obtained for the words *joy* and *day* (89%). *Joy* was misread as 'juh-oy' and 'jaw', *day* as 'buy' and 'bay'.
- 80% of subjects read *oil* correctly. Errors were 'ool', 'oilly', 'oh-eel', and 'oh-fill'.
- 63% of subjects read 'blow' correctly. Errors were 'blouw' (2 subjects), 'bull', 'bow', 'deline', 'boal' and 'dlow'.
- 58% of subjects read *meat* and *cloud* correctly. Errors for *meat* were 'met' (4 subjects), 'mut', 'met-te', 'matter', and 'mite'. Errors for *cloud* were 'killed', 'cloa-ed', 'clod' (2 subjects) and 'cload' (3 subjects).
- 47% of subjects read *join*, *head* and *pain* correctly. Errors for *join* were 'jin' (2 subjects), 'ji-on', 'jo-een', 'johnny', 'jun', 'john', 'jeen', 'joan' and 'jen'. Errors for *head* were 'hid' (4 subjects), 'hind', 'had', 'huh-ead', 'hat', 'hide' and 'hard'. Errors for *pain* were 'pen' (3 subjects), 'pin' (2 subjects), 'pine' (2 subjects), 'plain', 'plin' and 'pu-een'.

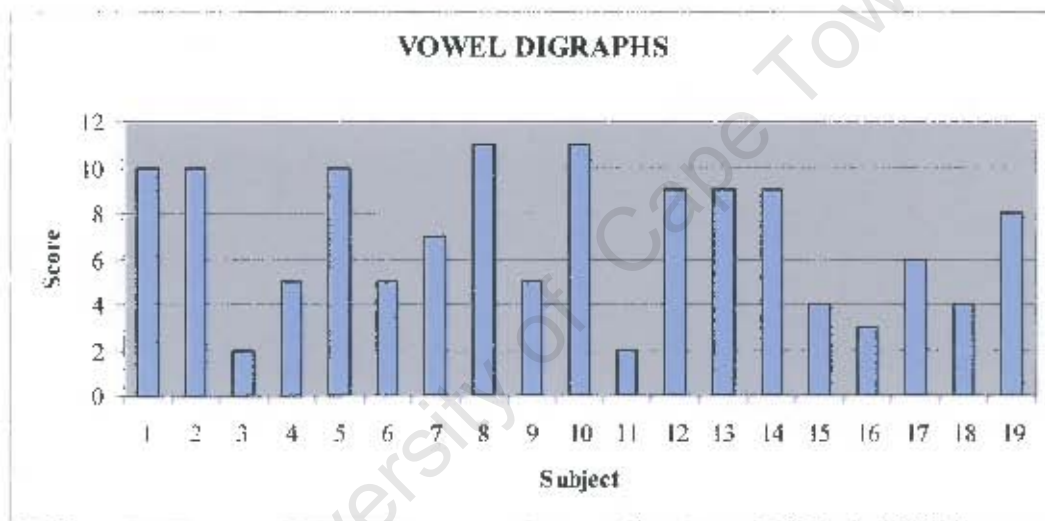
Table 14: Oral reading error analysis - words containing vowel digraphs

	loud	blow	day	road	meat	join	head	joy	rown	pain	oil	cloud	Total (12)	Errors
1	0	1	1	1	1	1	1	1	0	1	1	1	10	lod, flant
2	0	1	1	1	1	1	0	1	1	1	1	1	10	load, hid
3	0	0	0	0	1	0	0	1	0	0	0	0	2	leb, (+d=b): bull, by, (+d=b): rub, (-d-b), jin: hid, fl ...; pin: ool, killed
4	1	0	1	0	1	0	0	1	0	0	0	1	5	blow; drob, (-d=b); ji-on, hid; flower; pl ai n, addition (l); oily, addition c(n)
5	1	1	1	0	0	1	1	1	1	1	1	1	10	rouwd, met
6	0	0	1	0	1	0	1	1	1	0	1	0	6	Lou h: d=b; h ow; omission (l), ride; jo-ee n; pine; cloa-ed
7	0	1	1	0	1	1	0	1	0	1	1	0	7	lotd; roid; hind; flown, clod
8	1	1	1	1	1	1	1	1	0	1	1	1	11	flown
9	0	0	1	0	0	1	0	1	1	0	1	1	6	lod; delme, (+b=d), rod; mut; had, pen;
10	1	1	1	1	1	1	1	1	1	0	1	1	11	pine
11	0	1	1	0	0	0	0	0	0	0	0	0	2	lood, row-ad; met-te; jin; huh- ea d, juh- ay, flower, puh-ee n; oh-ee; clod/clod
12	1	1	1	1	0	0	1	1	1	1	1	0	9	matter; johnny; cloud
13	1	1	1	0	1	0	1	1	0	1	1	1	9	reed; jun; flown
14	0	1	1	1	0	1	1	1	1	0	1	1	9	hind; mite; pen
15	0	1	1	0	1	0	0	1	0	0	0	0	4	lod; rod; john; hid, flow-en, plin; oh-fill, clod
16	0	0	0	0	0	0	0	1	0	0	1	1	3	lap, (+d=p); boxd; h ay d=b; rod; met; jeen jin; hat; flower; pin
17	0	0	1	1	0	1	0	1	0	1	1	0	6	load; dl ow b=d; met; hide; fl ow-in; cloud
18	0	0	1	1	0	0	0	0	0	0	1	1	4	refusal; blow; met; joan jin; hard; jaw; flow; pen
19	0	1	1	0	1	0	1	1	1	1	1	0	8	lood; red; jen john; cloud
	6	12	17	8	11	9	9	17	8	9	15	11	131	

- 42% of subjects read *road* and *flown* correctly. Errors for *road* were 'rod' (3 subjects), 'red', 'rub', 'drob', 'rouwd', 'ride', 'roid', 'row-ad' and 'reed'. Errors for *flown* were 'flant', 'flower' (4 subjects), 'flouwn' (2 subjects), 'flouw-en', 'flow-in' and 'flow'.
- 31% of subjects read *loud* correctly. Errors were 'lood' (2 subjects), 'lod' (2 subjects), 'load' (2 subjects), 'lebb', 'loub', 'loid', 'lund', 'hud' and 'lap'.
- 32% of subjects presented with b/d reversal errors.

Fig. 14

**Oral reading: subjects' knowledge of vowel digraphs**



**1.8 Oral reading of words containing vowel-consonant digraphs (see Figs. 15 and 16, Table 15)**

The results of this test are summarised as follows:

- The group average for this task was 43,8%.
- The highest score was 83%, the lowest 1%.
- All subjects read the word *car* correctly; 68% of subjects misread the word *harm*, which contains the same digraph.
- There was an error rate of 89,5% for the words *calm* and *chalk*; 84% for *haul*; 74% for *fern*; 68% for *turn*; 58% for *dirt*; 42% for *horns*; 37% for *saw*; 32% for *light* and 26% for *new*.

Table 15: Oral reading error analysis - words containing vowel-consonant digraphs

Subjects	new	saw	harm	horn	car	dirt	fern	calm	turn	haul	chalk	light	Total (12)	Errors
1	1	1	0	0	1	0	1	0	0	0	0	1	5	hum; hern; detty; clam; train; haul; chot
2	1	1	0	1	1	0	0	0	1	0	0	1	6	him; harm; fun; clam; hello; shake (ch=sh)
3	1	1	0	0	1	0	0	0	0	0	0	0	3	home; han; dit; filled; clem; then; hell; shik (ch=sh); lit
4	1	1	1	1	1	0	0	0	0	0	0	1	6	dreet/be...; duh-reet; fun; ke-lam; kun tun; howl; clock (ch=cl)
5	1	1	0	0	1	1	0	0	0	0	0	1	5	home; turn hur-en; fan; clamp; tor-en torn; refusal (haul); chuck (a=short vowel sound)
6	1	0	0	0	1	0	1	0	0	0	0	0	3	was say; hume; heen; det; refusal (calm); nun; heel; clmwk (ch=cl); late light
7	1	0	0	1	1	0	1	0	1	0	0	1	6	sway; wame; det; kelm; hull; stulk (ch=sh)
8	1	1	1	1	1	1	0	0	1	1	0	1	9	fen; clam; salk (ch=s)
9	1	1	0	1	1	1	0	0	0	0	0	1	6	hem; fren; cline; tune; hie-ull; check chelk
10	1	1	1	0	1	0	1	1	1	0	0	1	9	harm; hull; check
11	1	1	0	0	1	1	0	0	0	0	0	0	4	ha-rem; ho-ren; fe-ren; clam; train; ah-ool; coo... (ch=c); late
12	1	1	1	1	1	1	0	0	1	1	1	1	10	fin; fun; clam
13	1	1	0	1	1	1	0	0	1	0	0	1	7	ham; fawn; refusal (calm); hurl; check
14	1	0	1	1	1	0	0	0	0	0	1	1	6	sow; dirt; funny; ca-lum; train; hull
15	0	0	0	0	1	0	1	0	0	1	0	0	3	now; sa-wer; him; hom; don't; cal; tun; shalk (ch=sh); refusal (light)
16	0	0	0	0	1	0	0	0	0	0	0	0	1	neh-wuh; sow; h-a-r-m; h-o-r-n; belt (d=b); fat; clown; teh-rin; hurl; chicken; late
17	0	0	1	1	1	1	0	0	0	0	0	0	4	now; sow; fin; cam; nme; refusals (haul, chalk); late
18	0	1	0	0	1	0	0	0	0	0	0	1	3	no; h-a-r-m; refusal (all other words)
19	0	0	0	1	1	1	0	1	0	0	0	1	5	now; show; ham; fahn; tune; hell; chuck
	14	12	6	10	19	8	5	2	6	3	2	13	101	s= sound of the letter      n = name of the letter

- examples of errors on these words are: *saw* read as 'was', 'sway', 'soww' (3 subjects), 'sa-wer' and 'show'; *horn* read as 'hem', 'han', 'hurn', 'hume', 'ham' and 'ha-rem'.
- Errors on the word *chalk* include: 'shake', 'shick', 'shulk', 'chack' and 'chicken'. Other errors include 'home' for 'harm', 'filled' and 'funny' for *fern*, 'hello' for 'haul', 'don't' for *dirt*.

Fig. 15

**Oral reading: knowledge of vowel-consonant digraphs**

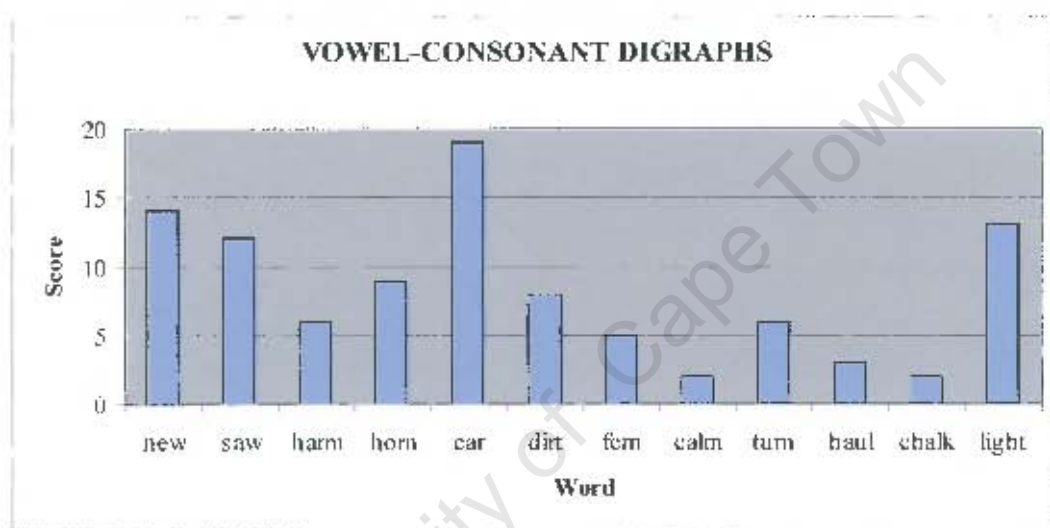
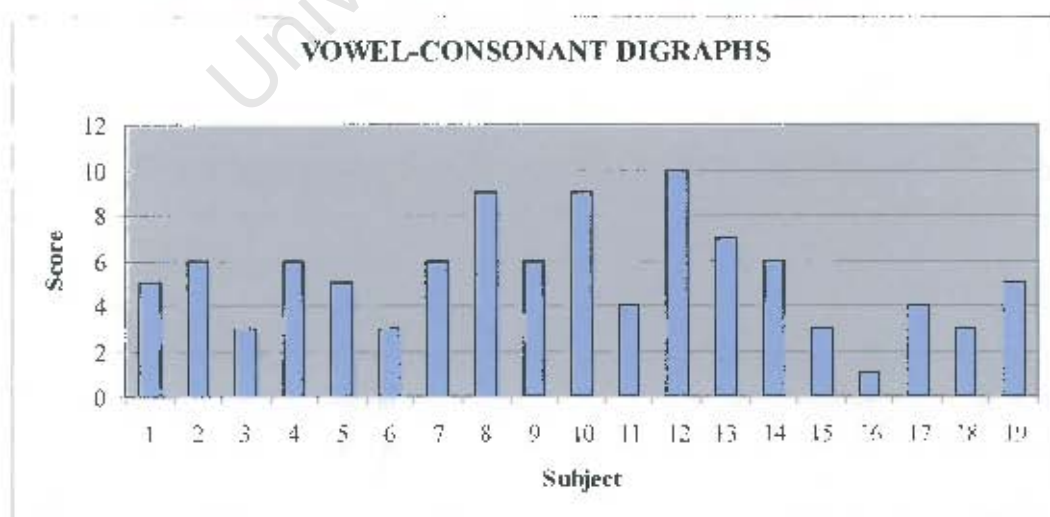


Fig. 16

**Oral reading: subjects' knowledge of vowel-consonant digraphs**



## 1.9 Results of the ESSI Reading and Spelling Tests

Norms for the reading and spelling tests have been calculated in the form of stanines and percentile ranks. Norms for Grade 3 have been calculated at the second term level. The stanine scale is a normalized nine point standard scale that produces standard scores ranging from 1 to 9 with a mean of 5 and a standard deviation of 1,96. According to the test manual accompanying the ESSI tests, the stanines may be grouped together to obtain a five-point scale in descriptive terms. The percentile rank of a specific test score is equal to the percentage of testees in the norm group who obtained a score equal to or lower than that specific score.

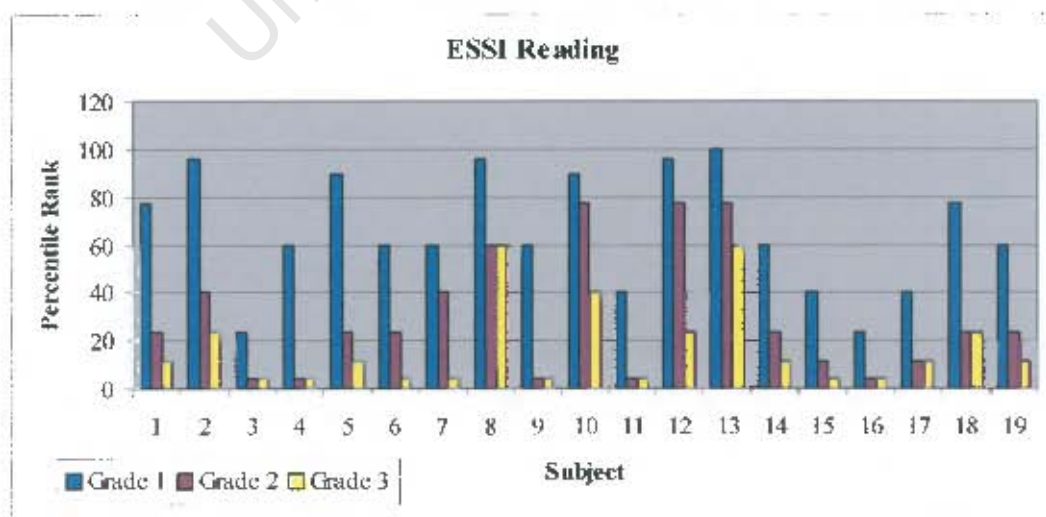
### 1.9.1 ESSI Reading Tests

The results of this test are summarised as follows (see Fig. 17 and Table 16):

- The average stanine score for the Grade 1 readings test was 5,63. This score is described as 'average' for a learner in Grade 1. One subject scored a stanine of 9 ('very good'), five subjects scored stanines of 7 or 8 ('good'), 11 subjects scored stanines of 4 – 6 ('average'), and two subjects scored stanines of 3 ('poor'). The average percentile rank was 65,6.

Fig. 17

#### Oral reading: comparison of subjects' ESSI reading scores for Grades 1-3



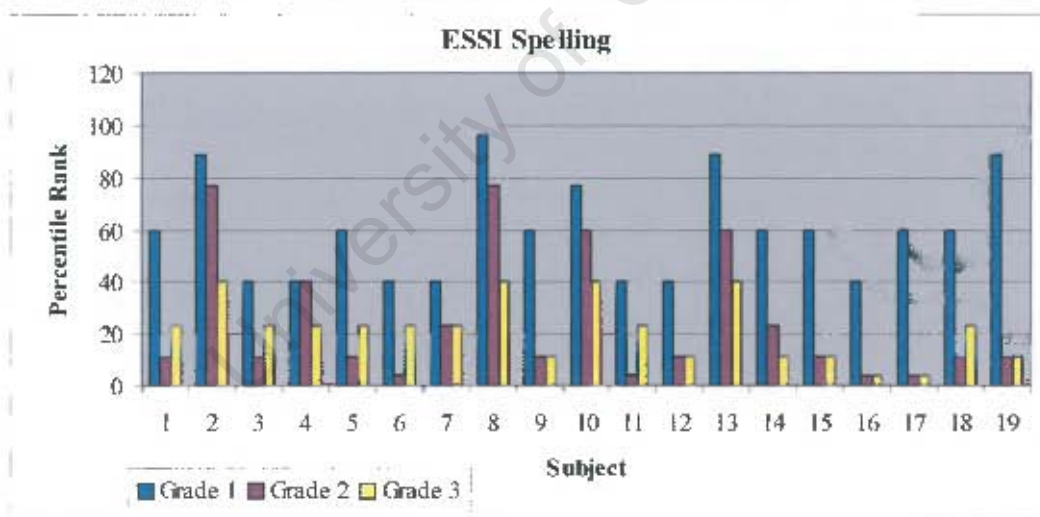
- The average stanine score for the Grade 2 reading test was 3.05. In descriptive terms, this is a 'poor' score for a learner in Grade 2. At this level of reading, the scores of six subjects fell within the 'average' range, eight within the 'poor' range and five within the 'very poor' range. The average percentile rank was 29.
- The average stanine score for Grade 3 (second term) was 2.1. At this level of reading, the scores of three subjects fell within the 'average' range, eight within the 'poor' range, and eight within the 'very poor' range. The average percentile rank was 17.

### 1.9.2 ESSI Spelling Tests

The results of this test are summarised as follows (see Fig. 18 and Table 16):

Fig. 18

#### Written spelling: comparison of subjects' ESSI spelling scores for Grades 1-3



The average stanine score for the Grade 1 spelling test was 5.15. This score is described as 'average' for a learner in Grade 1. Four subjects scored stanines of 7 or 8 ('good'), 15 subjects scored stanines of 4 – 6 ('average'). The average percentile rank was 60.

Table 16: Results of the ESSI Reading and Spelling Tests and the Burt Reading Test

SUBJECTS	M/F	Date of birth	Age	ESSI TESTS											
				Grade 1 Spelling		Grade 1 Reading		Grade 2 Spelling		Grade 2 Reading		Grade 3 Spelling		Grade 3 Reading	
				stanine	PR	stanine	PR	stanine	PR	stanine	PR	stanine	PR	stanine	PR
1	F	95-09-04	8y 10m	5	60	6	77	2	11	3	23	3	23	2	11
2	M	93-04-14	11y 2m	7	89	8	96	6	77	4	40	4	40	3	23
3	M	95-07-14	9y 0m	4	40	3	23	2	11	1	4	3	23	1	4
4	M	95-10-15	8y 8m	4	40	5	60	4	40	1	4	3	23	1	4
5	M	95-04-16	8y 2m	5	60	7	89	2	11	3	23	3	23	2	11
6	M	92-03-11	12y 3m	4	40	5	60	1	4	3	23	3	23	1	4
7	F	94-03-29	10y 3m	4	40	5	60	3	23	4	40	3	23	1	4
8	F	94-07-28	9y 11m	8	96	8	96	6	77	5	60	4	40	5	60
9	F	95-09-01	8y 10m	5	60	5	60	2	11	1	4	2	11	1	4
10	F	95-08-14	8y 10m	6	77	7	89	5	60	6	77	4	40	4	40
11	F	95-06-27	9y 0m	4	40	4	40	1	4	1	4	3	23	1	4
12	F	95-10-14	8y 8m	4	40	8	96	2	11	6	77	2	11	3	23
13	F	94-02-21	10y 4m	7	89	9	100	5	60	6	77	4	40	5	60
14	F	95-03-16	9y 3m	5	60	5	60	3	23	3	23	2	11	2	11
15	F	93-07-15	10y 11m	5	60	4	40	2	11	2	11	2	11	1	4
16	F	95-11-04	8y 8m	4	40	3	23	1	4	1	4	1	4	1	4
17	F	93-04-25	11y 2m	5	60	4	40	1	4	2	11	1	4	2	11
18	M	95-08-03	8y 11m	5	60	6	77	2	11	3	23	3	23	3	23
19	M	91-10-21	12y 8m	7	89	5	60	2	11	3	23	2	11	2	11
		Ave	9y 5m	5.15789	60	5.63158	65.6	2.73684	24	3.05263	29	2.73684	21	2.15789	17

SUBJECTS	BURT READING TEST	
	score	Age Bands years/months
1	29	6.07-7.01
2	31	6.09-7.03
3	22	6.00-6.06
4	27	6.05-6.11
5	33	6.11-7.05
6	28	6.06-7.00
7	31	6.09-7.03
8	45	7.11-8.05
9	25	6.03-6.09
10	41	7.07-8.01
11	27	6.05-6.11
12	39	7.05-7.11
13	44	7.10-8.04
14	39	7.05-7.11
15	25	6.03-6.09
16	25	6.03-6.09
17	25	6.03-6.09
18	30	6.08-7.02
19	38	7.04-7.10
	31.79	6.09-7.03

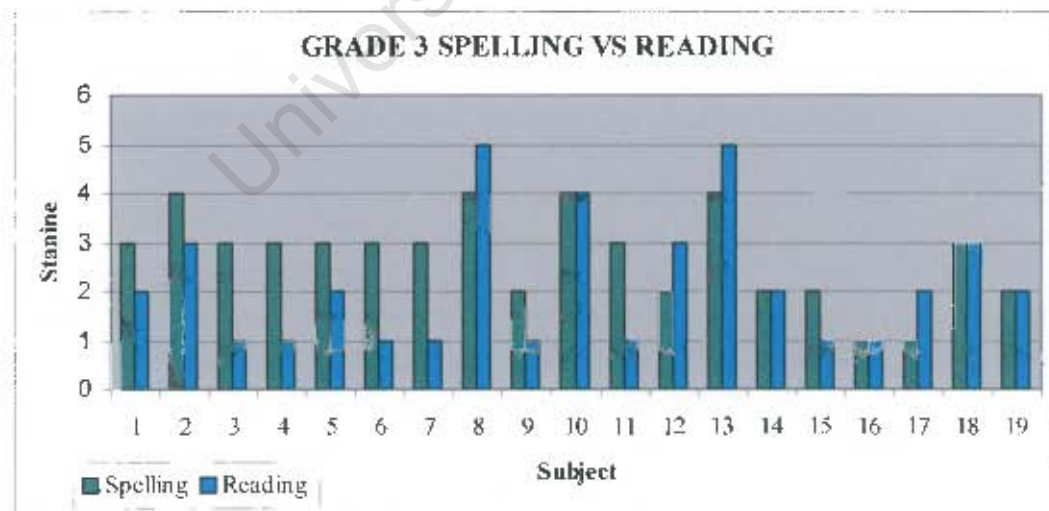
- The average stanine score for the Grade 2 spelling test was 2.7. In descriptive terms, this is a 'poor' score for a learner in Grade 2. At this level of spelling, the scores of five subjects fell within the 'average' range, ten within the 'poor' range and four within the 'very poor' range. The average percentile rank was 24.
- The average stanine score for Grade 3 (second term) was 2.7. At this level of spelling, the scores of four subjects fell within the 'average' range, thirteen within the 'poor' range, and two within the 'very poor' range. The average percentile rank was 21.

### 1.9.3 Comparison of the ESSI Grade 3 reading and spelling scores

At this level of spelling, the scores of 79% of the subjects fell within the 'poor' or 'very poor' range, as compared to 84% for reading scores within the same categories (see Fig. 19).

Fig. 19

#### Comparison of subjects' Grade 3 (second term) ESSI reading and spelling performance



### **1.10 Results of the Burt Reading Test**

According to the test results, the mean EAS (Equivalent Age Score) for the group is 6.09-7.03 (see Table 16). The average chronological age of the group is 9 years 6 months. The results indicate that in comparison with other children, they recognize and pronounce words at the level of children who are, on average, 2.5 to 3.5 years younger than they are. (The norms for this test were standardised for English speaking children.)

### **1.11 Results of the silent reading comprehension test**

There are six questions in the test. Subjects were encouraged to answer in full sentences, but were not penalised if they did not do so. The results of this assessment are summarised below (see Fig. 20 and Table 17):

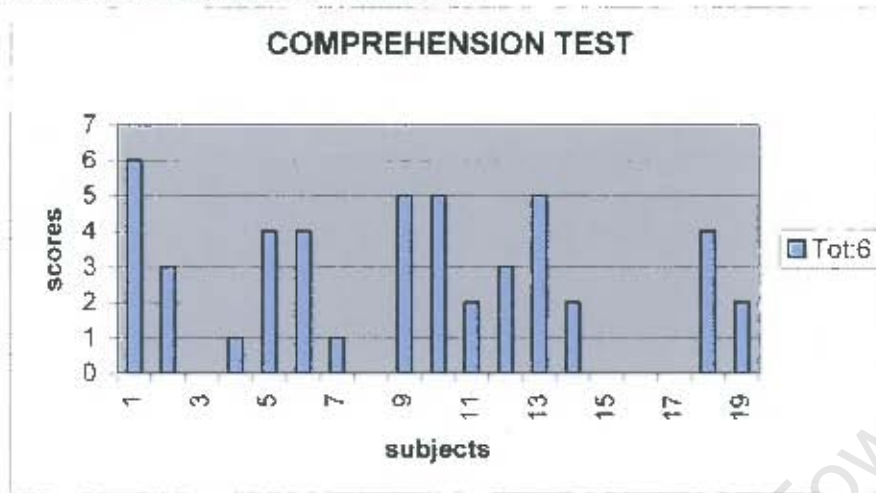
- The group average is 41,2%.
- Nine subjects scored 50% or higher. One subject scored full marks. Five subjects scored nought; of these, two handed in blank forms.
- The group did not attempt to answer 31% of the questions. Twelve subjects did not attempt to answer the first question, 'Who plays soccer?'
- Two subjects answered the questions using full sentences and capital letters where appropriate.
- Four subjects wrote answers that were incomprehensible, for example:  
    'Bob he is said boll'  
    'The boy is the team games'.
- Three subjects wrote sentences that were copied from the passage but were unrelated to the questions they were attempting to answer.

Table 17: Results of silent reading comprehension test.

Subjects	Q1	Q2	Q3	Q4	Q5	Q6	Tot. 6	Comments
1	1	1	1	1	1	1	6	One complete sentence, rest phrases/one word answers. Omissions: <i>The</i> are eleven players in a team
2	0	1	1	0	0	1	3	One complete sentence, some answers unrelated to question e.g. Tuesdays (1), some incomprehensible
3		0	0	0	0	0	0	Answers incomprehensible: The boy is pit in sokos. (3) The boy is the team games. (6)
4		1	0	0			1	Incomplete sentences
5		0	1	1	1	1	4	One word answers
6	0	1	1		1	1	4	One complete sentence, one word answers.
7		1	0	0	0	0	1	Answers incomprehensible e.g. Bob he is said boll; Bob he said is a win. They he said his team is good.
8	0	0	0	0	0	0	0	Answers bear no relation to questions. Answers were written in full sentences, copied from passage.
9	1	1	1	1	1		5	Complete sentences. Capital letters used correctly
10		1	1	1	1	1	5	Complete sentences. Capital letters used at beginning of four sentences.
11		0	1	0	1	0	2	Complete sentences. Capital letters used correctly.
12		0	0	1	1	1	3	One / two word answers. Days written in capital letters.
13	1	1	0	1	1	1	5	Letters omitted He <i>play</i> for two years. <i>the</i> are eleven players. <i>The</i> play game on Thursday
14		1	1	0			2	Two complete sentences. Capital letters used correctly.
15							0	Blank form.
16							0	Blank form.
17	0	0					0	One word answers - not related to questions asked.
18		1		1	1	1	4	One word answers. Capital letters used correctly
19		1	1				2	Two complete sentences. Capital letters used correctly
	3	11	9	7	9	8	47	Q= Number of question.

Fig. 20

**Silent reading – comprehension test**



**1.12 Results of the sentence dictation task (sight words)**

The sentences contain a total of 31 words. One mark was given for words spelled correctly. The results for this task are summarised below (see Table 18a and Table 18b):

- The group average for this task was 38,5%.
- No subject could spell all the words correctly. No word was correctly spelled by all subjects in the group.
- The lowest score was 16% (2 subjects); the highest 64,5% (one subject).
- The words *your*, *were* and *does* were spelled incorrectly by all subjects.
- The words *again*, *any*, *these*, and *doing* were spelled incorrectly by eighteen subjects.
- Other words incorrectly spelled (or omitted) by nine or more subjects include *goes*, *was*, *where*, *some*, *of*, *there*, *want*, *books*.
- Subjects omitted 15% of words contained in the sentences. In the sentence, 'Come and have some of your milk', 17 subjects omitted the words *of your*.
- Many spelling errors were predictable errors, such as *doowing* and *do weng* for *doing*, *mane* for *many*, *eny* and *eni* for *any*; *dus*, *das*, *daz* and *dez* for *does*; *sum* and *som* for *some*. Other errors involved letter reversals, such as *dook* for *book*; *buse*

Table 18a: Results of the sentence dictation task (sight words) sentences 1, 2 and 3

	Come	and	have	some	of	your	milk.
1	came	1	1	sum			1
2	came	1	1	sum	1	you	
3	1	1	1	sum	1	youer	1
4	1	an	afre	1			1
5	came	1	Hav	1			1
6	1	1	1	sam			1
7	1	1	1	1			1
8	1	1	1	1			1
9	1	1	hev	sum			mlik
10	1	1	1	som			milke
11	1	1	1	sum			1
12	1		1	1			1
13	1	1	1	same			1
14	1	1	hev	so			1
15	kame	1		1			mlic
16	came	1		sinsuit			
17	1	1	give	is			1
18	kem	1	1	sam			mark
19	kame	1	1	same			1
	12	17	12	6	2	0	13

	Do	not	go	there	again.
1	1	1	1		anen
1	1	1	1	in his	gan
1	1	1	1	in the	
1	1	1	1	i	agene
to	1	1	1	1	
1	1	1	1	1	a gay
1	1	1	1	1	are gane
1	1	1	1	1	agena
don	1	1	1	1	agan
1	1	1	1	1	1
1	1	1	1	the	ugen
do	1	1	1	1	a gyn
1	1	1	1	to the park	
du	1	1	1	the	a gane
11	14	13		7	1

	Does	he	want	any	of	these	books?	TOTAL
Das	1	wat	an	for	this	1		8
Thas	1	what	eny	1	this	book		8
buse	his		anicy	1	tine	Book		6
dase	1	1	ani	1	this	dook		9
daz	1	1			1	1		7
das	1	what	en	1	this	1		11
dats		1	eny	1	this	book		10
dass	1	1	1	1	this	book		11
this	1	1	ani	i	this	1		10
das	1	1	eny	on	this	1		10
					this	1		8
das		1	en		this	1		7
das	1	1	eny	1	this	book		12
dus	1	1	in	1	this	1		10
dus	hi	wnt	ani	1	thes	1		7
this	is	we						4
das	hi	wat	an		the	book		3
dez	1	yot						3
daze	1	hwant	to have one of.					6
0	12	9		1	10	1	9	150

Table 18b: Results of the sentence dictation task (sight words) sentences 4, 5 and 6

Subjects	She	goes	there	many	times.
1	Cis	l	the	mane	l
2	l	gos	the	men	times
3	l	gosc	thea	evre	time.
4	l	goas	the	mani	times
5	l	gos	the	l	l
6	l	gows		l	
7	l	gos	the	l	l
8	l	l	the	any	l
9	l	gos	l	ani	teams
10	l	gous	l	every	day
11					
12	shi	gos		men	l
13	l	l	l	l	time
14	l	gows	l	menni	l
15	shi	gos		an	tim
16	l	go	the	manitime	
17	shi			min	
18	l	gos	l	l	
19					
	13	3	5	5	6

What	was	she	doing?
wat		hisc	Dowe
l	l	l	dowing
wate	wuse	siet	
l	l	l	dowing
l	das	l	do
whent	his	l	doowing
l	l	l	dowing
l	l	l	dowing
wat	l	l	do weng
wate	l	l	duing
thas			
l	l	he	l
wht	l	l	doowing
wat	wus	hi	doo
wat	gon		don
wat	l	sh.	doo weng
want	wos	l	duwing
6	9	10	1

Where	were	you?	Total
wane	wan	l	3
l	wan	l	6
Wea	you	l	2
We	way	l	5
wa	who	l	6
Whe	wa	l	4
l	wher	l	8
l	wa	l	8
wer	wer	l	5
wber	war	l	5
			0
we	wa	l	2
we	wer	l	8
whe	wer	l	6
wa	wh	l	1
wan	wab	do	1
we	arc	l	2
wd	wey		3
we	wo	l	2
3	0	16	77

- for *does*. Examples of errors involving the omission of letters include *men*, *min*, *any* and *an* for *many*; *so* for *some*; *anen* and *gan* for *again*, *wat* for *want*, *hook* for *books*. Examples of errors involving the addition of letters include *don* for *do*. Other errors involve the substitution and addition of whole words or phrases, such as *to the park* for *there*, *to have one of* for *of*. Other errors involve the incorrect sequencing of letters, such as *mlik* for *milk*.

### 1.13 Controlled free-writing task

In this task, subjects were asked to write a sentence illustrating what they thought was happening in each of six pictures. The results of this task are summarised as follows (see Table 19a and Table 19b):

- 63% of subjects attempted to describe what was happening in all six pictures. These responses ranged from well constructed, grammatically correct sentences, to responses of single words describing the main action depicted in the pictures.
- Forty-three sentences written by the group (37,7%) were considered adequate in that they contained a subject and predicate, even if spelling, punctuation and concord errors had been made. The following sentences conform to the syntactic rules of grammar:

**Picture 1:** *They are sleeping; The boy is waeking up; this boy is sleeping; They have to wek up to gotso school; I wake up in the morning; The children are sleeping.*

**Picture 2:** *I wackup at six 'oclock; they are dressing; They are puting school cloths on; I put my coss on*

Table 19a: Controlled free-writing task

Number	Picture 1	Picture 2	Picture 3
1	They are sleeping	They are wearing They clothes	They are brushing Their teeth
2	I sleep at eight 'o'clock	I wake up at six 'o'clock	I brush my teeth at (half) past six
3	you sleep at six o'clock.		
4	They are sleep	They are wearing They coat	They are cleaning tooth
5	The Boy is waking up.	The Girl and the Boy are washing Their selves	They washing Their tooth to go to school
6	they are sleeping	they are dressing	they are brushing their teeth
7	the sister and a Brother is sleep	the sister and her Brother is wearing the school cloth	the Brother and a sister is Brushing his teeth
8	She is Sleeping	He button her shirt	She is brushing her teeth
9	Sleep	Put on	it
10	The children are sleeping.	They are putting school clothes on.	They are brushing their teeth
11	Look This Choren was is Do in your Miss I will play	I am so sick I am very cross to day my Choren	was play in The class was not away to day
12	sleeping At night	Cross	brush teeth
13	this boy is sleeping	they wearing school clothes.	They brushing teeth.
14	I stand up in the morning	I wear my school clothes	I Brush my teeth when I am going
15	there a sleeping.	there a wearing.	there a brushing teeth.
16	6 o'clock	5 o'clock	4 o'clock
17	my mother a sleep	I the Glenik	My boy I go to the school I the sisters
18	They have to wake up to go to school	put on four school things	brush four teeth
19	I wake up in the morning	I put my coat on	I brush my teeth

Table 19b: Controlled free-writing task

Subject	Picture 4	Picture 5	Picture 6
1	The are eating	They are going to scool	They are at scool
2	I have brackfust at seven 'o clock	I go to school at eight 'oclock	I learn a school
3			
4	They are eating	They are gowing in bus	
5			
6	the are eting food	they are going to the bus	they are going to the school
7	the sister and a Brother is eating the food	the sister and a Brother is runing to the Bus	the children is at the school
8	She is eating her food	They gowing to school with the transport.	They go in the gate of the School
9	brink	run	go in
10	They are eating	They are going to the bus	
11	woke in my class Room to day I am vere cross ato more was		
12	iting	rung for the bus	go at school
13	They eating brack fast	They going to the bus	They at school ground
14			
15	there a itng brak fst.	there a rang to kach a bus.	there a in school with the bags.
16	7o'clock	8o'clock	8o'clock
17	the bay lting lolipopo time is -clock the bay I iteng I the tija	I bas gow hoom the bey is noth gow to chool	is he ye the has t
18	eat four food be fou you go to school	run fast to the school bus	
19	I go to eat at 7 oclock	I went to the bus stop	I mast go to school now

**Picture 3:** *The are brusing They teethe; I brush my teeth at (half) past six; they are drashing they tiths; She is brushing her teeth; The are brushing their thuth; I Brush my her whn I am going; I brash my thithe*

**Picture 4:** *The are eating; I have brackfust at seven 'o clock; They are eating; the are eting food;the sister and a Brother is eating the food; She is eating her food; eat four food be fou you go to school; I go to eat at 7oclock*

**Picture 5:** *They are going to school; I go to school at eight 'oclock; they are going to the bus; the sister and a Brother is runing to the Bus; They are going to the bus; (35,9%) I went to the bus stop*

**Picture 6:** *They are at school; I learn at school; they are going to school; the children is at the school; They go in the gate of the School; I mast goto school now.*

- The following are examples of sentences regarded as ungrammatical and sometimes meaningless:

**Picture 1:** *They are sleep; the sister and a Brother is sleep; Look This Choren was is Do in your Miss I will play; there a slipig; my mother a slpee*

**Picture 2:** *They are wer They clother;Put on; He buton her shet; I am so sike I am vere cross to day my Choren; there a waring; I the Glenik*

**Picture 3:** *was play in The class was not kwayt to day; there a brhshngtih; my boy I go to the school I the seters; brshe four teth*

**Picture 4:** *woke in my class Room to day I am vere cross ato moro was; the bay Iting lolipopo time is -clock the bay I iteng I the tija*

**Picture 5:** *rung for the bus; there a rang to kach a bus; I bas gow hoom the bey is noth gow to chool*

**Picture 6:** *is he ye the bas t; go in*

## **2. Tests assessing phonological awareness:**

### **2.1 Diagnostic Dictation Test**

The results of this task are given in Table 20. The scores give some indication of the subject's ability to analyse words and to find some way of recording the sounds that are heard as letters. Alternatives of words are allowed provided the sound analysis is a useful one. Additions of letters do not affect scoring. The results are summarised as follows:

- The average stanine scored by the group was 5. (The scores for the test have been normalised for children 6:0-7:3; the average age of the group is 9:5.)
- Seven subjects achieved stanines of 4 or lower. The lowest stanine scored was 3 (two subjects).

### **2.2 The Auditory Blending Test**

Raw scores ranged from 22-30 points (see Table 21). When converted to EG (equivalent grade) bands, all subjects performed at the Grade 3 level.

### **2.3 The TAAS Auditory Analysis Test**

According to the test results, none of the subjects performed at the Grade 3 level (see Table 21). The average EG (equivalent grade) band was 1.6. This result suggests that, on

Table 20: Hearing and recording sounds in words - Clay's dictation task

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	Total	Stanine						
Subjects	The	boy	is	riding	his	bike.	He	can	go	very	fast	on	it																																
1	The	boy	is	riding	his	bike.	He	can	go	very	fast																											32	6						
2	The	boy	is	ride	his	biyc.	he	can																																26	4				
3	The	boy	is	rudieg	his	buke.	hus	can	go	fare	fuste																													27	4				
4	The	Boy	is	riding	his	bick.	He	can																																	33	6			
5	The	boy	is	raeding	his	baek.	He	can	go	very	fast																														31	5			
6	The	boy	is	rayding	his	bayck.	he	can	go	verey	faste																														35	6			
7	the		is	rouding	his	bick.	he	can	go	very	fust																															34	6		
8	The	boy	is	riding	his	bike.	he	can	go	very	fast																															37	7		
9	The	Boy	is	brving		biyk.	hi	can	go	veri	ferst																															31	5		
10	The	boy	is	riading	his	buck.	The	can	go	very	fast																															34	6		
11	The	boys	is	raiedegin	his	buyeka	He	can	go	verey	fast																															30	5		
12	the	Boy	is	riyng	is	dak.	hi																																				20	4	
13	The	boy	is	rading	his	byik.	He	can	go	very	fast																																	36	7
14	The	boy	is	rideing	His	bick.	He	can	go	vere	fust																																33	6	
15	the	Boy	is	ridig	His	biki.	Hi	can	go	vari	fst																																29	5	
16	The	boy		rud		puk	He	Kan		runn up																																	12	3	
17	the	boy	is	ratheng	is	park																																						12	3
18	The	Boy	is	riding		blk.	he	can	go		fuz																																23	4	
19	The	boy	is	rading	his	pake.	He	can																																			20	4	

Av 5

Normalised Scores (Urban children aged 6:0 - 7:3) - Stanine Groups: 1 (0-3); 2 (4-9); 3 (10-17); 4 (18-27); 5 (28-31); 6 (32-35); 7 (36-37); 8 --, 9 --

average, the children in the target group are performing at a level expected of a child midway through Grade 1.

#### 2.4 The PAT Test (Rhyming subtests: Discrimination and Production)

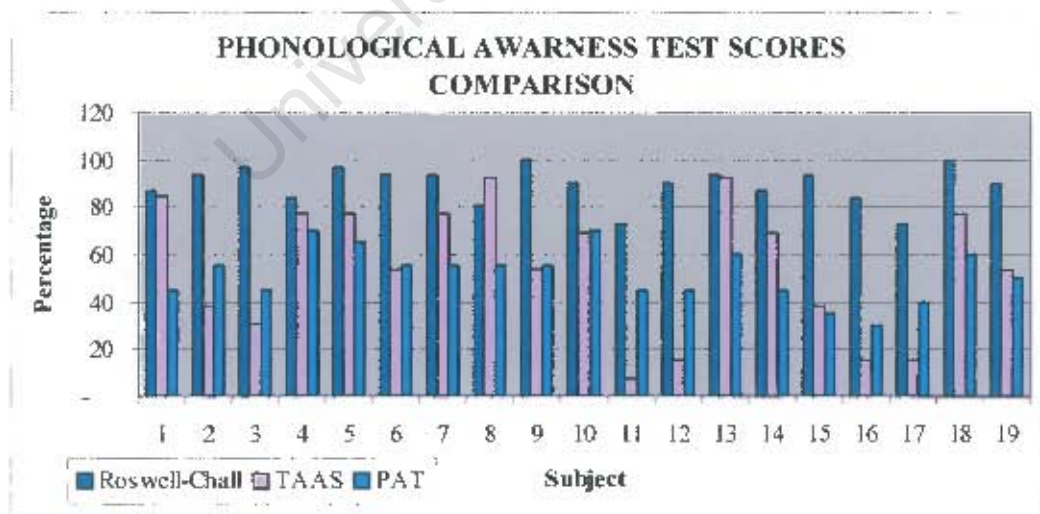
The results are summarised as follows (see Fig.21 and Table 21):

- The mean AE (Age Equivalent) scores for the discrimination and production subtests were 5.1 and 6 (below the test norms). The test has been normalised for children 5:1-6:6:7.
- Five subjects obtained the maximum scores possible for the discrimination test; the highest AE score in the rhyme production test was 5:2.

A comparison of the subjects' scores on the Roswell-Chall, TAAS and PAT tests is given in Fig.21 below.

Fig. 21

Comparison of subjects' scores on the Roswell-Chall, TAAS and PAT tests



**Table 21: PHONOLOGICAL AWARENESS TESTS**

SUBJECTS	Roswell-Chall Auditory Blending Test		
	Raw Score (30)	%	Equivalent Grade
1	26	87	3
2	28	93	3
3	29	97	3
4	25	83	3
5	29	97	3
6	28	93	3
7	28	93	3
8	24	80	3
9	30	100	3
10	27	90	3
11	22	73	3
12	27	90	3
13	28	93	3
14	26	87	3
15	28	93	3
16	25	83	3
17	22	73	3
18	30	100	3
19	27	90	3
Avg	26.8	89.30	3.0

SUBJECTS	TAAS Auditory Analysis		
	Raw Score (13)	%	Equivalent Grade
1	11	85	2
2	5	38	1
3	4	31	1
4	10	77	2
5	10	77	2
6	7	54	1
7	10	77	2
8	12	92	3
9	7	54	1
10	9	69	1
11	1	8	k (-1)
12	2	15	k (-1)
13	12	92	3
14	9	69	1
15	5	38	1
16	2	15	k (-1)
17	2	15	k (-1)
18	10	77	2
19	7	54	1
	7.1	55	1.6

SUBJECTS	The Phonological Awareness Test (Robertson & Salter:1997) Rhyming Subtest								
	Raw Score: Discrimination	%	AE	Raw Score: Production	%	AE	Total	%	AE
1	8	80	5,1	1	10	b	9	45	b
2	10	100	a	1	10	b	11	55	b
3	8	80	5,1	1	10	b	9	45	b
4	10	100	a	4	40	5,2	14	70	5,2
5	8	80	5,1	5	50	b	13	65	b
6	9	90	5,10	2	20	b	11	55	b
7	8	80	5,1	3	30	b	11	55	b
8	7	70	b	4	40	b	11	55	b
9	9	90	5,10	2	20	b	11	55	b
10	10	100	a	4	40	b	14	70	5,2
11	9	90	5,10	0	0	b	9	45	b
12	6	60	b	3	30	b	9	45	b
13	10	100	a	2	20	b	12	60	b
14	9	90	5,10	0	0	b	9	45	b
15	7	70	b	0	0	b	7	35	b
16	6	60	b	0	0	b	6	30	b
17	8	80	5,1	0	0	b	8	40	b
18	10	100	a	2	20	b	12	60	b
19	7	70	b	3	30	b	10	50	b
	8.4	83.7	5.1	1.9	19		10.3	51.6	

### **3. Statistical analysis of the data**

#### **3.1 Interrelationships between the measures**

Cronbach's Alpha was used to assess the internal consistency of the tests ( $n=23$ ). The value ( $r = .88$ ) is high, indicating that the test battery as a whole is a reliable instrument. The tree clustering (dendrogram) method was used to aid visualisation of the similarities between the scores for the various literacy and phonological awareness test measures. The data was first standardised to offset the impact of using different scales (that is, where the total mark for each question differed). The Euclidean (and square Euclidean) distances were computed from raw data.

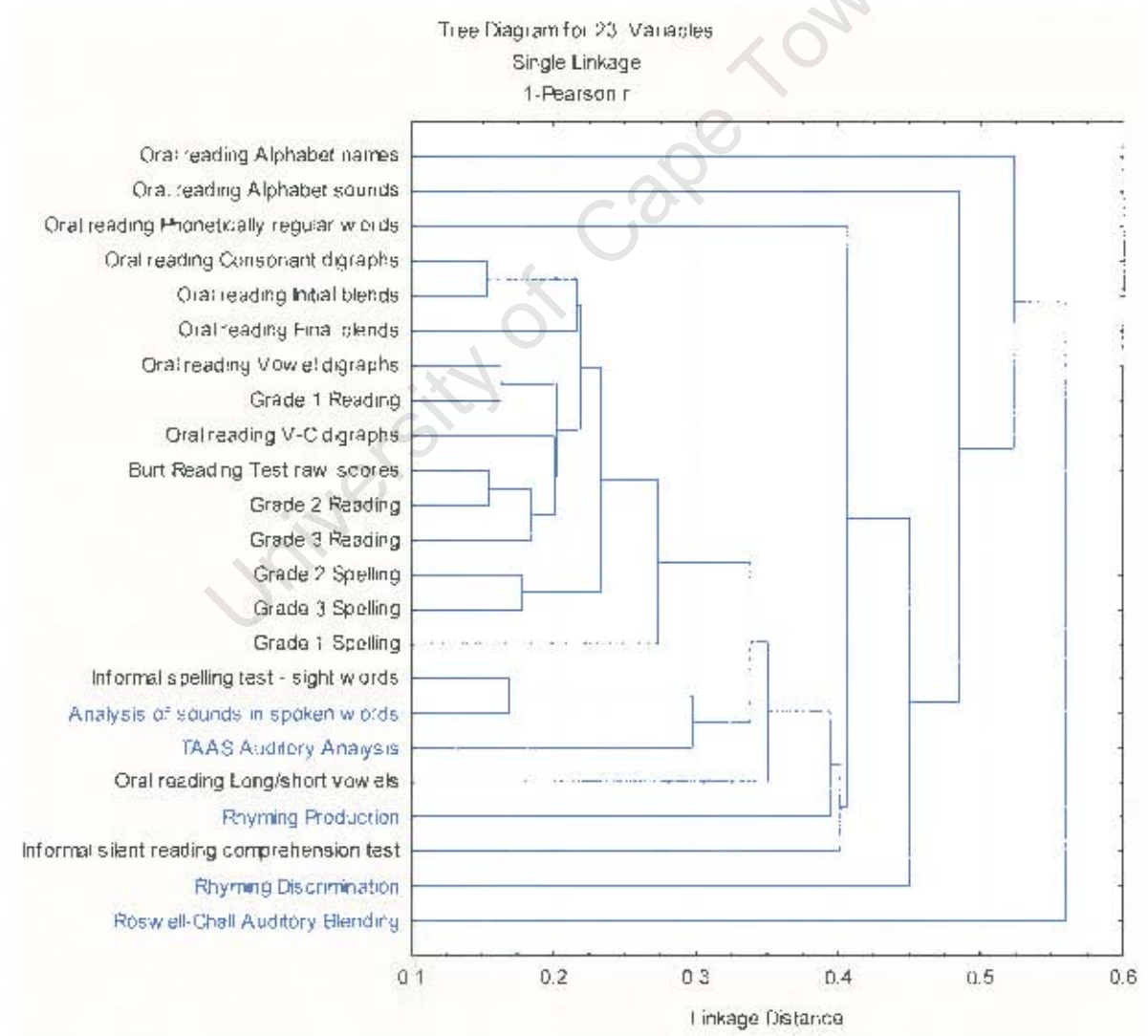
A pictorial description of the hierarchical clustering shows which clusters are strongly or weakly joined. The difference between the clusters is proportional to the length of the horizontal lines projecting from each cluster (Statistica, 2006). Each cluster represents measures that are grouped together because of the characteristics they possess. All the variables within each cluster are inter-correlated with each other at a level determined by the smallest correlation coefficient in the cluster (Clustan Graphics, 2006). There is no statistical criterion for determining correlation cut-off points (Hair, Anderson, Tatham, & Black, 1998). When the cut-off is set at 0.55, four clusters are observed (see Fig. 22). These are:

- The largest cluster includes 12 measures involving digraphs, blends, ESSI Tests (spelling and reading) and Burt Reading Test. (These tests appear highly correlated, and may be composed of two, highly correlated nests of clusters).
- The 'nearest neighbour' to the first cluster involves measures on the informal spelling test of sight words, oral reading of words containing long and short vowels, analysis of sounds in spoken words, and the TAAS tests.
- A third cluster contains measures from oral reading of phonetically regular words, rhyming (production and discrimination) and the comprehension task.

- The fourth cluster contains three measures: Knowledge of alphabet names and sounds, and auditory blending.

There are no obvious ‘outliers’ in the Tree Diagram. Outliers are atypical data points that do not appear to follow the characteristic distribution on the rest of the data (Statistica, 2006).

Fig.22 Tree diagram of the 23 test measures



A correlation matrix (see Appendix 10) was used to examine patterns of intercorrelations between the twenty-three literacy and phonological awareness measures. If different tasks measure a common skill they should correlate highly (Muter et al., 1997).

The highest correlations between phonological awareness measures are:

- Auditory analysis (TAAS) and analysis of sounds in spoken words (.69,  $p < .01$ )
- Auditory analysis (TAAS) and rhyme production (.57,  $p < .05$ ).
- Rhyming discrimination and analysis of sounds in words (.47,  $p < .01$ ).

The lowest correlations between phonological awareness measures are:

- Rhyme production and rhyme discrimination (.09).
- Auditory blending and rhyme discrimination (.20).

Literacy development measures correlated as follows:

- Significant correlations were found between fifteen literacy measures (see Appendix 10). Eight of the correlation values were between the .80 and .85 ( $p < .01$ ) levels.
- Significant correlations were found between knowledge of alphabet names, and analysis of sounds in spoken words (.48,  $p < 0.05$ ), and between knowledge of alphabet sounds and analysis of sounds in spoken words (.52  $p < 0.05$ ).

Literacy measures correlated with phonological awareness measures as follows:

- The rhyme production measure correlated significantly with nine literacy measures. The highest correlation values were: ESSI Grade I Reading test (.61,  $p < .01$ ) and oral reading of VC digraphs (.58,  $p < .01$ ). Other literacy measures that correlated with rhyme production at values between .46 and .53 ( $p < .05$ ) were: Oral reading of consonant digraphs, oral reading of initial blends, oral reading of long and short vowels, oral reading of vowel digraphs, Burt Reading test, ESSI Grade 2 Reading, and the informal spelling test of sight words.

- The rhyme discrimination measure correlated significantly with two literacy measures: ESSI Grade 3 Spelling (.55,  $p < .05$ ) and the comprehension test (.48,  $p < .05$ ).
- The auditory analysis test (TAAS) correlated significantly with seven literacy measures: Informal spelling test (sight words) (.70,  $p < .01$ ); ESSI Grade 1 Reading (.58  $p < 0.01$ ); oral reading of vowel digraphs (.55,  $p < .05$ ); ESSI Grade 3 Spelling (.54  $p < .05$ ); Burt Reading test (.51  $p < .05$ ); and ESSI Grade 2 Spelling and ESSI Grade 3 Reading (both .47  $p < .05$ ).

### 3.2 Facility and discrimination indices

The **facility index** is a measure of how difficult each test item was. It is the proportion of students who answered a particular item correctly. The lower the facility value (FV), the more difficult subjects found the item. Table 22 presents item facility and discrimination indices for the 23 measures used in the study. (Refer to Appendix 10 for the key to test numbering in Table 22.)

Low facility index values:

Item 16	ESSI Grade 3 Reading	0.17
Item 23	Rhyme production	0.19
Item 15	ESSI Grade 3 spelling	0.21
Item 13	ESSI Grade 2 spelling	0.24
Item 14	ESSI Grade 2 reading	0.29
Item 18	Informal spelling test (sight words)	0.39
Item 17	Comprehension test	0.37

High facility index values:

Item 3	Oral reading of phonetically regular words	0.93
Item 20	Auditory blending	0.89
Item 22	Rhyming discrimination	0.84

Item 6	Oral reading final blends	0.80
Item 1	Oral reading alphabet names	0.79

**Table 22: Facility and discrimination values**

Item no	Overall facility	Discriminating value
1	0.79	0.13
2	0.66	0.17
3	0.93	0.06
4	0.72	0.33
5	0.76	0.41
6	0.80	0.25
7	0.58	0.36
8	0.58	0.53
9	0.44	0.31
11	0.60	0.32
12	0.66	0.56
13	0.24	0.50
14	0.29	0.49
15	0.21	0.24
16	0.17	0.34
17	0.41	0.37
18	0.39	0.26
19	0.76	0.25
20	0.89	0.04
21	0.55	0.47
22	0.84	0.12
23	0.19	0.27

The **discrimination index** for each measure indicates how well the test identifies the stronger subjects. Items with a discrimination value (DV) of above 0.3 are considered 'good'; those between 0.2 and 0.3 are considered 'workable'; and a discrimination of below 0.2 is considered unacceptable (Coniam, 1998, p. 7).

'Good' Literacy measures:

Item 12	ESSI Grade 1 reading	0.56
Item 8	Oral reading of vowel digraphs	0.53
Item 13	ESSI Grade 2 spelling	0.50

Item 14	ESSI Grade 2 reading	0.49
Item 5	Oral reading initial blends	0.41
Item 17	Informal comprehension test	0.37
Item 7	Oral reading vowel digraphs	0.36
Item 16	ESSI Grade 3 Reading	0.34
Item 4	Oral reading consonant digraphs	0.33
Item 11	ESSI Grade 1 Spelling	0.32
Item 9	Oral reading VC digraphs	0.31

‘Unacceptable’ literacy measures:

Item 3	Oral reading phonetically regular words	0.06
--------	---	------

‘Good’ phonological awareness measures:

Item 21	Auditory Analysis (TAAS)	0.47
---------	--------------------------	------

‘Unacceptable’ phonological awareness measures:

Item 20	Auditory blending	0.04
Item 22	Rhyming discrimination	0.12

### 3.3 Factor analysis

Factors are constructs, or hypothetical entities that are assumed to underlie test measures. The variances extracted by the factors are called the eigenvalues. The exploratory factor loading patterns indicate that there may be five factors possibly underlying the 23 variables (see Tables 23 and 24). These five factors account for 79.08 percent of the total variance extracted. However, in order to perform a fully valid factor analysis with 23 variables, theoretically we would need a much larger sample of children in order to satisfy the statistical requirements of the analysis. Therefore all discussion, from here onwards in this section, remains merely exploratory.

Eleven tests measuring literacy development are loaded on factor 1; six of these have magnitudes greater than 0.80. One of the phonological awareness tests, rhyme production, is loaded on factor 1 (0.55). Factor I accounts for 45.83 percent of the total test variance.

The other four factors account for just over 33 percent of the total test variance. Table 24 shows that:

- Auditory blending (0.83), the comprehension test (0.67), and auditory analysis (0.55) are loaded on factor 2.
- Knowledge of alphabet sounds (0.68), reading of phonetically regular words (0.82), and reading of long and short vowels (0.72) are loaded on factor 3.
- The tests of Alphabet letter sounds and Alphabet letter names are loaded on *different* factors. Knowledge of letter names (0.84) is the only loading in factor 4.
- Six tests load on factor 5: ESSI Grade 2 and 3 Spelling tests (0.68, 0.73), informal spelling of sight words test (0.53), analysis of sounds in spoken words (0.55), auditory analysis, TAAS (0.52), and rhyming discrimination (0.74). The literacy measures that load on this factor are all spelling tests.

**Table 23: Factor analysis: Eigenvalues**

Tests	Eigenvalues Extraction: Principal components			
	Eigenvalue	% Total variance	Cumulative Eigenvalue	Cumulative %
1	10.54	45.83	10.54	45.83
2	2.44	10.61	12.89	56.44
3	2.14	9.31	15.12	65.75
4	1.64	7.15	16.77	72.90
5	1.42	6.19	18.19	79.08

**Table 24: Factor matrix**

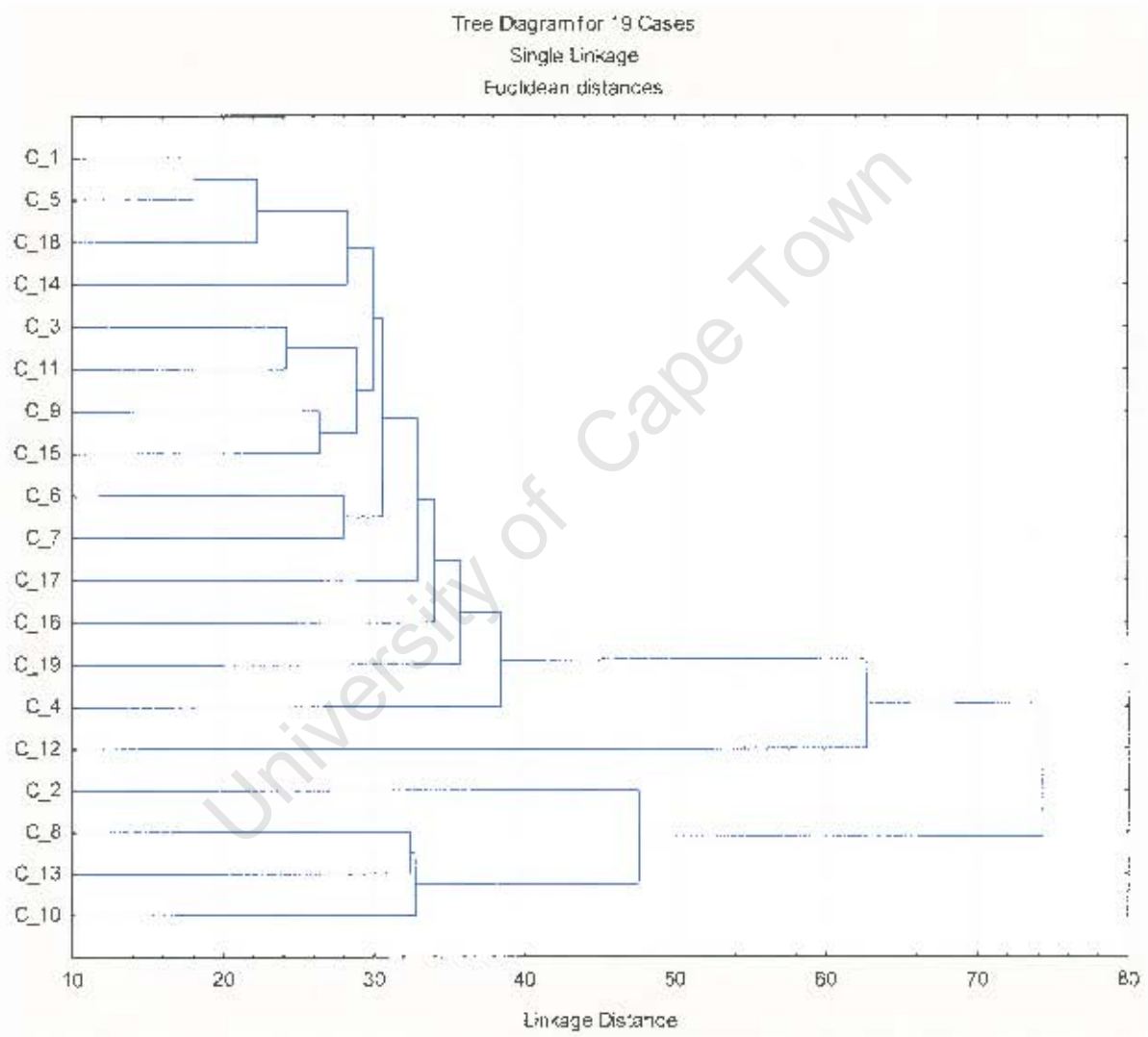
Variable	Factor Loadings (Varimax normalized) Extraction: Principal components (Marked loadings are > .500000)				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Oral reading: Alphabet names	0.08	0.01	0.01	<b>0.84</b>	0.18
Oral reading: Alphabet sounds	-0.11	0.41	<b>0.68</b>	-0.14	0.27
Oral reading: Phon. regular words	0.19	-0.26	<b>0.82</b>	0.24	-0.08
Oral reading: Consonant digraphs	<b>0.82</b>	0.14	0.00	0.42	0.06
Oral reading: Initial blends	<b>0.74</b>	0.14	0.15	0.39	0.11
Oral reading: Final blends	<b>0.77</b>	-0.14	-0.14	0.29	0.30
Oral reading: Long/short vowels	0.41	0.01	<b>0.72</b>	-0.13	0.24
Oral reading: Vowel digraphs	<b>0.84</b>	0.18	0.12	0.11	0.16
Oral reading: V-C digraphs	<b>0.84</b>	-0.03	0.18	0.20	0.09
Burt Readings Test: raw scores	<b>0.84</b>	0.09	0.23	-0.19	0.21
Grade 1 Spelling	<b>0.59</b>	-0.01	-0.01	-0.22	0.50
Grade 1 Reading	<b>0.86</b>	0.30	0.10	0.05	0.26
Grade 2 Spelling	<b>0.53</b>	-0.16	0.37	-0.05	<b>0.68</b>
Grade 2 Reading	<b>0.88</b>	0.08	0.20	-0.15	0.14
Grade 3 Spelling	0.41	0.10	0.34	0.12	<b>0.73</b>
Grade 3 Reading	<b>0.73</b>	-0.05	0.15	-0.34	0.49
Informal comprehension test	0.37	<b>0.67</b>	-0.31	0.14	0.21
Informal spelling test – sight words	0.42	0.25	0.38	0.29	<b>0.53</b>
Analysis of sounds in spoken words	0.16	0.37	0.38	0.48	<b>0.55</b>
Roswell-Chall Auditory Blending	-0.02	<b>0.83</b>	0.07	-0.02	0.01
TAAS Auditory Analysis	0.33	<b>0.55</b>	0.14	0.10	<b>0.52</b>
Rhyming Discrimination	0.00	0.21	-0.24	0.33	<b>0.74</b>
Rhyming Production	<b>0.52</b>	0.35	0.40	0.28	-0.04

### 3.4 Analysis of subject performance

The tree clustering (dendrogram) method was used to aid visualisation of the similarities between performances on the various literacy and phonological awareness test measures. The data was first standardised to offset the impact of using different scales (that is, where the total mark for each question differed). The Euclidean (and square Euclidean) distances were computed from raw data. When the cut-off is set at 40%, four distinct clusters of subjects are observed (see Fig. 23). Table 24 indicates

the average of each cluster group on the various test measures. A cut-off point of 40% for each test performance was used.

Fig.23 Tree diagram of 19 subjects



**Table 25: Subject performance (Cluster averages on the 23 measures)**

	Cluster no:	1	2	3	4
	Cluster members	1, 3, 4, 5, 6, 7, 9, 11, 14, 15, 16, 17, 18, 19	12	2	8, 10, 13
Average scores	Oral reading Alphabet names	80.0	48.0	96.0	76.0
	Oral reading Alphabet sounds	64.0	48.0	68.0	80.0
	Oral reading Phonetically regular words	91.0	100.0	100.0	97.8
	Oral reading Consonant digraphs	66.7	91.7	83.3	88.9
	Oral reading Initial blends	69.4	100.0	95.2	95.2
	Oral reading Final blends	73.2	100.0	100.0	100.0
	Oral reading Long/short vowels	52.2	62.5	87.5	75.0
	Oral reading Vowel digraphs	48.8	75.0	83.3	86.1
	Oral reading V-C digraphs	35.7	83.3	50.0	69.4
	Burt Reading Test raw scores	28.9	39.0	31	43.3
	Grade 1 Spelling	53.5	40.0	89.0	87.3
	Grade 1 Reading	54.9	96.0	96.0	95.0
	Grade 2 Spelling	12.8	11.0	77.0	65.7
	Grade 2 Reading	15.7	77.0	40.0	71.3
	Grade 3 Spelling	16.9	11.0	40.0	40.0
	Grade 3 Reading	7.9	23.0	23.0	53.3
	Informal silent reading comprehension test	36.9	50.0	50.0	55.6
	Informal spelling test - sight words	34.6	29.0	45.2	58.1
	Analysis of sounds in spoken words	73.7	54.1	70.3	96.4
	Roswell-Chall Auditory Blending	89.3	90.0	93.3	87.8
	TAAS Auditory Analysis	52.2	15.4	38.5	84.6
	Rhyming Discrimination	82.9	60.0	100.0	90.0
	Rhyming Production	16.4	30.0	10.0	33.3

- The largest cluster includes 14 subjects. Four 'pairs' of students appear to have responded to the measures in similar ways: 1/5, 3/11, 9/15, 6/7.
- The second cluster contains subject 12, who is the 'nearest neighbour' to the first cluster.
- The third cluster contains subject 2.
- The fourth cluster contains three subjects: 8,10 and 13.

Subjects 2 and 12 could be considered 'outliers' in the Tree Diagram. Outliers are atypical data points that do not appear to follow the characteristic distribution on the rest of the data (Statistica, 2006).

University of Cape Town

## CHAPTER FOUR

### DISCUSSION

#### 1. Introduction

In Chapter Three, a detailed analysis of each child's reading and spelling profile was given, as well as overall performance levels of the group as a whole. To avoid repetition, examples of errors will be repeated only where necessary in order to offer an explanation as to why these errors occur. For ease of reference, reading, spelling and phonological awareness performances will be discussed separately. This will be followed by a general discussion, based on the findings of this study, of the relationship between literacy and phonological awareness skills. The discussion will overlap at times, because, as Snowling (1985, p. 81) reports, "to the extent that accurate spelling relies upon information derived through reading, spelling is dependent upon it". Similar views are held by Templeton (1992, p. 455), who notes that "spelling knowledge...supports reading, writing, vocabulary study, and connections across the curriculum".

#### 2. Tests assessing literacy development

##### 2.1 Knowledge of the names and sounds of letters of the alphabet

An analysis of the responses reveals patterns of errors. These involve general confusion between the following letter names and their sounds: *y* and *u*; *g* and *j*; *c* and *s*; *c* and *k*; *p*, *d* and *b*; *w* and *y*. More than half the subjects could not give the sounds of the letters *c*, *q*, *x* and *y*. None of the children could identify the names and sounds of all the vowels, or of the consonants.

Based on these results, it is evident that the children in this study have an incomplete knowledge of sound-symbol relationships. Goswami (1998, p. 79) notes that “in the research on phonological awareness there is an unstated assumption that some level of phonological awareness combined with alphabet knowledge is necessary for children to learn to decode”. According to some authors, children generally master letter recognition in kindergarten, if not before (Aro et al., 1999; Stahl and Mc Kenna, 2000).

A possible explanation as to why nearly half the subjects pronounce (and write) the short vowel *u* as an “oo” sound is linked to the fact that languages differ in their phonemic repertoire (Schulpen, Dijkstra, Schriefers, & Hasper, 2003). The *u* vowel in Xhosa is pronounced “oo”, as in the English word *rule*. For example, the word *kushushu* is pronounced “koo-shoo-shoo” (Kirsch & Skorge, p. 219). As Schulpen et al. note, errors in this category clearly demonstrate the important implications of the differences that exist between languages in this regard.

Confusions between the letters *c* and *s*, and between *g* and *j*, are also fairly predictable. English is “orthographically nontransparent”, which means that letters can represent more than one phoneme, and phonemes can be represented by more than one letter (Goswami, 1998, p. 43). For example, in the words *cents* and *gentlemen*, the *c* has a “s” sound, and the *g* a “j” sound. Similar findings are reported by Siegel (1998, p. 148), who notes that poor readers have particular difficulty with “the s pronunciation of c, and the j pronunciation of g”. Another explanation of the confusion between the letters *c* and *s*, and one perhaps more appropriate for this particular group of children, is that the name of the letter *s*, pronounced “ess”, or its sound “ss”, sounds similar to the name of the letter *c*, pronounced “see”. These letters share the same phoneme, which may cause the learners to perceive them as identical (especially as nearly 80% of them confuse letter names and sounds).

Different strategies were used by the learners to aid recall of letter names and sounds. These include the verbalisation of whole words beginning with the target letter, such as *man* to recall the sound of the letter ‘m’, or the verbalisation of the letters of the alphabet,

in sequence, until the letter in question was reached. These strategies were used with varying degrees of success. Subject 18 verbalised the word *chicken* in order to recall the letter *c*, and *Wednesday* in order to recall the letter *y*. Subject 11 verbalised the word *jump* in order to remember the sound of the letter *g*. Subject 1 was able to recall the sound of the letter *f* by saying the word *if*, but was unable to use the same strategy when trying to remember the sound of *h* by saying *he*. Six other subjects were also unable to give the sound of the letter *h* when asked to do so. An explanation for this problem is offered by Stainthorp and Hughes (1999, p. 6), who report that the /h/ sound “is just the voiceless counterpart of the vowel sound that follows it”. These authors conclude that it is easy to understand why the sound of this letter is not easy to hear.

Four subjects (4, 6, 8, and 17) confused the letters /b/ d/. Subject 4 confused three letters, /d/b/p/, which involved rotation as well as reversal errors (see Table 6). While subject 8 made no further errors involving the letters *b* and *d*, the other three did. An error analysis of later tests indicated that this confusion resulted in both reading and spelling mistakes. Subject 4 read *drop* for road, and wrote *dook* for books; subject 6 read *brop* for drop, *loub* for loud, and wrote *drashing* for brushing; subject 17 read *drug* for brag, *dress* for bless, *dlow* for blow, and wrote *park for* bike. Bryant & Bradley (1985, p. 24), argue that the direction of letters and words is not a serious problem, and that comparisons between poor and normal readers of the same age “show no difference in the proportion of ‘reversal’ errors that the two groups of children make.”

Although the other subjects did not confuse the letters /b/d/p/ when presented in isolation, seven of the children made between one and six errors when asked to read, or to spell, words containing these letters. Subject 1 read *dent* for bent, *drunch* for bench; subject 2 read *drag* for brag; subject 3 read *sad* for snap; *dress* for bless, *leb* for loud, *by* for day, *rub* for road, and wrote *buse* for does; subject 9 read *deline* for blow, and wrote *brink* for drink, *brving* for driving; subject 15 read *tud* for tub; subject 16 read *bom* for dome, *lap* for loud, *bay* for day, *belt* for dirt; and subject 19 wrote *pake* for bike. Many of these words do not exist in English and a lack of vocabulary may contribute to this high error

rate. This conclusion is supported by Goswami (2002) and Pumphrey (1991), who note that vocabulary development contributes to, and determines, progress in learning to read.

## 2.2 Reading

The discussion below is based on the results of the ESSI and Burt Reading Tests, reading of words containing letter blends, digraphs, long and short vowels, and answers to the comprehension task.

According to the results of the two standardised reading tests, the subjects in this study are considered 'poor' to 'very poor readers'. Although two subjects managed to obtain stanines of 5 in the Grade 3 ESSI Reading Test, their scores in the Burt Reading Test fell between eighteen to thirty months below their expected age levels. The correlation between these two tests is high ( $r = .82$   $p. < 0.01$ ).

Although reading of phonetically regular words was fairly accurate (93% group accuracy), over half the errors involved confusion between vowel sounds, substitution errors (e.g. *den* for 'ten') and addition errors (e.g. *hand* for 'had'). Snowling (1985, p. 92) suggests that it is unreasonable to expect a young child to have knowledge of the "seemingly arbitrary way" vowels in English are represented. She argues that up to the age of about 9 years, it is common for children to make mistakes and to 'mistranscribe' a vowel without necessarily having segmentation or phonological 'deficits'.

Goswami (1998) suggests that vowel pronunciation plays a role in *analogising*, that is, the ability to 'transfer' the sound of one word to another with the same sound. *Onset-rime awareness* (see Chapter One) enables children to use the words they know and have stored in memory, to help them read unknown words.

The words 'dogs', 'log', 'frog', and 'clog' were among the words subjects in the present study were asked to read. After controlling for *onset errors* (initial consonants and

blends), responses were analysed to find out if the children were able to decode words by analogy using the rime *og* or *ogs*. All nineteen subjects read 'dogs' and 'frog' correctly. Thirteen subjects read 'log' correctly. Errors on this word were *leg* (subject 3); *long/lonk* (subject 14); and *long* (subject 19). Thirteen subjects also read 'clog' correctly. Errors were *cloj* (subject 1); *clk* (subject 3); *clonk* (subject 14); and *cloag* (subject 16).

These errors indicate that knowledge of the words 'dogs' and 'frog' did not help these six children read the other two words which also contained the rime *og*.

To confirm the above finding, responses to similar groups of words were analysed. The words 'stop', 'chop', 'hop', 'crop', and 'drop', contain the rime *op*. Eighteen subjects read 'stop' correctly. (Subject 2 read the word as *spot*, a transposition error involving poor auditory and visual sequencing). After controlling for onset errors, seven children were unable to transfer the sound of the rime *op* to other words. Goswami (1998, p. 47) notes that "rimes are functionally important units for young readers of English". This statement appears to be valid for young isiXhosa learners who are learning to read English.

Words that share a rime (*peak-beak*) are easier to read by analogy than words that share only part of the rime (*peak-beam*), Goswami (1998). Subjects in the present study appear to have problems reading both categories of words. Seven subjects were unable to transfer their knowledge of the rime *oud* in 'loud' and 'cloud', reading only one of the two words correctly (none of the errors involved the onsets *l* and *cl*). All nineteen subjects read the word 'car' correctly but thirteen of them were unable to transfer the sound of the digraph *ar* to the word 'harm'.

Goswami (1998) notes that children between the ages of 5 and 7 make a significant number of analogies between shared initial consonant clusters that correspond to onsets (*trip-trim*), but do not use analogies between shared final consonant clusters (*desk-risk*). The children in the present study, who are much older, appear to be using analogies involving both initial and final consonant clusters in their reading. Fourteen subjects read the onset *bl* in 'blow' and 'bless' correctly; eighteen read the *ng* in 'long' and 'sing'

correctly. Only ten subjects, however, were able to transfer their knowledge of the *ng* sound when writing the word 'doing' (see Table 15b). The link between analogies and spelling is discussed in a later section.

Short vowels are generally represented by single letters, and long vowels by multiple letters (either digraphs or a silent e). For this reason, short vowels are encoded more simply than long vowels (Seigel, 1998; Stahl and McKenna, 2000). In the present study, children performed poorly on words with more complex orthographic encoding, such as silent e words and words containing digraphs. Arnold (1990) notes that some children use the strategy of applying phonics to the first phoneme only. This is evident in many of the reading errors recorded in Chapter Three, such as the word 'join' being read as "johnny", "jeen" or "joan".

Results of the silent reading comprehension task indicated that less than half the learners understood the passage. The five subjects who scored nought for the task are functioning at what Pretorius (2002, p 92) refers to as the "frustration level", where children are reading with less than 90% decoding accuracy and 60% or less comprehension. Snow (1998, p.15) argues that "there is a point in the child's growth when we expect 'real reading' to start... children are expected, without help, to read unfamiliar texts, relying on the print and drawing meaning from it". It appears that for many of the children in this study, 'real reading' has not yet begun.

All but two of the subjects were unable to answer the questions in full sentences. These results suggest that the focus of reading lessons in the classroom may be on 'decoding' printed information with little attention paid to the meaning of what is read. According to Prinsloo (2005, p.13), "if children...encounter literacy without also developing the resources to make and take particular meaning from the activities of reading and writing, then they are receiving very little."

### 2.3 Spelling and written work

This discussion is based on the results of the ESSI Spelling Tests, and written answers from the comprehension, sentence dictation and free-writing tasks. According to the results of the Grade 3 ESSI Spelling Test, four children are considered to be 'average' spellers at this level; the rest are considered 'poor' or 'very poor' spellers.

According to Fulk and Stormont-Spurgin (1995, p. 488), spelling is a more difficult task than reading, because it "requires production of an exact sequence of letters, offers no contextual clues, and requires greater numbers of grapheme-to-phoneme decisions". According to Snowling (1985, p. 34), "any child who cannot say a word correctly will have difficulty segmenting it at phonemic level". An investigation of the subjects' spelling skills in this study suggests that their limited experience with the sound system of the English language affects their orthographic representation.

An error analysis of the children's written work indicates that most of them are using vowels (either correctly or incorrectly), in words they write. According to Stahl and McKenna (2000, p.8), this indicates that a "full analysis" of the word is being attempted. Vowels were omitted in these words: *brving* (riding); *wht* (what), *whn* (when); *wh* (were), *fst* (fast); *wd* (where), and *blk* (bike).

Although vowels were generally represented, a characteristic deficiency in the group's receptive phonology appears to be poor auditory discrimination of *individual* vowel sounds. These results are not surprising as vowels are less phonologically accessible than consonants, and are difficult to discriminate (Snowling, 1985; Stahl & McKenna, 2000). Goswami (1991) reports that vowels are the most difficult letters to pronounce in words, and that children misread vowels more frequently than consonants. Goswami (1998, p. 54) notes that "the most consistent links between the English spelling system and the sounds of spoken language occur at the level of the rime". The rime unit of a word corresponds to the vowel plus any following consonants. Pronunciation of single vowels is very variable, but when the vowel and final consonants are considered a unit (such as *-ack*, *-ight*, *-oke*, *-ice*), greater consistency of vowel pronunciation occurs. Research by

Goswami (1998, p. 45) indicates that nearly 500 primary grade words are derived from a set of just 37 rimes.

Determining where word boundaries fall is considered a problem for non-native listeners (Field, 2003). Examples of errors indicating that the subjects had difficulties segmenting connected speech were: *brhshngtih* (brushing teeth), *manitime* (many times), *foolstot* (fast on it), *wackup* (wake up), *gotso* (go to) and *hwant* (he want). Segmentation of sounds *within* words was also generally weak and many of the subjects present with a profile of poor auditory processing skills for individual words. Errors of this type include *mlik* (milk), *choren* (children), *hand* (had), *rum* (rub), *lonk* (long), and *slipe* (ship).

Olson and Caramazza (2004, p.398), categorise spelling errors according to whether “the erroneous spelling could be pronounced in the same way as the stimulus (phonological plausible vs. implausible errors), and whether the error resulted in an orthographically legal or illegal sequence of letters”. When this method of analysis is applied to the present study, many of the spelling errors are ‘phonologically plausible’, for example, *naht* for night, and *gowing* for going, because the errors can be pronounced like the target words. Lerner (1981, p. 343) refers to these types of error as ‘*phonic-equivalent errors*’. *Gowing* is also considered ‘orthographically legal’, as the sequence of letters *-owing* is an existing onset, as seen in the word *blowing*. Words like *naht*, however, are ‘orthographically illegal’ because the sequence of letters *aht* is not a possible word-medial onset. Subject 17 wrote *slpee* for sleeping. This would be considered ‘phonologically implausible’ and ‘orthographically illegal’ (*slp* is not a possible word-initial onset). Further errors in this category are: *blk* for bike (subject 18) and *bucsk* for bike (subject 1). Olson and Caramazza (2004, p.387) point out that “many constraints on sequences, in fact, are identical in the orthography and the phonology”. This implies that, at the time of spelling these particular words, the children were unable to access either phonological awareness skills (auditory analysis, in particular), or knowledge of common sequences of letters, to help them “guess” how these words are spelled.

Many learners left blank spaces on their answer sheets. Moseley (1990) notes that difficulties with spelling are manifest both in what is written, and for fear of error, what is not written. Goulandris and Snowling (1995) suggest that children who have inadequate phonic skills at their disposal to help them read unfamiliar words are unlikely to attempt reading or spelling words they are not sure of.

Results of the controlled free writing test indicate that many of the subjects have a limited vocabulary in English, and were unable to express their thoughts in writing.

### **3. Tests assessing phonological awareness**

This discussion is based on the results of the Clay's Diagnostic Dictation Test, Roswell-Chall's Auditory Blending Test, the TAAS Auditory Analysis Test and the PAT Rhyming Subtests.

Scores on the Auditory Blending Test indicate that the subjects scored at the Grade 3 level. Only two of the subjects scored at the Grade 3 level in the TAAS Auditory Analysis test. Four of them scored at kindergarten levels. According to Rack and Snowling (1985), it is not easy to pinpoint precisely the reasons for any child's failure in segmentation tasks. These authors suggest that difficulties with input phonology (perception), output phonology (production) or phonological memory could cause children to score poorly on segmentation tests (Rack & Snowling, 1985, p, 33).

Only five children in the study were able to discriminate between pairs of words that did, or did not rhyme. The rest of the group obtained scores that were at, or below the AE (Age Equivalent) norm of 5 years, 10 months. Even fewer of them were able to produce words that rhymed with stimulus words. Many of the learners did not appear to understand the concept 'rhyme' or 'rhyming', and it was necessary to give more than one stimulus example. Most of them were unable to produce rhyming words even when encouraged to "make up words", such as "lat" and "wat" in response to the stimulus word

*bat*, as suggested in the Test Manual for this subtest. Playful encouragement “to just say anything that sounds the same”, elicited no more than one or two responses from the subjects.

Goswami (2002, p. 2) argues that “the ability to recognise syllables, onsets and rimes precedes learning a particular spelling system” (her emphases). If, as Goswami (2000, p. 1) argues, “phonological awareness is a consequence of vocabulary development”, then it must be concluded that many of the reading and spelling problems experienced by these learners are a direct result of simply not being able to speak English well enough to organise the spoken lexicon in terms of the intra-syllabic units of onset and rime. Children who have experience with rhyme are better at them (Bryant & Bradley, 1985). Casey and Sheran (2004) agree, noting that current research suggests that while many children develop these skills without explicit instruction, others need repeated exposure to related activities in order to do so.

#### **4. Relationship between literacy skills and phonological awareness**

The subjects in this study scored well below expected levels in all but one of the phonological awareness measures. These findings prompt an important question. To what extent are difficulties in rhyme detection and production, and auditory analysis of sounds in spoken words, a result of the subjects’ *lack of experience* with words in the English language? According to de Klerk (2003), the vast majority of Xhosa learners do not have easy access to native English speaker norms or input during their early acquisition of English, because of the legacy of apartheid. According to Snow (1998, p.15) reading is a “complex developmental challenge...intertwined with many other developmental accomplishments: attention, memory, language, and motivation” (Snow, 1998, p. 15). Olson and Caramazza (2004, p. 509) reviewed thirty-eight spelling studies and concluded that poor spelling was related to “underlying difficulties with language,

phonological awareness, visual and motor processes, and/or inefficient study strategies". All these factors appear to play some part in the poor spelling abilities of the subjects in this study.

Based on the reading and spelling assessments of the subjects in this study, it is suggested that a number of them present with profound learning difficulties that may, or may not be, related to having to learn in a second language, or with difficulties in phonological awareness skills. This conclusion is based on the 1999 definition of dyslexia proposed by the British Psychological Society: "Dyslexia is evident when fluent and accurate word identification (reading) and / or spelling does not develop or does so very incompletely or with great difficulty" (Cline, 2000, p. 88). Cline suggests that when children make slow progress in learning to read and write in a second language it is often assumed that they simply have a language problem, and that if they knew the target language better, they would find it easier to read. While this is often true, "there is a risk that learning difficulties associated with dyslexia will sometimes be overlooked" (Cline, 2000, p. 81). The present study suggests that many of the difficulties experienced by this particular group of children have been 'overlooked' for this very reason.

## **5. Statistical analyses of the data**

Correlation coefficients and factor loadings were used to examine the relationships between the different test measures used in this study. Simple correlation coefficients on their own are not convincing evidence of a strong connection and should be treated with caution. It is quite possible that two correlated variables could both be determined by differences in some other factor, such as I.Q (Goswami, 1998; Pumfrey, 1991).

The results of the present study indicate that there are many significant intercorrelations between literacy skills and phonological awareness measures (see Appendix 10 and Fig.22). Knowledge of the *names* of letters of the alphabet is significantly correlated with analysis of sounds in spoken words (.48  $p < 0.05$ ). Knowledge of the *sounds* of

letters is also significantly correlated with the analysis of sound in spoken words, but at a higher level (.52 p. < 0.05). Cluster analysis of the data indicates that knowledge of both names and sounds of the letters of the alphabet, as well as auditory blending skills are necessary for decoding even phonetically regular words. Rhyme discrimination is also closely linked to the ability to read phonetically regular words. The ability to do well in spelling and reading tasks at the Grade 3 (second term) level is associated with rhyme production, knowledge of digraphs, sight words, and the ability to analyse sounds in spoken words. It is acknowledged that there might be cross-linguistic differences between Xhosa and English with regard to rhymes and that it is possible that Xhosa children may perform poorly on the PAT rhyming subtests, especially production, because they are not familiar with this type of phonological activity in their own language.

The facility index (Table 22) indicates that the learners found five of the twenty-three tests relatively easy to do. These were the reading of phonetically regular words, auditory blending, rhyme discrimination, oral reading of final blends, and knowledge of alphabet names. They found the ESSI Grade 3 test the most difficult, followed by rhyme production, ESSI Grade 2 spelling and reading tests, spelling of sight words, and the comprehension test.

The discrimination index (see Table 22) indicates that of all the literacy tests presented, the Grade 1 reading test was the most efficient at identifying which subjects were 'strongest' (those subjects who achieved the highest scores on the test battery). This was followed by the test on vowel digraphs, and the ESSI Grade 2 spelling and reading tests. Reading of phonetically regular words had a low discrimination index as most children were able to read the words.

The auditory analysis (TAAS) measure was one of the most efficient in the test battery of twenty-three measures, and the only phonological awareness measure that was able to identify which subjects were strongest. The TAAS measure tests the ability to segment

and delete phonemes in words, and is significantly correlated with eight other test measures.

Factor loading patterns indicate that there are five factors, or constructs, underlying the test measures (see Tables 23 and 24). The Burt reading test, five of the ESSI reading and spelling tests, as well as five informal tests measuring knowledge of blends and digraphs, all have loadings on factor 1 (which accounts for nearly 46 percent of the total test variance). These criterion-referenced, or content-referenced tests were included in the test battery because they were assumed to measure 'levels of reading and spelling development'. The construct that explains the underlying unity or common factor variance of this factor springs from the notion of 'master learning', described by Kerlinger (1986, p. 465) as, "the mastery by the individual of defined instructional and learning goals and the assessment of pupil attainment of the goals". What is of particular significance to the present study, is that one of the phonological awareness measures, *rhyme production*, is also loaded on factor 1, signifying the interrelationship between phonics and phonemic awareness.

Two phonological awareness measures, auditory analysis (TAAS), and auditory blending, are loaded on Factor 2, together with the comprehension test. 'Silent reading' and the ability to comprehend written words is related at some level to a child's ability to 'decode' sounds internally, without the benefit of hearing the words spoken aloud.

Knowledge of alphabet sounds, the reading of phonetically regular words and the reading of words containing long and short vowels, are loaded on Factor 3. These measures represent the simplest and most basic connections between phonemes and graphemes. This factor represents the cognitive and psychological 'springboard' from which any further literacy development can be made. The results of this study indicate that the emergent literacy theory approach is an inappropriate model of literacy development for this group of isiXhosa learners. Children whose literacy skills 'emerge' in 'whole language' and print rich environments can happily bypass this stage. Others, especially those who are learning in a language they neither speak nor understand, will need a

careful ‘scaffolding’ teaching approach in order to help them understand the processes involved in reading and writing. Scaffolding theory, as first introduced by Bruner, integrates interactionist and cultural views of child development and focuses on how children construct knowledge rather than, in Piagetian terms, “merely assimilating or internalising it from the environment or culture” (Bruner 2001, p. 52).

Knowledge of alphabet letter names is the only measure loaded on Factor 4. If the sound of a consonant is heard in a word, it is always a consequence of its position next to a vowel, as in the words ‘before’, ‘cedar’, and ‘delay’. Familiarity with the *sounds* of the names of these letters and their graphic representations are important for literacy development.

The ESSI Grades 2 and 3 spellings tests, knowledge of sight words, analysis of sounds in spoken words, and auditory analysis (TAAS), and rhyming discrimination are loaded on Factor 5. Visual memory of sight words, and the ability to delete and segment phonemes in words, contribute towards ‘good spelling’. None of the measures used to test reading development loaded on this factor. The construct underlying this factor is therefore related to ‘written output’ and the phonological awareness measures needed to spell well.

Fig. 23 and Table 25 show that the weakest group of learners, (Cluster 1), scored the lowest marks in twelve of the literacy measures, in spite of having a higher average than two other groups in knowledge of letter *names*. This supports the conclusion that knowledge of letter names is ‘necessary but not sufficient’ for literacy development. Learners in Cluster 1 scored over 40% lower than the other groups in both the Grade 1 ESSI reading and spelling tests. These results give some indication of the ‘backlog’ in literacy development that is present among these learners. The learners in Cluster 4 scored 12% - 32% higher than the other groups in their knowledge of letter *sounds*. Their scores in the ESSI Grade 3 reading test were 30% - 43% higher than the other groups.

## **6. Limitations of the present research**

The findings of this study should be interpreted with caution. The limited number of subjects makes generalisations difficult. The class teacher reported that none of the children had obvious hearing or visual problems. Given the particular nature of this study, the hearing of each child should have been tested, preferable with a pure tone hearing screening test with a criterion of 20dB at the octave frequencies from 250Hz to 4000Hz, as was used in the Nadler –Nir (1997) study. This was not done in the present study because of the cost factors involved.

Many questions remained unanswered as to why some children performed better than others. Factors that could have been investigated are quality of teaching, method of literacy instruction, parental reading habits, availability of books in the home, levels of English language proficiency of parents and siblings, opportunities for English language use, and attitudes of the children towards learning through the medium of English.

## **7. Implications for future research**

The results of this study have significant implications for teachers of pre-school and primary school isiXhosa learners who are performing below expected grade levels in English reading and spelling. In order for isiXhosa learners to map sounds to letters and letters to sounds, they need to become aware of the phonemic structure of English. This implies that teachers *themselves* should be aware of the sound structure of words. This is not easy to do, as a study by Stainthorp (2003) shows. Stainthorp's study is discussed in some detail, as it has important implications for the any future research based on the findings of the present study.

Stainthorp (2003, p. 1) reports that, as a requirement of the National Literacy Strategy, all key stage 1 teachers in England now have to include some explicit teaching of the sound

structure of words. If children are to receive reading and spelling instruction that includes knowledge of phonemes, it is essential that teachers themselves have this explicit awareness in order to teach about phonemes effectively. Stainthorp notes that a recent study has indicated that the “average well-educated graduate is neither expert nor confident about the sound structure of words” (p.3). The graduate students were tested for their knowledge of syllable counting (*How many syllables in elephant?*); rhyme matching, pairing words that started with the same words, phoneme counting (*How many sounds in teach?*), and their ability to specify phonemes in a word (*What is the second sound in queen?*). Group performance on phoneme counting (mean correct score 23%) indicated that the graduate students were not explicitly aware of the phonemic structure of words. As Stainthorp (p. 6) notes, “it is easy to get confused by the complexities of the English language, such as *cat* having three phonemes while *fox* has four”. (The /ks/ ending of *socks* is perceived as two phonemes, as is the /ks/ ending of *fox*”.)

It would be beneficial to both isiXhosa teachers and learners if a study, similar to Stainthorp’s (2003) study, could be carried out in South Africa. This study highlights some difficulties isiXhosa learners have with particular literacy and phonological awareness skills. Future research could focus on the development of teacher programmes, similar to those implemented by Stainthorp, which take these specific difficulties into account, and the differences in the phonemic repertoires of the Xhosa and English languages. As Templeton (1992, p.455) suggests, “learners need not be confused – provided that we, their teachers, are not confused”.

## **8. Conclusions**

Many of the children in this study were unable to read and write in English much beyond Grade 1 levels. It appears that they are required to become literate in a language they do not fully understand; and are being taught by teachers who do not understand or speak isiXhosa. According to MacDonald (2001: p. 74), children who have to learn in a new language “are put into a kind of prison”; they cannot tell the teacher what they think, or

express their own ideas and creativity; they cannot meet the intellectual demands of school, fail year after year, and may eventually drop out of school.

Webb (2002, p. 186) notes that in order to use a language effectively for learning purposes, a “rather high-level proficiency” in that language is required. The general inadequacy of the English proficiency of learners in this study makes it doubtful whether they are capable of all the skills covered in the *specific outcomes* (SO) proposed in the *language, literacy and communication* learning area of the National Curriculum Statement. One of these outcomes deals with the aim of preparing learners to use English as a language for thinking and reasoning.

The results of this study suggest that phonics and phonological awareness are closely interrelated. This has important implications for teaching children English. Goswami, (1998) states that:

What we have been calling ‘phonological awareness’ may indeed be something akin to the process of learning letter-sound relations and using them to decode words. At least the distinction between phonological awareness and phonics may be finer than many think. (p. 85)

Similar views are held by Stahl and McKenna (2000) and Templeton (1992) who note that a spelling system should serve a *phonetic* as well as a *semantic* function, and that children should be taught to recognise meaningful units such as prefixes, suffixes, and word roots. These authors propose that phonological awareness be broken down into awareness of specific consonants, vowels, consonant blends, and so on, and that precise teaching sequences, using phonological awareness training, be used to support learning of these letter-sound relations.

A spelling instruction study by Darch and Simpson (1990) indicates that students benefit by being taught explicit rule-based strategies. An example of spelling rules that could be taught to the isiXhosa learners in the present study are the rules for dropping the final *e* in a word, (*hope/hoping*); and writing *-ck* after a short vowel sound (*back, lock, brick*) and *-ke* after a long vowel sound (*bake, like, woke*). Spelling and reading rules help

learners to focus on the linguistic characteristics of words. Griffith and Olson (1992, p. 521) suggest the use of 'Elkonin boxes' as a strategy to help children "think about the order of sounds in spoken words". Mather and Healey (1984) suggest ways of helping children who often persist in making reversal errors in reading and writing. Research has shown that training in phonemic awareness improves children's reading and spelling abilities (Cunningham, 1990; Nadler-Nir, 1997; Pijper, 2003).

Le Grange and Reddy (1998) argue that the primary role of teachers is to provide effective teaching and to ensure that quality learning occurs in the classroom. According to an outcomes-based education system, specific learning outcomes state clearly what the learner should be able to demonstrate at the end of a learning process. Continuous assessment procedures need to be incorporated into classroom practices in order to ensure that learning is taking place. Teachers need to identify words that children use most often when writing, particularly those words commonly misspelled by them. High frequency writing words should be studied on a daily basis, particularly in the early grades. Mistakes should be corrected as soon as possible, before wrong spelling of a word becomes a habit.

Teachers in this particular school, and in many others where a 'straight-to-English' policy has been adopted, face many problems that are difficult to overcome. While acknowledging these difficulties, it is important not to overlook the vital role that teachers play in children's literacy development. If schools are going to follow this model of language teaching, urgent attention must be given to the implementation of carefully structured and tested phonics and phonological awareness programmes for those learners who have limited experience with the sound system of English and an incomplete knowledge of sound-symbol relationships.

## REFERENCES

- Adams, M., Foorman, B., Lundberg, I., & Beeler, T. (1998). *Phonemic awareness in young children: A classroom curriculum*. Baltimore: Brookes.
- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Allen, S.J. (2003a). *Children's early literacy learning: A case study of three literacy events in an indoor-outdoor play setting*. Paper presented at the Education Students' Third Regional Research Conference, University of Cape Town, 26-27 September. Abstract published in the *Proceedings of the Research Conference*: Rochford, K. & Inal, A. (Eds.), School of Education, University of Cape Town, 1-2.
- Allen, S.J. (2003b). *Language maintenance and shift: The continued use of Italian by ten families living in Cape Town*. Paper presented at the Education Students' Third Regional Research Conference, University of Cape Town, 26-27 September. Abstract published in the *Proceedings of the Research Conference*: Rochford, K. & Inal, A. (Eds.), School of Education, University of Cape Town, 2-3.
- Alidou, H. & Brock-Utne, B. (2005). Teaching in a Familiar Language. *Optimizing learning and education in Africa – the language factor: A stock-taking research on mother tongue and bilingual education in Sub-Saharan Africa*. Conference on Bilingual Education and the Use of Local Languages. August 3-5, 2005, Windhoek, Namibia. ADEA, Working Document, DRAFT 22/07/2005.
- Apple, R. & Muysken, P. (1987). *Language contact and bilingualism*. London: Edward Arnold.

- Arnold, H. (1990). Making reading real. In P. D. Pumfrey & C. D. Elliott (Eds.), *Children's difficulties in reading, spelling and writing*. Bristol: The Falmer Press.
- Aro, M., Aro, T., Ahonen, T., Rasanen, T., Hietala, A. & Lyytinen, H. (1999). The development of phonological abilities and their relation to reading acquisition. *Journal of Learning Disabilities*, 32 (5), 465-472.
- Berninger, V. W., Thalberg, S. T., DeBruyn, I., & Smith, R. (1987). Preventing reading Disabilities by assessing and remediating phonemic skills. *School Psychology Review*, 16 (4), 554-565.
- Bialystok, E. (2001). *Bilingualism in development: Language, literacy and cognition*. Cambridge: Cambridge University Press.
- Bloch, C. (1997). *Chloe's Story: First steps into literacy*. Kenwyn: Juta.
- Bowyer-Crane, C., & Snowling, M.J. (2005). Assessing children's inference generation: What do tests of reading comprehension measure? *British Journal of Educational Psychology*, 75, 189-201.
- Bradley, L. (1990). Rhyming connections in learning to read and spell. In P. D. Pumfrey & C. D. Elliott (Eds.), *Children's difficulties in reading, spelling and writing*. Bristol: The Falmer Press.
- Bradley, L. & Bryant, P. E. (1983). Categorizing sounds and learning to read – a causal connection. *Nature*, 301, 419-421.
- Branford, W. & Cloughton, J. S. (2002). Mutual lexical borrowings among some languages of southern Africa: Xhosa, Afrikaans and English. In R. Mesthrie (Ed.), *Language in South Africa*. Cambridge Africa Collection. Cambridge: Cambridge University Press.

- Brock-Utne, B. & Holmarsdottir, H. B. (2004). Language policies and practices in Tanzania and South Africa: problems and challenges. *International Journal of Educational Development*, 24, 67-83.
- Bryant, P. & Bradley, L. (1985). *Children's reading problems*. Oxford: Basil Blackwell.
- Buthelezi, Z. (2002). *Researchers, beware of your assumptions! The unique case of South African Education*. Paper presented at the IRA Multilanguage Literacy Symposium, July 2002, Edingurgh, Scotland. Retrieved September 5, 2005, from <http://readingonline.org/international/edinburgh/buthelezi/>
- Casey, A. & Sheran, C. (2004). Early literacy skills development. (*NASP*) *National Association of School Psychologists*, 32 (6). Retrieved September 11, 2005, from <http://www.nasponline.org/publications/cq326earlyliteracy.html>
- Clarence-Fincham, J., Hart, M., Inglis, M., & Jackson, F. (2002). *Exploring our voices: Effective English teaching in multilingual classrooms*. Cape Town: Oxford University Press Southern Africa.
- Clay, M. M. (1972). *Reading: the patterning of complex behaviour*. Auckland: Heinemann Educational.
- Clay, M. M. (1985). *The early detection of reading difficulties* (3rd ed.). Auckland: Heinemann Education.
- Cline, T. (1999). Identification and assessment of dyslexia in bi/multilingual children. *International Journal of Bilingual Education and Bilingualism*, 2 (2), 81-93.
- Clustan Graphics. (2006). Clustering Variables. Retrieved January 30, 2006 from [http://www.clustan.com/clustering\\_variables.html](http://www.clustan.com/clustering_variables.html)

- Coniam, D. (1998). *From text to test, automatically: An evaluation of a computer cloze-test generator*. *Journal of Computer Assistance*, 1998 (3), 44-60. Retrieved 31 January, 2006 from <http://sunzi1.lib.hku.hk/hjko/view/5/500035.pdf>.
- Cunningham, A.E. (1990). Explicit versus implicit instruction in phonemic awareness. *Journal of Experimental Psychology*, 50, 429-444
- Darch, C. & Simpson, R.G. (1990). Effectiveness of visual imagery versus rule-based strategies in teaching spelling to learning disabled students. *Research in Rural Education*, 7, 61-70.
- de Klerk, G. (1995). Bilingualism, the devil and the big wide world. In K. Heugh, A. Siegruhn, & P. Pluddemann (Eds.), *Multilingual Education for South Africa*. Johannesburg: Heineman.
- de Klerk, V. (2002). Towards a Corpus of Black South African English. *Southern African Linguistics and Applied Language Studies*, 20, 25—35.
- de Klerk, V. (2003). Xhosa English as an institutionalised variety of English: In search of evidence. *English World-Wide: A Journal of Varieties of English*, 24 (2).
- de Klerk, V., & Gough, D. (2002). Black South African English. In R. Mesthrie (Ed.), *Language in South Africa*. Cambridge Africa Collection. Cambridge: Cambridge University Press.
- Ding, C. S. (2001). Profile analysis: Multidimensional scaling approach. *Practical assessment, research and evaluation*. Retrieved January 8, 2006, from <http://pareonline.net/getvn.asp?v=7&n=16>
- Dulaney, K. H. (1987). Improving word recognition ability through spelling. *Reading Improvement*, 24, 163-167.

- Ehri, L. C. (1998). Grapheme-phoneme knowledge is essential for learning to read words in English. In J. L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning literacy*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Ericson, L. & Juliebo, M. F. (1998). *The phonological awareness handbook for kindergarten and primary teachers*. Newark, Delaware: International Reading Association, Inc.
- Esterhuysen, K.G. (1997). *ESSI Reading and Spelling Test*. Stellenbosch: Content Solutions Online
- Field, F. (2003). *Promoting perception: Lexical segmentation in L2 listening*. *ELT (English Language Teaching) Journal*, 57 (4), 325-333.
- Foorman, B. & Liberman, D. (1989). Visual and phonological processing of words: A comparison of good and poor readers. *Journal of learning disabilities*, 22 (6), 349-355.
- Frank Schaffer Publications (1980). *Reading Comprehension: My Second Stories, Grades 2-3*. California: Frank Schaffer Publications, Inc.
- French, J., Ellsworth, N. & Amoruso, M. (1995). *Reading and learning disabilities: Research and practice*. New York: Garland Publishing, Inc.
- Fromkin, V., Rodman, R., & Hyams, N. (2003). *An introduction to language* (7th ed.). Boston: Thomson Heinle.
- Fulk, B. & Stormont-Spurgin, M. (1995). Spelling interventions for students with disabilities: A review. *The Journal of Special Education*, 28, 4, 488-513.
- Gattuso, B., Smith, L. B. & Treiman, R. (1991). Classifying by dimension and reading: A comparison of the auditory and visual modalities. *Journal of Experimental Child Psychology*, 51, 139-169.

- Gee, J. P. (1998). *Preamble to a literacy program*. Madison: University of Wisconsin. Madison Department of Curriculum and Instruction. (A copy of this paper was obtained from the Department of Education, University of Cape Town.)
- Gilmore, A., Croft, C. & Reid, N. (1981). *Burt Reading Test: New Zealand Revision. Teachers Manual*. In H. Alcock (Ed.), *Wildcats tracks: Assessment and evaluation guide*. Auckland: Lands End Publishing.
- Goodman, Y. M. (1986). Children coming to know literacy. In W.H. Teale & E. Sulzby (Eds.), *Emergent literacy: Writing and reading*. New Jersey: Ablex Publishing Co.
- Goswami, U. (1991). Learning about spelling sequences: The role of onsets and rimes in analogies in reading. *Child Development*, 62, 1110-1123.
- Goswami, U. (1993). Towards an interactive analogy model of reading development: decoding vowel graphemes in beginning reading. *Journal of Experimental Child Psychology*, 56, 443-475.
- Goswami, U. (1998). The role of analogies in the development of word recognition. In J. L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning literacy*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Goswami, U. (2002). Phonology, reading development and dyslexia: A cross-linguistic perspective. Keynote Address, 27 June, 2002, University College London. Retrieved October 10, 2005, from [http://www.interdys.org/jsp/conference/handouts\\_2002\\_multi/usha-goswami.pdf](http://www.interdys.org/jsp/conference/handouts_2002_multi/usha-goswami.pdf)
- Graham, S., Harris, K. R. & Loynachan, C. (1994). The spelling for writing list. *Journal of Learning Disabilities*, 27, 210-214.

- Goulandris, N. & Snowling, M. (1995). Assessing reading skills. In E. Funnell & M. Stuart (Eds.), *Learning to read: Psychology in the classroom*. Oxford: Blackwell Publishers.
- Griffith, P. L. & Olson, M. W. (1992). Phonemic awareness helps beginning readers break the code. *The Reading Teacher*, 45 (7), 516-523.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis*. New Jersey: Prentice Hall
- Hannon, P. (1995). *Literacy, home and school: Research and practice in teaching literacy with parents*. London: The Falmer Press.
- Herbert, R. K. (2002). The sociohistory of clicks in Southern Bantu. In R. Mesthrie (Ed.), *Language in South Africa*. Cambridge Africa Collection. Cambridge: Cambridge University Press.
- Heugh, K. (2005a). Mother-tongue education is best. *Human Sciences Research Council (HSRC) Review*, 3, 03, 6-7.
- Heugh, K. (2005b). Language education models in Africa: research, design, decision-making, outcomes and costs. *Optimizing learning and education in Africa – the language factor: A stock-taking research on mother tongue and bilingual education in Sub-Saharan Africa*. Conference on Bilingual Education and the Use of Local Languages. August 3-5, 2005, Windhoek, Namibia. ADEA, Working Document, DRAFT 22/07/2005
- Heugh, K., Siegruhn, A. & Pluddemann, P. (1995). Glossary of Terms. In K. Heugh (Ed.), *Multilingual education for South Africa*, Johannesburg: Heinemann.

- Kamper, G. D., Mahlobo, E. B., & Lemmer, E. M. (2003). The relationship between standardised test performance and language learning strategies in English second language: a case study. *Journal for Language Teaching*, 37, 2, 164-170.
- Kerlinger, F. N. (1986). *Foundations of behavioural research*. New York: CBS Publishing Japan Ltd.
- Kirsch, B. & Skorge, S. (2001). *Clicking with Xhosa: A Xhosa phrasebook*. Cape Town: David Philip Publishers
- Kjeldsen, A., Niemi, P. & Olofsson, A. (2003). Training phonological awareness in Kindergarten level children: consistency is more important than quantity. *Learning and Instruction*, 13 (4), 349-365.
- Le Grange, L. & Reddy, C. (1998). *Continuous assessment: An introduction and guidelines to implementation*. Cape Town: Juta
- Lerner, J. (1981). *Learning disabilities: Theories, diagnosis, and teaching strategies*. 3<sup>rd</sup> ed. Boston: Houghton Mifflin Company.
- Macdonald, C. (2001). Eager to talk and learn and think. In I. Moll, J. Gultig, J. Bradbury, J. & G. Winkler (Eds.), *Learners and learning* (pp. 68-79). Cape Town: Oxford University Press.
- Mather, N. & Healey, W. C. (1984). The efficacy of a memory strategy for eliminating reversal behaviour. *Journal of Learning Disability*, 17, 84-88.
- Mda, T. (2004). Multilingualism and education. In L. Chisholm (Ed.), *Changing class: Education and social change in post-apartheid South Africa* (pp.77-194). Cape Town: HSRC Press.

- Mesthrie, R. (1999). *The study of the new varieties of English*. Inugural Lecture, October 6, 1999, New Series No. 214. Published by the University of Cape Town.
- Mesthrie, R. (2002). South Africa: A sociolinguistic overview. In R. Mesthrie (Ed.), *Language in South Africa* (pp.11-27). Cambridge Africa Collection. Cape Town: Cambridge University Press.
- Mosely, D. (1990). Suggestions for helping children with spelling problems. In P. D. Pumfrey & C. D. Elliott (Eds.), *Children's difficulties in reading, spelling and writing*. Bristol: The Falmer Press.
- Murray, S. (2002). Language issues in South African education. In R. Mesthrie (Ed.), *Language in South Africa*. Cambridge Africa Collection. Cambridge: Cambridge University Press.
- Muter, V., Snowling, M., & Taylor, S. (1994). Orthographic analogies and phonological awareness: Their role and significance in early reading development. *Journal of Child Psychology and Psychiatry*, 35 (2), 293-310.
- Muter, V., Hulme, C., Snowling, M., & Taylor, S. (1997). Segmentation, not rhyming, predicts early progress in learning to read. *Journal of Experimental Child Psychology*, 65, 370-396.
- Nadler-Nir, E. (1997). *The effectiveness of a multi-sensory phonological awareness and letter knowledge training programme for disadvantaged first graders*. Unpublished master's dissertation, University of Cape Town, Cape Town.
- Olson, A. C. & Caramazza, A. (2004). Orthographic structure and deaf spelling errors: Syllables, letter frequency, and speech. *The Quarterly Journal of Experimental Psychology*, 57A (3), 385-417.

- Pijper, N. C. (2003). *The phonological awareness, written spelling and oral reading of learners in an inclusive English-medium setting*. Unpublished master's dissertation, University of Pretoria, Pretoria.
- Pretorius, E. (2002). Reading and applied linguistics – a deafening silence? *Southern African Linguistics and Applied Language Studies*, 20, 91-103.
- Prinsloo, M. (2005). *Connections between child and adult literacy, regarding learning, skill levels and practices*. Retrieved December 2005, from [http://portal.unesco.org/education/en/file\\_download.php/feb5de8b2foc360b01bccc429fa3b836Prinsloo\\_M.doc](http://portal.unesco.org/education/en/file_download.php/feb5de8b2foc360b01bccc429fa3b836Prinsloo_M.doc)
- Prinsloo, M. & Bloch, C. (1999). Children's early literacy learning: The mismatch between policy intention and teacher know-how. In L. Chisolm (Ed.), *Critical perspectives in South African education*. Cape Town: Juta.
- Pumfrey, P. P. (1991). *Special needs in ordinary schools: improving children's reading in the junior school*. London: Cassell Education Limited.
- Rack, J. & Snowling, M. (1985). Verbal deficits in dyslexia: a review. In M.J. Snowling (Ed.), *Children's written language difficulties: assessment and management* (pp. 28-42). London: Routledge.
- Robertson, C. & Salter, W. (1997). *The Phonological Awareness Test. Examiner's Manual*. East Moline, IL: LinguiSystems, Inc.
- Rosner, J. (1975). *Helping children overcome learning difficulties: A step-by-step guide for parents and teachers*. New York: Walker and Company.
- Rudginsky, L. T. & Haskell, E.C. (1997). *How to Teach Spelling*. Cambridge: Educators Publishing Service, Inc.

- Roswell, F. G. & Chall, J. S. (1997). *Roswell-Chall Auditory Blending Test: Manual of Instructions*. Cambridge: Educators Publishing Service, Inc.
- Schulpen, B., Dijkstra, T., Schriefers, H., & Hasper, M. (2003). Recognition of interlingual homophones in bilingual auditory word recognition. *Journal of Experimental Psychology: Human Perception and Performance*, 29 (6), 1155-1178.
- Sensenbaugh, R. (1996). *Phonemic awareness: An important step in learning to read*. Retrieved October 6, 2005, from <http://www.vtaide.com/png/ERIC/Phonemic.htm>
- Siegel, L. S. (1998). Phonological processing deficits and reading disabilities. In J. L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning literacy*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Simpson, J. & Everatt, J. (2005). Reception class predictors of literacy skills. *British Journal of Educational Psychology*, 75, 171-188.
- Smith, J. W. A & Elley, W. B. (1994). *Learning to read in New Zealand*. New York: Richard C. Owen Publishers, Inc.
- Snow, C.E. (1998). Introduction to reading. In C. E. Snow, Burns, M., & P. Griffin (Eds.), *Preventing reading difficulties in young children*. Washington: National Academic Press.
- Snowling, M. J. (1985). The assessment of reading and spelling skills. In M.J. Snowling (Ed.), *Children's written language difficulties: assessment and management* (pp. 80-95). London: Routledge.

- Stahl, S. & McKenna, M. (2000). *The concurrent development of phonological awareness, word recognition, and spelling*. Paper presented at Annual Meeting, American Educational Research Association, New Orleans, LA, April 25, 2000. Retrieved September 12, 2005, from <http://www.ciera.org/library/archive/2001-07/200107.htm>
- Stahl, S. T. & Murray, B. (1998). Issues involved in defining phonological awareness and its relation to early reading. In J. L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning literacy*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Stainthorp, R. (2003). *Use it or lose it*. (Article first appeared in the March issue of *Literacy Today*, issue no.34). Retrieved October 5, 2005, from <http://www.literacytrust.org.uk/Pubs/stainthorp.html>
- Stainthorp, R. & Hughes, D. (1999). *Learning from children who read at an early age*. London: Routledge.
- Statistica. (2006). *Joining (tree clustering) introductory overview – distance measures*. Retrieved 23 December, 2005 from mk:@MSITStore:C:/Program%20Files/STATSoft/STATISTICA%206/Cluster.chm::Clust
- Stuart, M. (1999). Getting ready for reading: Early phoneme awareness and phonics teaching improves reading and spelling in inner-city second language learners. *British Journal of Educational Psychology*, 69, 587-605.
- Stuart, M. (2005). Phonemic analysis and reading development: some current issues. *Journal of Research in Reading*, 28, 39-49.
- Swanepoel, G. (1998). *English at home: Grade 2, Curriculum 2005*. Learning literacy programme, Parent Assisted Learning Programme (CNA). Cape Town: Maskew Miller Longman (Pty) Ltd.

- Teale, W. H. & Sulzby, E. (1986). *Emergent literacy: Writing and reading*. New Jersey: Ablex Publishing Co.
- Templeton, S. (1992). New trends in an historical perspective: Old story, new resolution – Sound and meaning in spelling. *Language Arts*, 69, 454-463.
- Tench, P. (2003). Non-native speakers' misperceptions of English vowels and consonants: Evidence from Korean adults in UK. In P. Jordens & E. Kellerman (Eds.), *IRAL (International Review of Applied Linguistics in Language Teaching)*, 41 (2).
- Treiman, R., Sotak, L., & Bowman, M. (2001). The roles of letter names and letter sounds in connecting print and speech. *Memory & Cognition*, 29 (6), 860-873.
- Wang, C., & Gaffney, J. (1998). First graders' use of analogy in word reading. *Journal of Literacy Research*, 1998, September, 389- 403.
- Webb, V. (2002). *Language in South Africa: The role of language in national transformation, reconstruction and development*. Amsterdam: John Benjamins Publishing Co.
- Witbooi, G. (2005). Media Liaison Secretary, Western Cape Education Department. *Media Releases from the Western Cape Education Department: Latest study of Grade 3 learner performance in numeracy and literacy*.  
[http://wced.gov.za/comms/press/2005/29\\_mumlit.html](http://wced.gov.za/comms/press/2005/29_mumlit.html)
- Yopp, H. K. (1988). The validity and reliability of phonemic awareness tests. *Reading Research Quarterly*, 23, 159-177.
- Yule, G. (1997). *The study of language (2nd ed.)*. Cambridge: Cambridge University Press.

Appendix 1: Test of letter knowledge, phonetically regular words, initial and final blends, long and short vowels, digraphs

KNOWLEDGE OF BASIC SOUNDS

1 SAY THE SOUND				2 SAY THE LETTER			
h	c	m	b	x	g	y	
l	s	d	i	f	p		
r	a	k	n	u	t		
e	j	q	o	w	v		

3 PHONETICALLY SIMPLE WORDS						
if	up	on	van	ten	cut	
kit	jug	six	log	rub	had	
jam	win	yes				

4 CONSONANT DIGRAPHS					
ship	chop	thin	when	with	mash
that	rich	sing	queen	long	this

5 INITIAL BLENDS					
brag	clog	grim	stop	glad	drop
flag	snap	smell	span	trip	swim
frog	bless	plan	skip	crop	sled
prod	strap	sprat			

**6 FINAL BLENDS**

<b>help</b>	<b>send</b>	<b>jump</b>	<b>felt</b>	<b>desk</b>	<b>bent</b>
<b>rest</b>	<b>lisp</b>	<b>dogs</b>	<b>sits</b>	<b>sink</b>	<b>bench</b>

**7 LONG AND SHORT VOWELS**

<b>tube</b>	<b>cut</b>	<b>mate</b>	<b>ride</b>	<b>meet</b>	<b>mat</b>
<b>rid</b>	<b>mane</b>	<b>met</b>	<b>hope</b>	<b>tub</b>	<b>cute</b>
<b>hop</b>	<b>man</b>	<b>dome</b>	<b>rip</b>		

**8 VOWEL DIGRAPHS**

<b>loud</b>	<b>blow</b>	<b>day</b>	<b>road</b>	<b>meat</b>	<b>join</b>
<b>head</b>	<b>joy</b>	<b>flown</b>	<b>pain</b>	<b>oil</b>	<b>cloud</b>

**9 VOWEL-CONSONANT DIGRAPHS**

<b>new</b>	<b>saw</b>	<b>harm</b>	<b>horn</b>	<b>car</b>	<b>dirt</b>
<b>fern</b>	<b>calm</b>	<b>turn</b>	<b>haul</b>	<b>chalk</b>	<b>light</b>

## Appendix 2: ESSI Reading and Spelling Tests

### READING WORDS

Grade 1	Grade 2	Grade 3
1. us	1. look	1. blue
2. she	2. jump	2. uncle
3. box	3. swim	3. minute
4. with	4. lunch	4. village
5. toys	5. money	5. library
6. soft	6. because	6. listen
7. catch	7. carpet	7. caught
8. time	8. ladder	8. straight
9. window	9. kite	9. sausage
10. garden	10. picnic	10. enough
11. present	11. towel	11. kidney
12. friend	12. noise	12. garage
13. first	13. study	13. guess
14. kitchen	14. breath	14. ocean
15. knee	15. tune	15. wrench
16. huge	16. huge	16. nuisance
	17. creature	17. lounge
	18. courage	18. unusual
	19. especially	19. choruses
	20. language	20. scarcely

## Appendix 2: ESSI Reading and Spelling Tests

### SPELLING WORDS

Grade 1	Grade 2	Grade 3
1. on	1. hunt	1. frog
2. is	2. drum	2. game
3. cat	3. ship	3. wife
4. sun	4. door	4. rain
5. sad	5. stick	5. lion
6. jump	6. apple	6. knife
7. flag	7. mouth	7. full
8. shop	8. fork	8. pocket
9. dish	9. bread	9. true
10. egg	10. table	10. wrong
11. king	11. sound	11. dirty
12. chick	12. belt	12. because
13. ink	13. plate	13. clothes
14. ripe	14. rang	14. hockey
15. flute	15. please	15. wheel
	16. beside	16. heavy
	17. nail	17. pictures
	18. neat	18. cement
	19. puzzle	19. mirror
	20. thumb	20. whistle

### Appendix 3: Burt Word Reading Test

(New Zealand Revision)

to is up for big  
he at one my sun

went girl boys day some  
his that of an wet

love water no just pot  
or now things told sad

carry village quickly nurse beware  
return scramble twisted journey luncheon

known shelves explorer tongue projecting  
terror serious belief events emergency

refrigerator steadiness obtain overwhelmed universal  
nourishment encyclopedia commenced circumstances fringe

formulate motionless trudging theory destiny  
scarcely exhausted labourers urge atmosphere

apprehend binocular domineer melodrama economy  
ultimate reputation humanity excessively philosopher

autobiography contemptuous terminology mercenary glycerin  
unique microscopical perpetual efficiency influential

perambulating renown physician champagne exorbitant  
hypocritical atrocious constitutionally contagion palpable

melancholy eccentricity fatigue phlegmatic fallacious  
alienate poignancy phthisis ingratiating subtlety

Name \_\_\_\_\_

## Soccer

Bob plays soccer.

He has played for two years.

Bob is on a team.

There are eleven players on the team.

The team practices on Tuesdays.

They play games on Thursdays.



1. Who plays soccer?

---

---

2. How long has he played?

---

---

3. What is Bob on?

---

---

4. How many players are on the team?

---

---

5. When does the team practice?

---

---

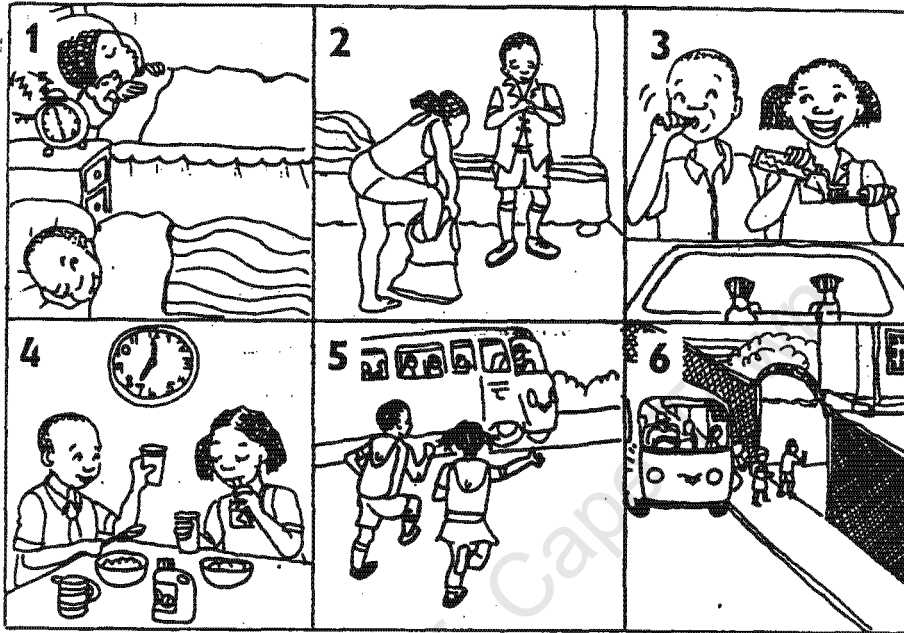
6. When do they play games?

---

---

Appendix 5 : Controlled free-writing task

# In the morning



1	
2	
3	
4	
5	
6	

## Appendix 6: Clay's diagnostic dictation test

(Hearing sounds in words)

Select one of the following alternative Forms; A, B, C, D, or E.

**Form A** I h a v e a b i g d o g a t h o m e  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16  
T o d a y I a m g o i n g t o t a k e h i m  
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33  
t o s c h o o l.  
34 35 36 37

**Form B** M u m h a s g o n e u p t o t h e s h o p .  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18  
S h e w i l l g e t m i l k a n d  
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33  
b r e a d .  
34 35 36 37

**Form C** I c a n s e e t h e r e d  
1 2 3 4 5 6 7 8 9 10 11  
b o a t t h a t w e a r e g o i n g  
12 13 14 15 16 17 18 19 20 21 22 23 24 25 26  
t o h a v e a r i d e i n .  
27 28 29 30 31 32 33 34 35 36 37

**Form D** T h e b u s i s c o m i n g . I t  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  
w i l l s t o p h e r e t o l e t m e  
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32  
g e t o n .  
33 34 35 36 37

**Form E** T h e b o y i s r i d i n g h i s b i k e .  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18  
H e c a n g o v e r y f a s t o n i t .  
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

## Appendix 7: PAT Rhyming subtests

(Discrimination and Production)

# Rhyming

"I'm going to say two words and ask you if they rhyme. Listen carefully. Do these words rhyme? *fan* ♦ *man*" (yes)

Stimulus: "Do these words rhyme? \_\_\_\_\_ ♦ \_\_\_\_\_"

Item	Response	Score	Item	Response	Score
1. book ♦ look	yes	1 0	6. mop ♦ hop	yes	1 0
2. fun ♦ run	yes	1 0	7. shoe ♦ fan	no	1 0
3. ring ♦ rat	no	1 0	8. sweater ♦ better	yes	1 0
4. box ♦ mess	no	1 0	9. camper ♦ hamper	yes	1 0
5. fish ♦ dish	yes	1 0	10. pudding ♦ table	no	1 0
				<b>TOTAL</b>	_____

"I'm going to say a word and I want you to tell me a word that rhymes with it. You can make up a word if you want to. Tell me a word that rhymes with *bat*." (*rat, hat, sat, lat, etc.*)

Note: Nonsense rhyming words are acceptable.

Stimulus: "Tell me a word that rhymes with \_\_\_\_\_."

Item	Response	Score	Item	Response	Score
1. can	_____	1 0	6. kite	_____	1 0
2. pot	_____	1 0	7. bee	_____	1 0
3. wrinkle	_____	1 0	8. paper	_____	1 0
4. brother	_____	1 0	9. shower	_____	1 0
5. bark	_____	1 0	10. monkey	_____	1 0
				<b>TOTAL</b>	_____

SAMPLE WORDS: s - ing, t - op, s - i - t

Part I

Part II

Part III

- 1. a - t \_\_\_\_\_
- 2. n - o \_\_\_\_\_
- 3. i - f \_\_\_\_\_
- 4. u - p \_\_\_\_\_
- 5. s - ay \_\_\_\_\_
- 6. m - y \_\_\_\_\_
- 7. b - e \_\_\_\_\_
- 8. t - oo \_\_\_\_\_
- 9. c - ow \_\_\_\_\_
- 10. h - e \_\_\_\_\_

- 11. st - ep \_\_\_\_\_
- 12. f - at \_\_\_\_\_
- 13. pl - ay \_\_\_\_\_
- 14. b - oat \_\_\_\_\_
- 15. ch - ain \_\_\_\_\_
- 16. b - ed \_\_\_\_\_
- 17. c - ake \_\_\_\_\_
- 18. r - an \_\_\_\_\_
- 19. t - ime \_\_\_\_\_
- 20. c - all \_\_\_\_\_

- 21. c - a - t \_\_\_\_\_
- 22. b - i - g \_\_\_\_\_
- 23. c - u - ff \_\_\_\_\_
- 24. s - a - d \_\_\_\_\_
- 25. g - o - t \_\_\_\_\_
- 26. m - a - p \_\_\_\_\_
- 27. r - u - g \_\_\_\_\_
- 28. d - e - sk \_\_\_\_\_
- 29. t - oa - st \_\_\_\_\_
- 30. p - e - t \_\_\_\_\_

Number Correct  
Part I \_\_\_\_\_

Number Correct  
Part II \_\_\_\_\_

Number Correct  
Part III \_\_\_\_\_

Comments \_\_\_\_\_  
\_\_\_\_\_

Total Raw Score \_\_\_\_\_  
(total number correct for part I + II + III)

Adequate Blending

Inadequate Blending   
(check one)

## Appendix 9: TAAS Auditory Analysis Test

### TAAS Test of Auditory Analysis Skills (Jerome Rosner, 1975)

Name _____	
Age (yrs.) _____	(mos.) _____
Grade _____	School _____
Examined by _____	Date of test _____

**Score 1 for each correct response.**  
Record all responses.  
ceiling: 3 successive errors

	A.&B	demo items	
A.	Say	COWBOY	Now say it again, but don't say BOY
B.	Say	STEAMBOAT	Now say it again, but don't say STEAM
1.	Say	SUNSHINE	Now say it again, but don't say SHINE
2.	Say	PICNIC	Now say it again, but don't say PIC
3.	Say	CUCUMBER	Now say it again, but don't say CU (q)
4.	Say	COAT	Now say it again, but don't say /k/
5.	Say	MEAT	Now say it again, but don't say /m/
6.	Say	TAKE	Now say it again, but don't say /t/
7.	Say	GAME	Now say it again, but don't say /m/
8.	Say	WROTE	Now say it again, but don't say /t/
9.	Say	PLEASE	Now say it again, but don't say /z/
10.	Say	CLAP	Now say it again, but don't say /k/
11.	Say	PLAY	Now say it again, but don't say /p/
12.	Say	STALE	Now say it again, but don't say /t/
13.	Say	SMACK	Now say it again, but don't say /m/

SCORE  
/13

TAAS SCORES: grade levels (circle placement)

1 - k	4 - 1 (sub A)	10 - 2 (sub B)	12 - 3 (Std 1)
2 - k	5 - 1	11 - 2	13 - 3
3 - k	6 - 1		
	7 - 1		
	8 - 1		
	9 - 1		

Appendix 10: Intercorrelations between literacy skills and phonological awareness measures

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.00																						
2	-0.03	1.00																					
3	0.10	0.39	1.00																				
4	0.41	-0.02	0.25	1.00																			
5	0.40	0.11	0.32	.85(**)	1.00																		
6	0.23	-0.13	0.21	.78(**)	.68(**)	1.00																	
7	-0.03	0.42	.59(**)	0.31	.48(*)	0.18	1.00																
8	0.31	0.17	0.19	.77(**)	.64(**)	.62(**)	.46(*)	1.00															
9	0.25	0.02	0.33	.67(**)	.65(**)	.71(**)	0.36	.75(**)	1.00														
10	-0.02	0.26	0.17	.65(**)	.65(**)	.58(**)	.54(*)	.77(**)	.76(**)	1.00													
11	0.17	0.17	-0.02	0.42	.48(*)	.46(*)	0.38	.65(**)	0.41	.65(**)	1.00												
12	0.15	0.09	0.17	.76(**)	.78(**)	.69(**)	.59(**)	.84(**)	.76(**)	.76(**)	.99(**)	1.00											
13	0.16	0.30	0.40	0.41	0.44	.58(**)	.65(**)	.60(**)	.62(**)	.61(**)	.69(**)	.64(**)	1.00										
14	-0.10	0.15	0.31	.73(**)	.60(**)	.67(**)	.48(*)	.72(**)	.80(**)	.85(**)	.48(*)	.80(**)	.62(**)	1.00									
15	0.29	0.32	0.32	.47(*)	.50(*)	.46(*)	.64(**)	.47(*)	.46(*)	.49(*)	.51(*)	.65(**)	.82(**)	.58(**)	1.00								
16	-0.13	0.14	0.15	.48(*)	.48(*)	.59(**)	.52(*)	.60(**)	.63(**)	.82(**)	.73(**)	.72(**)	.77(**)	.82(**)	.70(**)	1.00							
17	0.12	0.13	-0.24	.46(*)	0.41	0.36	0.02	.46(*)	0.28	0.27	0.22	.60(**)	0.09	0.35	0.35	0.23	1.00						
18	0.29	0.39	0.35	.53(*)	.48(*)	.55(*)	0.43	.60(**)	.60(**)	.57(*)	0.37	.59(**)	.66(**)	.52(*)	.64(**)	.50(*)	0.32	1.00					
19	.48(*)	.52(*)	0.28	0.42	.48(*)	0.33	0.31	0.35	0.40	0.35	0.18	0.42	0.45	0.29	.65(**)	0.31	0.36	.83(**)	1.00				
20	0.00	0.34	-0.09	0.12	0.13	-0.06	0.03	0.08	-0.03	-0.02	0.06	0.25	-0.01	0.11	0.15	-0.03	0.44	0.20	0.23	1.00			
21	0.26	0.33	-0.13	0.40	0.36	0.28	0.33	.55(*)	0.35	.51(*)	0.44	.58(**)	.47(*)	0.35	.54(*)	.47(*)	0.41	.70(**)	.69(**)	0.34	1.00		
22	0.27	0.04	-0.13	0.23	0.28	0.37	0.05	0.07	0.09	0.04	0.18	0.29	0.39	0.06	.55(*)	0.18	.48(*)	0.39	.47(*)	0.20	0.39	1.00	
23	0.32	0.11	0.35	.48(*)	.53(*)	0.28	.52(*)	.52(*)	.58(**)	.49(*)	0.22	.61(**)	0.36	.46(*)	0.43	0.36	0.26	.47(*)	0.39	0.28	.57(*)	0.09	1.00

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed)

1 Oral reading alphabet names

2 Oral reading alphabet sounds

3 Oral reading phonetically regular words

4 Oral reading consonant digraphs

5 Oral reading initial blends

6 Oral reading final blends

7 Oral reading long and short vowels

8 Oral reading vowel digraphs

9 Oral reading vowel consonant digraphs

10 Burt Reading Test (raw scores)

11 Grade 1 ESSI Spelling

12 Grade 1 ESSI Reading

13 Grade 2 ESSI Spelling

14 Grade 2 ESSI Reading

15 Grade 3 ESSI Spelling

16 Grade 3 ESSI Reading

17 Comprehension

18 Spelling - sight words

19 Analysis of sounds in words

20 Auditory blending

21 TAAS Auditory Analysis

22 Rhyming: Discrimination

23 Rhyming: Production