

**THE ERTIREAN ENGLISH CURRICULUM: GRADES 2-6**  
**ASSESSING ACADEMIC READINESS**

by

**KELLY WALTER**

Presented to the Faculty of the Graduate School of  
The University of Texas at Arlington in Partial Fulfillment  
of the Requirements  
for the Degree of

**MASTER OF ARTS**

**TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES**

**THE UNIVERSITY OF TEXAS AT ARLINGTON**

May 2005

Copyright © by Kelly Walter 2005

All Rights Reserved

## ACKNOWLEDGEMENTS

Many thanks to my committee chairman, Dr. Laurel Stvan, for helping me pass through the initial stage of panic when I thought this work would never come to fruition. Her direction week in and week out was a real encouragement. I also want to thank the other two members of my committee, Dr. Patricia Davis and Dr. Ronald Morren. Dr. Davis was available at all hours to give me invaluable input that comes from her own expertise in this project and others like it. Dr. Morren took time out of a busy teaching schedule to help polish my efforts.

This project would not have been possible without the approval of the Ministry of Education in Eritrea, who graciously allowed me to use the English curriculum from Grades 2-6 and the National Reading Survey (Walter and Davis 2002) as a basis for my study of the effects of vocabulary knowledge on academic success. Because of their search for excellence in education, they are open to examination, however small or large the resulting contribution may be.

The idea that started the germination for this thesis occurred in one of Dr. Johnson-Evan's TESOL classes. Her enthusiasm for teaching English and teaching in general was contagious. She also taught me how to teach others to edit, and in the process I learned invaluable things that have helped me tremendously in my own writing.

Many thanks to my colleagues at work who not only prayed for me, but they gave tangible help when I needed it. Because of the generosity of Tiny and Ruth Ray, I had free use of a scanner to enter my data. Also, my supervisor, Pat Kelley, generously allowed me to go full-time as a student so that I could finish well and sane. Both Trudy Stewart and Pat Davis gave me lots of scrap paper for my many drafts.

Lastly, without the help of my husband, friend, and advisor, Dr. Steve Walter, I would never have made it through the stacks of data or been able to tackle all the statistical tests. His gift for wording also clarified many thoughts. I wouldn't be back in school had it not been for his love and encouragement. Because of his belief in me, and his interminable patience, I pressed on.

April 4, 2005

ABSTRACT

THE ERTIREAN ENGLISH CURRICULUM: GRADES 2-6

ASSESSING ACADEMIC READINESS

Publication No. \_\_\_\_\_

Kelly Walter, MA

The University of Texas at Arlington, 2005

Supervising Professor: Laurel S. Stvan

This study is an examination of the 2002 Eritrean English curriculum from Grades 2-6. In the Eritrean educational system, the nine languages of Eritrea are the languages of education until Grade 6, when students are expected to make a transition to an all-English curriculum. The purpose of the study is to ascertain whether students are prepared at the end of Grade 5 for the academic English of Grade 6. The criteria for preparedness is mastery of vocabulary. Data from the Eritrean National Reading Survey and the vocabulary counts from the curriculum of Grades 2-5 and Grade 6 were compared. The National Reading Survey provided results on vocabulary mastery and reading comprehension from a sample of students in each language group for Grades 2, 3 and 5. The results of relevant correlations, word counts, density and frequency

measures showed clear evidence that the material in the Grade 6 curriculum is beyond the level that Grade 5 students have attained in relation to vocabulary. The problems of the curriculum are addressed and suggestions for improvements are detailed.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	iv
ABSTRACT .....	vi
LIST OF TABLES .....	xiii

Chapter	Page
1. OVERVIEW OF THE STUDY .....	1
1.1 Introduction .....	1
1.2 Eritrea rebuilds its educational system.....	2
1.3 Data.....	4
1.3.1 The English curriculum data.....	4
1.3.2 The National Reading Survey.....	4
1.4 Vocabulary lists .....	5
1.5 Definition of key concepts .....	7
2. REVIEW OF THE LITERATURE.....	13
2.1 The importance of vocabulary mastery to academic success.....	13
2.1.1 What vocabulary is needed?.....	14
2.1.2 What does it mean to know a word? .....	15
2.2 Vocabulary acquisition rates for native and non-native speakers .....	17
2.3 The beginner's paradox.....	18

2.4 Relationship between comprehension and vocabulary knowledge .....	20
2.5 Extensive reading.....	22
2.5.1 Extensive reading as a means to vocabulary gains in L1 .....	22
2.5.2 Does extensive reading work for the L2 learner? .....	23
2.6 Does repetition increase the likelihood of vocabulary acquisition? .....	24
2.7 How effective is learning words from context for the L2 learner?.....	27
2.8 Pedagogical implications.....	29
2.8.1 Explicit and implicit instruction .....	29
2.8.2 What contributes to long-term retention of vocabulary?.....	30
2.8.3 Classroom practices for teaching vocabulary .....	32
2.8.4 Case study from Holland .....	35
<b>3. DESCRIPTION OF CURRICULUM AND READING SURVEY .....</b>	<b>38</b>
3.1 English instruction in the current curriculum.....	38
3.1.1 Description of curriculum in Grade 2 .....	38
3.1.2 Description of curriculum in Grade 3 .....	40
3.1.3 Description of curriculum in Grade 4 .....	41
3.1.4 Description of curriculum in Grade 5 .....	44
3.1.5 Conclusion .....	46
3.2 The 2001-2002 National Reading Survey .....	46
3.2.1 Background.....	46



3.2.2 Objectives of the National Reading Survey 2001-2002.....	47
3.2.3 Basic research design – English.....	48
3.2.4 Grade 2 testing inventory .....	48
3.2.5 Grade 3 testing inventory .....	51
3.2.6 Grade 5 testing inventory .....	54
3.2.7 Comparative analysis of Grade 6 History and Grade 5.....	56
3.2.8 Conclusion.....	57
<b>4. ARE STUDENTS READY FOR GRADE 6? .....</b>	<b>59</b>
4.1 Review of the National Reading Survey results.....	59
4.1.1 A closer examination of the gap between Grade 5 and Grade 6 .....	59
4.2 Introduction to the research questions .....	61
4.3. Research questions.....	63
4.3.1 Overall research questions and sub-questions .....	63
4.4 Summary of the research questions .....	84
4.4.1 The different types of vocabulary in Grades 2-5 and Grade 6.....	85
4.4.2 The sheer amount of new vocabulary introduced in Grade 6 .....	85
4.4.3 The comprehension results in Grade 5 compared with Grade 6 .....	86
4.4.4 The evidence of random guessing.....	86

4.4.5 The NRS report from Grade 6 teachers.....	86
<b>5. SUGGESTIONS TO IMPROVE THE CURRICULUM .....</b>	<b>88</b>
5.1 Introduction .....	88
5.2 Suggestions for improvement.....	89
5.2.1 Reduce the complexity of the content and vocabulary in Grade 6 textbooks .....	90
5.2.2 Create a glossary of the more frequent basic and academic English vocabulary .....	96
5.2.3 Develop a more focused approach to teaching technical vocabulary in Grade 6 .....	98
5.2.4 Add more content in Grades 1-5.....	102
5.2.5 Provide supplemental graded readers in Grades 1-5.....	103
5.2.6 Include modules on the importance of vocabulary in the teacher-training course.....	104
5.2.7 Improve coordination between the English panel and subject matter specialists.....	105
5.2.8 Produce a series of textbooks with a graduated progression of difficulty throughout the remaining grades of high school .....	105
<b>6. CONCLUSION .....</b>	<b>107</b>
6.1 An overview of the findings .....	107
6.2 The implications .....	110
6.3 Limitations.....	111

**APPENDIX**

A. BAUMANN AND CULLIGANS' ADAPTED GSL.....	112
B. THE ACADEMIC WORD LIST.....	123
C. SAMPLE PAGES FROM THE ENGLISH CURRICULUM.....	128
REFERENCES .....	138
BIOGRAPHICAL INFORMATION.....	143

## LIST OF TABLES

Table	Page
1.1 The coverage (density) by the different kinds of vocabulary in an academic corpus.....	9
3.1 Summary results of Grade 2 testing by task .....	50
3.2 Mean scores on all tasks of Grade 2 English testing by language group .....	51
3.3 Summary results of Grade 3 testing by task .....	52
3.4 Summary results of Grade 5 testing by task .....	56
4.1 Contrast between the English curriculum and History 6 in terms of language level .....	60
4.2 Basic data on presence of word families in the two curricula .....	65
4.3 Categories of words in Grades 2-5 and Grade 6 .....	66
4.4 Categorization of word families common to the two curricula.....	67
4.5 Frequency characteristics of the common vocabulary between Grades 2-5 and Grade 6 .....	67
4.6 Categorization of words unique to Grades 2-5 .....	68
4.7 Categorization of words occurring often in the Grade 6 curriculum.....	71
4.8 Categorization of words unique to Grade 6 .....	72
4.9 Analysis of Grade 6 using Grades 2-5 as the standard .....	75
4.10 Predicted vs. actual scores if random guessing is the basis of performance.....	84

## CHAPTER 1

### OVERVIEW OF THE STUDY

#### 1.1 Introduction

As access to knowledge outside of one's own realm often requires the use of a second language for a good portion of the world, much of education is pursued in a language other than the mother tongue. Around the world there are many discussions as to the best approach to education in a second language (L2) for speakers of non-majority languages, or for speakers who live in countries where their language is not the language of education. Some believe that the solution lies in submersion in the L2 rather than a gradual transition from the L1 to L2. Others have shown clear benefits to learning to read and write first in the L1 (Thomas and Collier 1997). For those who espouse a transition from L1 to L2, there are several models to choose from, some making transitions earlier than others, and some more effective than others.

It is often assumed that if one is able to communicate effectively in the L2, then one is ready for academic challenges in the L2. Cummins (1979) makes a distinction between conversational and academic fluency and emphasizes the very different time periods required for each. Whereas conversational fluency, the Basic Interpersonal Communicative Skills (BICS), can require two years to develop, academic fluency, the Cognitive Academic Language Proficiency (CALP), can require five to seven years or more to develop. Even though the evidence for this distinction comes from immigrant

children living in an English-speaking country, it is plausible to assume that the same distinction is relevant for those studying in English in a non-English speaking country, as is the case of Eritrean children. One important aspect of the extended time needed to develop CALPS is the specialized vocabulary of academic study.

Certainly, language learning involves more than learning the vocabulary of another language. However, this study will attempt to show the important role that vocabulary plays in academic success, especially as it was exhibited in the 2002 English curriculum of Grades 2-6 in the Eritrean educational system.

### 1.2 Eritrea rebuilds its educational system

Eritrea is a small country on the East coast of Africa with a population of 3.6 million people. Neighboring countries are Ethiopia, Somalia and Sudan. After a three-decade long struggle for liberation, Eritrea finally gained independence from Ethiopia in 1991. One of the first items on the national agenda was rebuilding the educational system. Even before the fighting stopped, Eritrean officials had decided that mother-tongue education would be the best strategy for achieving educational success at the lower levels. In addition, they decided that English would be the language of all education after Grade 6. Currently nine languages (Tigrinya, Tigre, Kunama, Saho, Bilen, Nara, Arabic, Bidhaawyeet, and Afar) of Eritrea are being used as languages of education at the primary school level. These nine languages account for 99% of the country's population. Even though Tigrinya and Arabic are the most frequently used languages for commercial and official transactions, English is the language of academia and of international discourse.

In the Eritrean educational system English instruction began in Grade 2, until 2003 when English was introduced as a subject in Grade 1. Children in Grades 1 – 5 of primary school currently have 40 minutes of English each day. After Grade 5, English is the language of education and students are expected to have the skills and vocabulary necessary to function exclusively in English. Three of the nine languages have non-Roman scripts, making a transition to English even more challenging (Schmitt 2000:122). Both formal and informal assessments through 2002 established that the existing strategy was not producing the level of English mastery needed to function in an English medium classroom (Walter and Davis 2002). Finding solutions to these deficiencies became a strongly felt need.

Because of the importance Eritrea has placed on education, and specifically, the transition from education in the mother tongue to education exclusively in English, the proposed research is designed to evaluate the preparedness of students to tackle the academic English of the 6th grade curriculum. Since vocabulary is a critical factor in reading and comprehension (Grabe 1991), this thesis will examine the English curriculum from the perspective of vocabulary acquisition. Because beginning English instruction as a subject in Grade 1 was introduced in 2003 after the National Reading Survey (NRS) in 2002, the data will come from only the Grade 2-6 curriculum and the results of the NRS.

## 1.3 Data

### *1.3.1 The English curriculum data*

In order to assess the academic readiness of Grade 5 students for Grade 6, the vocabulary requirements of Grades 2-6 and their mastery were thoroughly examined. In order to do this, the entire English curriculum from Grades 2-6 was either scanned or typed into the computer and then organized in a database for further analysis. The English materials in Grade 6 consist of five textbooks: 1) English, 2) History, 3) Geography, 4) Science, and 5) Math. The data set was eventually compared with the relevant results from the 2002 NRS and several well-known lists of frequently used words in both general and academic texts.

### *1.3.2 The National Reading Survey*

The NRS was conducted by the Ministry of Education in Eritrea in 2002, and had two major goals as stated by Walter and Davis (2002):

- To do a national assessment of reading skills and practices in all languages used for instructional purposes at the elementary level in Eritrea (Eight local languages and English).
- On the basis of the assessment carried out, to develop a set of recommendations and guidelines designed to improve the teaching of reading in all languages at the elementary level.

Relevant vocabulary and comprehension related tests from the NRS were used to make correlations with frequency of repetition of vocabulary and reading comprehension.



The following study differs from the 2002 NRS in these ways: 1) this study specifically focuses on the English curriculum rather than all of the languages of education, 2) this study is limited to vocabulary development and its effect on academic success, rather than a comprehensive view of all reading skills and practices in the classroom, 3) this study delves into the different categories of vocabulary present in the curriculum and makes recommendations on how to best teach those, 4) this study examines the density of vocabulary in the curriculum based on recommended standards, 5) this study measures the effect of frequency of word repetitions on vocabulary acquisition, and finally, 6) this study examines the role of vocabulary mastery in reading comprehension.

#### 1.4 Vocabulary lists

Different means are used to measure what vocabulary is necessary for any given domain. Researchers have come up with different types of frequency lists based on corpora of English – either written or spoken. One such list that is frequently referred to in the literature is the *General Service List* (GSL) (West 1953), a word list composed of around 2000 high frequency *word families*<sup>1</sup> considered to be of the greatest “general service” to learners of English. However, the GSL provides less coverage of academic texts than it does for fiction. So, since it better suited the research, the Baumann and Culligans’ adapted General Service List (1995) of 2294 high frequency word families was chosen.

---

<sup>1</sup> According to Nation (2001:8), “A word family consists of a headword, its inflected forms, and its closely related derived forms”.

The *Academic Word List* (AWL) (Coxhead 2000) is frequently referred to in the literature, and is based on analyses of the most frequent vocabulary used for academic purposes at the university level. The AWL was prepared from a corpus of 3.5 million words taken from academic journals and university textbooks from four main areas: arts, commerce, law and natural science. The 570 word families in the AWL were included in the analysis because of high frequency and high coverage in academic texts, irrespective of subject area. The AWL does not include any of the words from the GSL. "Typically academic words make up about 9% of the running words in the text" (Nation 2000:12), and none of these words occur in the General Service List (West 1953). The AWL was used as the comparison list for academic words found in the Eritrean English curriculum of Grades 2-6.

Another list, found in the *American Heritage Word Frequency Book* (Carroll et al. 1971), contains 88,533 distinct words in printed school English, and is derived from a 5 million-word corpus of more than 1,000 published materials typically used with children in Grades 3-9 in the U.S. The reason for the large number of words estimated to be present in printed school English is that, at the time of its preparation, a word was considered anything between two hits of the space bar (for example; know, knew, known and knowing appear in the count separately). The list also contains numbers, dates, letters, abbreviations, names, special characters, and, in some cases treats a capitalized word as a different word from its lower case equivalent. In addition, it refers to a child's reading (or receptive) vocabulary, which is always much larger than productive vocabulary. Because of its focus on school texts and its listing of

frequencies for each word in each grade level and subject area, this list also proved useful for comparison with the Eritrean curriculum.

### 1.5 Definition of key concepts

In describing vocabulary that students know, two terms are frequently used: 1) *receptive* (or passive) and *productive* (or active) vocabulary. Though these terms have different shades of meaning depending on the author, typically receptive vocabulary refers to words that one recognizes and may even understand, but does not use actively. Conversely productive vocabulary is what one is able to use to convey a message (Nation 2001:24).

Terms that are commonly used in relation to the way vocabulary is measured in a text are: 1) *running words*, 2) *word types*, 3) *word families*, and 4) *density*. In this research, *running words* will refer to the sheer number of words present in a text. *Word type* will describe the number of unique words present in a text, meaning words that are different from one another in even a minute way. For instance, father and father's are two word types. In contrast, a *word family* as defined by Nation (2001:8) refers to "a headword, its inflected forms, and its closely related derived forms". Another term often used for word family in the literature is lexeme. One example of a word family would be walk, walks, walked, walking, walker, etc. For the purpose of this research, only the most transparent derived forms will be considered "closely related". For example, 'shop' and 'shopkeeper' and 'cross' and 'crossword' would not be considered part of the same word family. The formula for estimating the number of words readily derivable from a list of word families is  $N \times 1.6$  (Nation 1983b). For example, from a

random list of 100 word families, one can estimate that this list is the basis for approximately 160 different English words.

Below is an example paragraph from the Grade 5 curriculum (p. 49) followed by a list that notes the number of running words, unique words, and word families in the text, as well as basic, academic, and technical vocabulary.

Sorghum grows everywhere in Eritrea. The farmers plant the seeds before the rain comes. In the highlands the plants need 5-8 months to grow. In the lowlands the plants can grow in six weeks. Birds like to eat the young plants. Boys make small huts on long legs. They sit in these huts and throw stones at the birds. The farmers pick the sorghum. Then the animals thresh it. We use sorghum to make bread, porridge and sewa.

- 1) Running words: 80
- 2) Word types: 54 (and, animals, at, before, birds, boys, bread, can, comes, eat, eight, Eritrea, everywhere, farmers, five, grow, grows, highlands, huts, in, it, legs, like, long, lowlands, make, months, need, on, pick, plant, plants, porridge, rain, sewa, sit, six, small, sorghum, stones, the, plants, then, these, they, thresh, through, throw, to, use, we, weeks, young).
- 3) Word families: 52 (and, animal, at, before, bird, boy, bread, can, come, eat, eight, Eritrea, everywhere, farmer, five, grow, highland, hut, in, it, leg, like, long, lowland, make, month, need, on, pick, plant, porridge, rain, seed, sewa, sit, six, small, sorghum, stone, the, plant, then, these, they, thresh, throw, through, to, use, we, week, young).
- 4) Basic vocabulary (word types): 44
- 5) Academic vocabulary (word types): 0
- 6) Technical vocabulary (word types): 10

*Density* is the ratio between a defined standard or inventory of words and a given text. An obvious standard is the ratio of known to unknown words (for example, known being the vocabulary from the English curriculum of Grades 2-5 and unknown being the newly introduced vocabulary of the Grade 6 English curriculum). Another standard would be any given list of theoretical or pedagogical interest, such as the GSL, and a given text (for example, the words in the GSL to the words in the Grade 6 curriculum). See Table 1.1 for a density table from Nation (2001:13) on the coverage

by different kinds of vocabulary in an academic corpus. In the table, GSL refers to the General Service List (West 1953) of the 2000 words of greatest 'general service' to English language learners. These 2000 words alone would cover 76.1% of most academic text.

Table 1.1 The coverage (density) by the different kinds of vocabulary in an academic corpus

Types of vocabulary	% Coverage
1 <sup>st</sup> 1000 words (GSL)	71.4%
2 <sup>nd</sup> 1000 words (GSL)	4.7%
Academic Word List (570 words)	10.0%
Other	13.9%
Total	100.0%

Density can be measured for any given subject text, or portion of a text. The densities may vary from page to page in a text, or from subject to subject, depending on the ratio of unknown to known words. For the purpose of this study, the density will be measured across the entire Grade 6 curriculum (all subject texts). According to Hu and Nation (2000:165), the ideal density of unknown to known words for extensive reading<sup>2</sup> is one to fifty, meaning that 98% of words need to be familiar. At this level students are able to learn new words through context without assistance.

In order to arrive at this conclusion, Hu and Nation compared densities of unknown to known words from a fiction text at four levels: 80%, 90%, 95%, and 98%. They found that only at 98% familiar words (or one unknown word to fifty known

<sup>2</sup> Extensive reading is where learners read texts with some unfamiliar features, but these pose minor problems.

words) did students have an acceptable comprehension of the text. The assumption is that a higher density of unknown words to known words would be acceptable for intensive reading, where learners are guided through the text with various aids. However, no acceptable percentage for intensive reading<sup>3</sup> was mentioned.

Additional distinctions in vocabulary terminology are the differences between *high frequency*, *academic*, *technical*, and *low frequency* vocabulary. *High frequency* vocabulary will be referred to as *basic vocabulary* in the study that follows. Baumann and Culligans' adapted General Service List (1995) of 2294 high frequency word families served as a guide for which words to include as 'basic'. Typically 80% of the running words in a text are high-frequency words. Nation states that a goal of mastering 2000 high frequency words is an appropriate objective for learners headed for academic study (2000:15). Continuing to learn the next thousand high frequency words is less productive for academic texts than learning common academic vocabulary.

*Academic vocabulary* refers to the more formal language used in different kinds of academic texts (examples: maintain, resource, plus, stable, impact, establish), and is especially important for anyone using English for academic purposes. Academic vocabulary provides between 8.5-10% coverage of academic texts. In this study, the Academic Word List (AWL) (Coxhead 2000) was used as a guide to determine the vocabulary to include as 'academic'.

*Technical vocabulary* is the vocabulary specific to a particular topic, field or discipline (Nation 2000:199), and typically covers about 5% of the running words in a

---

<sup>3</sup> Intensive reading is where texts contain many unfamiliar features and learners are guided through the

text. Although technical vocabulary may be common in a given field, it is not so common elsewhere. In the study that follows, the technical word category is made up of words that were neither in the GSL, nor in the AWL, regardless of whether they were specific to a particular topic, field or discipline in the curriculum. Since all the words in Grades 2-6 were categorized as a whole, rather than by topics, it was difficult to distinguish the difference between technical words and 'other' words, thus the reason for lumping words in the technical category that were not found in the basic or academic category. For that reason, the percentage of technical words reported in this study may be higher than 5% of the running words in a text, the typical coverage of technical words in a text.

*Low frequency* words are by far the largest group of words in the language. "They include all the words that are not high-frequency words, not academic words and not technical words for a particular subject" (Nation 2000:12). However, some low frequency words can have a relatively high frequency, depending on where they fall in the range of high to low frequency words. Low frequency words account for about 5% of the words in an academic text.

The study will progress in the following manner. First, Chapter 2 will provide an overview of the literature on the importance of vocabulary development to academic success and in particular, the differences between vocabulary development in the L1 as opposed to the L2. Second, Chapter 3 will describe the two data sets used in the analysis: 1) the Grades 2-5 English curriculum from Eritrea and, 2) the English portion

---

text with various aids.

of the test results from Grades 2, 3 and 5 of the 2002 NRS (Walter and Davis 2002). Third, Chapter 4 will analyze the data in an attempt to answer the overall research question: Does the existing Grades 2-5 curriculum provide Eritrean students with the English vocabulary needed to comprehend academic English at Grade 6 level? Fourth, Chapter 5 will provide suggestions for improving the curriculum in terms of vocabulary development. Finally, Chapter 6 is a conclusion of the study with implications.



## CHAPTER 2

### REVIEW OF THE LITERATURE

#### 2.1 The importance of vocabulary mastery to academic success

Results from the 2002 Eritrean NRS suggest that one area of deficiency in the present program is the lack of mastery of academic English vocabulary. Undeniably, vocabulary is important to successful language learning. Baker, Simmons, and Kameenui (1995) have called a strong vocabulary “crucial to academic achievement”. Though learning the conversational vocabulary of another language is difficult enough, the vocabulary of academic language is even more specialized, and requires greater effort in that many words that are used in textbooks are not used in everyday conversation and tend to be subject specific. Many of the words required in school contexts are not known by second language learners whose proficiency is based only on the conversational requirements of day-to-day life (Ellis 1990). Without adequate and specific vocabulary knowledge to tackle specialized subjects, learners can become easily frustrated in their attempts to glean meaning from a text.

This distinction between conversational and academic fluency was introduced by Cummins (1979) and is referred to in the literature by the acronyms BICS (Basic Interpersonal Communicative Skills) and CALP (Cognitive Academic Language Proficiency). Cummins’ intent was to “point out the very different time periods typically required by immigrant children to acquire conversational fluency in their

second language as compared to grade-appropriate academic proficiency in that language” (Cummins 1984:151, 160 Baker Foundation of Bilingual Education). Even though the evidence for this distinction comes from immigrant children living in an English-speaking country, it is plausible to assume that the same distinction is relevant for those studying in English in a non-English speaking country. However, it may take even longer for both BICS and CALP in the case of Eritrean children, whose English input outside the classroom is practically non-existent.

### *2.1.1 What vocabulary is needed?*

If vocabulary is crucial to academic achievement, exactly what vocabulary is needed? Nation claims that a vocabulary of approximately 5000 word families would cover 98% of a typical text. However, if the purpose is academic study, it is crucial to learn the word families that will have the maximum utility in academic texts. According to Nation, the 2000 most frequent word families and the 570 word families from the Academic Word List are enough vocabulary to provide 86.1% coverage of academic texts (2000:13) based on a corpus (Coxhead 1998) made up of science, arts, commerce and law (2000:13). This translates into encountering about one unknown word for every seven words – quite an improvement from one unknown word for every four words, if a learner knew only the 2000 most frequent words. In contrast, if a learner focuses on understanding the next 1000 most frequent words instead of the words in the Academic Word List, s/he would encounter about one unknown word to every five instead of one unknown word to every seven. If reading and understanding academic texts is the goal, learning the 2000 most frequent word families and the word

families on the Academic Word List is a more efficient way of accomplishing this goal than randomly learning words from the third thousand most frequent word families. According to Nation (2000:20), if an L2 language learner is aiming for University studies, a vocabulary of between 15,000 – 20,000 word families will allow a person to read typical academic material with minimal interference from unknown vocabulary.

Estimates of vocabulary requirements for successful work in academic English vary widely. Nagy and Anderson estimate that there are 88,533 distinct words in printed school English (1984:315) as reported in *The American Heritage Word Frequency Book* (Carroll et al. 1971). Even if the number of words found in printed school English seems daunting, success in English language use is not dependent on knowing all of these. The amount of vocabulary needed is largely dependent on “the nature of the text, the role of unfamiliar words in the text, and the purpose for reading (Nagy 1988:30).

Though vocabulary needs are paramount for success in reading and comprehension for the second language learner, according to Garcia (2000), very little has been done to develop and/or improve programs that will increase students’ second-language reading vocabulary. And yet Laufer and Sim (1985) estimate that “the most important element for interpretation is the vocabulary, then knowledge of the subject matter, and then discourse markers and syntactic structure”.

### 2.1.2. *What does it mean to know a word?*

Knowledge of vocabulary is knowledge of words, but as Schmitt (2000) points out, a one-to-one correspondence doesn’t always exist between a meaning and a single

word. Schmitt cites, for example, expressions for “to die” – kick the bucket, pass away, give up the ghost, etc. All of these expressions, though multiword, are synonyms for the same meaning – to die, and are often considered as one word. In addition, it isn’t always clear whether grammatical and morphological permutations of words are to be considered separate words, or word families. However, for the purpose of this research a word will refer to a word family – described as ‘a headword, its inflected forms, and its closely related derived forms’ (i.e. walk, walks, walked, walking, walker) as per Nation (2001:8).

As we examine the research that tests knowledge of words, we also note differences in degrees to which one can know a word. The tests in the literature examine a wide range of word knowledge, from simple recognition, to definition, to production of appropriate words in context, as well as appropriate usage in a broad range of contexts. Nation (1990:31), lists the different kind of knowledge that a person must master in order to know a word: 1) word meaning(s), 2) written form, 3) spoken form, 4), grammatical behavior, 5) collocations, 6) register, 7) associations, and 8) frequency.

In Nation and Waring (1997), a three pronged model of vocabulary knowledge is proposed that takes into account not only the breadth of knowledge (as in how many words are known), but also the depth of knowledge for each word (the learner’s knowledge of various aspects of a given word, as listed above), as well as how quickly the word can be utilized (automaticity). With the exception of de Bot et al. (1997), most studies have linked reading comprehension and breadth of vocabulary, rather than

reading comprehension and depth of vocabulary knowledge (Qian 1999). The focus of this study is primarily breadth of knowledge, not depth of knowledge.

## 2.2 Vocabulary acquisition rates for native and non-native speakers

Educational researchers estimate that for “each year of their early life, native English speakers add on average 1000 word families a year to their vocabulary” (Nation 2001:9). Native speakers are estimated to have a 5000 word family vocabulary when they begin school (Hu and Nation 2000). Rapaport (2004) put forth a more generous estimate suggesting that high school graduates know 45,000 word families on average. This is equal to learning an average of 2500 word families per year from age 1 to 18. Other estimates for vocabulary knowledge of native English speakers are much more conservative and show that the typical native English speaking university graduate will have approximately 20,000 word families in his/her vocabulary (Goulden, Nation and Read 1990). These discrepancies may have to do with what each researcher considers a word family, and in the case of the latter estimate proper nouns are not included.

Estimates for amount of vocabulary mastered by second language learners of other languages differ markedly. Takala (1984) found that the average “comprehensive school” graduate learning English in the Finnish school system has a passive vocabulary of approximately 1500 words over seven years of study. This represents a rate of vocabulary mastery of only 214 words per year. In another study by Appel and Vermeer (1998) in the Netherlands, non-native Dutch speakers aged 12, in elementary schools with no special interventions, had receptive vocabularies (Dutch) “only two-

thirds that of their Dutch classmates' vocabulary – roughly 10,000 versus 15,000 words”.

Regardless of which estimates of vocabulary knowledge of native speakers one considers, achieving a level of vocabulary equal to that of a native speaker is a daunting task for a second language learner, and one that cannot be achieved simply by learning vocabulary directly taught in the classroom.

### 2.3 The beginner's paradox

Because the amount of vocabulary needed to master academic texts is beyond what can be taught directly in the classroom, the language learner needs to be armed with other strategies to increase his vocabulary. One strategy espoused by many researchers and educators is vocabulary growth through extensive reading. The idea is that the more one reads the more one's vocabulary expands. However, the L2 learner must understand most of a text before new vocabulary encountered can be mastered; otherwise comprehension of the text will be compromised. In other words, to understand a text, you must know vocabulary, to increase vocabulary gains, you must read extensively, and to read extensively with comprehension, you must know vocabulary. Researchers often refer to this principle as “the beginner's paradox”. On the one hand, extensive reading improves the acquisition of new vocabulary (Sternberg 1987; Coady 1997). On the other hand, without a certain amount of vocabulary, reading is likely to end in frustration for lack of understanding.

Research from adult English foreign language learners that tested vocabulary level and reading comprehension (Laufer 1991a from Coady 1997) seems to suggest

that L2 readers must master a base vocabulary of 3000 word families or about 5000 individual word forms, in order to reach a threshold level of ability. Below this level the reader is handicapped by a lack of comprehension (Coady 1997:24). In other words, in the research from adult English foreign language learners, if a good L1 reader knows around 5000 words in the L2, he will be able to transfer reading strategies from his L1, and perform well enough to achieve a minimum passing grade<sup>4</sup> on a comprehension test. If, however, the learner's base vocabulary is less than 3000 word families, the reader's attention will be focused more on lower-level reading processes, such as decoding words, with the result that the learner will not be able to focus on the main point of the text (Laufer 1997). Laufer (1989) found that successful comprehension only takes place if 95% of the words in a text are familiar regardless of one's ability to decode vocabulary.

Counter to this, in a study among adults attending a pre-University English course in an English speaking country, Hu and Nation (2000) found that a 95% coverage of known words was not sufficient for most learners to gain adequate, unassisted comprehension of a reasonably easy fiction text. In their study, reading done by L2 learners was divided into three types: 1) intensive reading, where texts contain many unfamiliar features and learners are guided through the text with various aids 2) extensive reading for language growth, where learners read texts with some unfamiliar features, but these pose minor problems; and 3) extensive reading containing no unfamiliar features, where the intention is development of fluency skills. Type two,

---

<sup>4</sup> 56% was the minimum passing grade for the particular institution at the time of the research.

extensive reading for language growth, was the focus in their study. They concluded, along with Hirsh and Nation, that for extensive reading for language growth it is necessary to know 98% of the running words in a text. In other words, the density of unknown words should be around one in fifty. However, reading done with 98% of known words can be considered pleasure reading and can readily lead to incidental vocabulary learning. Exceeding this threshold turns extensive reading for language growth into intensive reading.

Laufer (1992) also examined the relationship between a reader's general academic ability, L2 vocabulary size and L2 reading. The results were that no amount of general academic ability would enable the reader to read well when he knows fewer than 3000 word families. Conversely, if a reader knows 5000 word families, reading in the L2 will be satisfactory regardless of his/her academic ability.

Other researchers are more concerned about the 5% of words that remain. They claim that it is these words that carry the highest information load in a text and are, therefore, the most problematic when trying to comprehend a text (Arnaud and Savignon 1997). This is particularly true of academically oriented students who need these low frequency words for adequate comprehension (Grabe 1991).

#### 2.4 Relationship between comprehension and vocabulary knowledge

Research demonstrates that poor reading comprehension for L2 learners is strongly related to limited vocabulary knowledge, even more so than to the other components of reading such as background knowledge and reading strategies (Laufer 1997:20, Carlo et al. 2004). Anderson and Freebody (1981) claim that word knowledge



is more important to text comprehension than “the sentence variable, inferencing ability and the ability to grasp main ideas” (Laufer 1997:20). Consequently, when unfamiliar middle and lower frequency “academic” words are encountered in middle and secondary school texts, comprehension of texts is inadequate (Carlo et al 2004).

In a study among elementary students, Kameenui, Carnine and Freschi (1982) found that substituting easy words for difficult words in a text made the text significantly more comprehensible (1982). Nation and Coady (1988) did a study in which they replaced 7-15% of words in a text with low frequency, or more difficult words. The results were a significant decrease in comprehension. These results align with Marks, Doctorow, and Wittrock (1974) in demonstrating that comprehension, both literal and inferential, is deterred by unfamiliar vocabulary.

In one group of subjects in the Marks et al. study, the researchers experimented with pre-teaching the difficult words in the passage and found that this contributed to better comprehension (1974). Anderson and Freebody agree with this result stating “people are helped to comprehend a text if they learn the meanings of the unfamiliar words it contains” (1981:20).

In a review of 52 vocabulary instruction studies, Stahl and Fairbanks (1986) found that vocabulary interventions generally do improve reading comprehension, but that not all methods have the same effect. In fact, the more traditional method of giving definitions has no significant effect on comprehension. In order to improve comprehension, words should be known not only by definition, but also by an understanding of how the word’s core concept changes contextually (Stahl 1986:663).

Other factors that affect successful comprehension are background knowledge, reading ability in the L1, and knowledge of the English grammar system (Hu and Nation 2000).

## 2.5 Extensive reading

### *2.5.1 Extensive reading as a means to vocabulary gains in L1*

In the American system, teachers explicitly teach less than 400 words per year in the classroom (Rapaport 2004). At that rate, it would be impossible to attain a vocabulary of 20,000 word families by the end of university studies, if the only means of acquisition were direct teaching in the classroom. The discrepancy between what is known and what is taught indicates that there are thousands of words that English speakers acquire by different methods. Because written texts typically use fewer familiar words than oral texts, the largest proportion of new words is acquired through extensive reading for language growth (Paribakht and Wesche 1997). Anderson, Wilson and Fielding (1988) report that the average middle class child in the United States reads approximately 1 million words a year, or about 80,000 to 100,000 words per month. According to Nagy, Herman, and Anderson (1985), this would be enough for the native speaker to make vocabulary gains of about 3000 words per year.

Nagy and Anderson (1984:327) 'judge that beginning in about third grade, the major determinant of vocabulary growth is the amount of free reading' (1984:327). Free reading refers to reading that is done for pleasure and that is at a level appropriate to the reader's vocabulary knowledge, so that unknown words encountered are not a major obstacle to comprehension. However, for L2 learners there are questions as to

when and if free/extensive reading is the most effective method of acquiring new words. Even though extensive reading may prove to be useful at later stages of language learning, it is not the most efficient way to expand a lexicon when your mean vocabulary is only 3000 words (Horst, Cobb and Meara 1998).

### *2.5.2 Does extensive reading work for the L2 learner?*

For those learning English as a separate language in non-anglophone countries, exposure to spoken and written English is naturally limited. In the case of Eritrean elementary school children, with only 40 minutes of English per day in the classroom and limited access to English materials outside the classroom, the challenge of building vocabulary, through extensive reading or otherwise, is a mammoth one.

Though there is evidence in L1 studies that people learn most of their vocabulary incidentally from extensive reading, the evidence is not as conclusive for L2 learners. In addition, the studies on extensive reading primarily focus on the number of words a learner knows rather than on the degree to which a learner knows different aspects of a given word.

In a well-known experiment by Saragi, Nation and Meister (1978) to test effects of reading on vocabulary acquisition, native English subjects read Anthony Burgess's *A Clockwork Orange*, a text sprinkled with Russian slang words. The subjects performed well on a surprise multiple-choice quiz designed to test knowledge of these frequently occurring Russian slang words, in spite of the fact that there was no pre-teaching of vocabulary. In this case, the English subjects were well aware of the context, and therefore better able to derive the meaning of unknown words from context just through

reading. However, it is less obvious that this effect would be present for non-native speakers for whom many of the contextual words might be unknown or only partially known (Horst, Cobb and Meara 1998).

Waring and Takaki found that L2 learners learn few new words incidentally from this type of extensive reading and “half of those that are learned are soon lost” (2003:20).

### 2.6 Does repetition increase the likelihood of vocabulary acquisition?

Repetition is necessary for vocabulary acquisition in that one meeting with a word is not enough to learn all there is to know about it. The more one is familiar with a word, the more easily it will be accessed (Nation 2001:76). There is some evidence that the amount of exposure necessary to acquire new vocabulary in L2 learning differs from that of L1 learning (Laufer 1994). However, there is no consensus. Estimates of the number of repetitions needed to learn a word vary anywhere from eight to fifteen times (Waring and Takaki 2003).

Nagy (1988:23) says about repetition,

If the reader can decode well and knows all of the words in the text well, then identifying the words of the text can proceed more or less automatically so that most of the readers attention can be given to comprehension. According to the verbal efficiency hypothesis, limited knowledge of word meanings can have the same sort of detrimental effect on comprehension that poor decoding skills may have. Just because you know the definition doesn't mean you will recall it while reading. It requires sufficient practice to make the meaning accessible during reading. This is where repetition comes in.

The number of contexts in which a word is presented increases with each repetition of a word. As a result, the learner's depth of knowledge of a word increases as well as the learner's likelihood of recalling the word while reading.

Waring's study (2003) also questioned whether words tested and learned immediately after a reading were retained in the long-term. He found that, after three months, about half of the words learned in the reading were forgotten. In order to have a 50% chance of recognizing a word form three months after the initial encounter, a word would have had to be encountered in the text at least eight times. However, after three months, when a learner was asked to produce a meaning to go with a word form, he only had about a 10-15% chance of remembering it, even if the word had been met more than 18 times in the text.

According to memory research in second language vocabulary learning (Bloom and Shuell 1981; Dempster, 1987), repetitions are more effective when spaced out over several days rather than when massed together in one session. Learning occurs for both those who cram and those who space out their vocabulary repetitions, but research by Bloom and Schuell (1981) showed that in the long-term (four days after learning vocabulary) those who used spaced repetitions outperformed those who crammed repetitions into one session. The cumulative amount of time spent in learning was the same for both groups.

Pimsleur (1967) suggests that most forgetting occurs immediately after learning a word, so it is best to have repetition soon after the first encounter with a word to fix it in the learner's mind. With the passage of time, less forgetting occurs so that subsequent encounters with the word can be at greater intervals (Nation 2001:76).

In research by Horst, Cobb and Meara (1998), frequency was examined both in terms of overall frequency of occurrence in the language at large, as well as frequency

in the specific text. The text was much longer than in similar previous research and was read over a ten-day period. Subjects for the research were low-intermediate learners. The researchers discovered that general frequency in the language did not seem to affect whether or not a word was learned, possibly because the subjects had not had enough exposure to the language for repetition effects to accumulate sufficiently to bring the high frequency words to a conscious level. Words that occurred frequently in the text were only somewhat more likely to be acquired. Even words that occurred eight times or more in the text were only learned 50% of the time. After reading a 21,000-word book, subjects had a mean gain of only five new words. This could be due to the fact that subjects had knowledge of only 1203 of the 2000 most frequent headwords and 2071 of the 5000 most frequent headwords according to Nation's Level Test (1990). Since we know that readers will have difficulty understanding and acquiring new vocabulary if more than one word in 50 (2%) is unknown (Liu and Nation 1985; Laufer and Sim 1985; Bensoussan and Laufer 1984; Hu and Nation 2000), this could account for the sparse gains in vocabulary.

Waring claims that learning a word is less dependent on frequency and more dependent on other factors including the word itself (2003). In trying to ascertain whether words of different frequency of occurrence rates were more likely to be learned and retained, he discovered that certain words were consistently learned at a higher rate. His test substituted 25 made-up words for 25 nouns and adjectives in a graded reader with 400 headwords. The words were divided up by number of occurrences in the text (15-18, 13-14, 8-10, 4-5, and 1) and then tested at three different times: immediately

after reading, after one week, and after a three-month delay. He discovered, that two of the best learned words occurred in the 8-10 repetition level, and attributed it to the fact that they were easy to learn, either because of the collocations (with numbers in one case) or because the nature of the word was more easily recognized (yoot for yes). It appears that frequency of occurrence is not the only factor in learning a word. The word itself, its collocations, and perhaps even other factors affect word mastery.

Repetition, although necessary to expand one's depth of knowledge of a word, may not be as important for L2 learners learning new words. Both Waring (2003) and Horst, and Cobb and Meara (1998) seem to be indicating that when the student is reading in a second language, vocabulary gains – though possible through extensive reading – are minimal, even for high frequency words.

### 2.7 How effective is learning new words from context for the L2 learner?

Whereas native English speakers are able to decipher meanings from context because of their greater knowledge of vocabulary, Carlo (2004) reports that non-native “English-language learners are less able to use context to disambiguate the meaning of unfamiliar words because a higher proportion of words in text is likely to be unknown to them” (Carlo: 191). Nagy et al. (1985:236) quote Beck, McKeown and McCaslin (1983:180-181), in noting that “even the appearance of each target word in a strong, directive context is far from sufficient to develop full knowledge of word meaning”. We also know from previous research (Liu and Nation 1985; Laufer and Sim 1985; Bensoussan and Laufer 1984; Hu and Nation 2000), that if more than one word in fifty is unknown, guessing of unknown vocabulary in context is inhibited. In short,

“Familiarity with a large number of words is a prerequisite for successful guessing” (Laufer 1997:29).

But even if L2 learners have a sufficient vocabulary to help them in guessing, Laufer (1997) says there are many situations where guessing vocabulary gets you nowhere – either there are no clues, there are clues but you don’t know enough to recognize them, there are partial or misleading clues, or there are suppressed clues (when a reader’s background knowledge doesn’t match that of the author). For example, sometimes a learner will guess the meaning of a word or idiom based on knowledge of the parts due to the fact that the parts are familiar. In the case of false cognates, the L1 word may look the same, but the definition is different in the target language. In addition, it could be that a learner knows only one definition of a word that has many meanings or that he confuses words that are similar in form but have different meanings (synforms). Therefore, even “a learner who has been taught guessing strategies will not automatically produce correct guesses” (Laufer 1997:30).

Another impediment to guessing correctly is the fact that L2 learners may be unable to use linguistic cues that could help them in deriving meaning because they lack complete understanding of English grammar (Carlo 2004). In Carlo’s research, improved reading comprehension outcomes resulted only after interventions of direct vocabulary teaching and instruction in word-learning strategies.



## 2.8 Pedagogical implications

### *2.8.1 Explicit and implicit instruction*

Because some researchers and curriculum developers have been under the false assumption that L2 learners acquire vocabulary in the same way as L1 learners, explicit vocabulary instruction has effectively disappeared from course books and classroom work in the last two decades. In the 1970's and 1980's, the communicative approach to language learning focused on implicit, incidental learning. As a result, teachers and textbooks emphasized learning words from context and using monolingual dictionaries rather than bilingual ones. However, while no one denies that activities to encourage incidental learning are valuable, research presently points to the fact that explicit instruction is also needed for L2 learners to acquire and retain vocabulary for the long haul.

Since the vocabulary needed for academic studies would require more explicit teaching time than a teacher has in any given class, we know that strategies for independent vocabulary learning are also necessary. Past research has shown that successful guessing of unknown vocabulary can only take place if a sufficient amount of vocabulary is known. It seems obvious, then, that explicitly teaching this 'sufficient' amount of vocabulary is necessary to enable acquisition of vocabulary through guessing. Qian (1999) suggests that, at the very least, the 3000 high frequency words in English are needed in order to prepare the L2 learner to handle ordinary English text. Other research shows that knowing at least 98% of the words in a text is necessary in order to understand and acquire new vocabulary (Liu and Nation 1985; Laufer and Sim

1985; Bensoussan and Laufer 1984; Hu and Nation 2000). This is equivalent to a density of one unknown word to every fifty known words. The implication is that systematically teaching frequent vocabulary in the early stages of language learning is essential to helping learners tackle ordinary English texts and improve their vocabulary knowledge.

### *2.8.2 What contributes to long-term retention of vocabulary?*

Nation (2001) reports that there are three processes in particular that will aid L2 learners in remembering a word: 1) taking notice (or giving attention to it), 2) retrieval, which refers to the process of the learner trying to recall all he knows about a word when it is encountered subsequent to his initial learning of it, and 3) creative or generative use. Corson (1995:4) expresses it this way: "educational failure or success depends to a very large extent on people having the words, wanting to use them, and being able to use them".

Any intervention that can direct a learner's attention to a word is helpful for later remembering it. Schmidt (1990) reports that when a learner is forced to notice a new word, he has taken the first step in acquiring it. Helping a student to take notice of a word can be done in a myriad of ways; through direct instruction, through awareness of a lack of comprehension because of an unknown word, through searching a dictionary for a meaning, through guessing the word in context, through negotiating meaning, etc. According to Nation (2001), motivation and interest on the part of the learner are prerequisites for taking notice. Motivation is best encouraged through activities or subjects that pique the interest of the learner. To illustrate this, a study

focused on learning through listening used two different stories and found that the same subjects learned more from the story of greater interest to them (Nation 2001:63).

Another primary factor in noticing words is decontextualization. “Decontextualization is when learners give attention to a language item as a part of the language rather than as a part of the message” (Nation 2001:64). In other words, a learner reinforces the connection between a word and its meaning when forced to focus on the role a word plays in the language system rather than only its message. Two types of decontextualization techniques are negotiation (meaning is negotiated through discussion) and definition (words are defined briefly before and/or during their use).

A second process that will aid a learner in remembering a word is retrieval. In retrieval, the focus is either on recognizing the form and then recalling all that is known about it (receptive), or wanting to communicate the meaning of the word and having to produce the form (productive). Either way, the more a word is retrieved the more the connection between meaning and form is enforced and the more likely it is to be remembered. Retrieval is affected both by size of vocabulary and by the amount of time the memory of a meeting with a word lasts. The larger the vocabulary one has, the more one has to expose oneself to the language in order to meet a word again. And though the likelihood of remembering a word for the long term is dependent on the quality of the first meeting, it is also affected by the number of times it is met and by the amount of time which lapses between those meetings.

The final process in Nation’s model – creative or generative use – refers to anything that deepens the level of processing of a word and forces the learner to rethink

his/her understanding of it. Some examples of generative processing are; 1) seeing the word in a different context than from the original meeting; 2) word picture association; 3) learning the collocations of a word; and 4) understanding possible inflections.

### *2.8.3 Classroom practices for teaching vocabulary*

We have examined the evidence in favor of a different approach to vocabulary learning for L2 learners, but we have yet to discuss what some of the classroom practices consistent with this approach might include. One thing is sure, “any one way of dealing with vocabulary is not efficient in helping learners gain control of all aspects of word knowledge” Nation (2001: 300). Clearly, knowledge of what vocabulary the learner needs based on the purposes for which he will be using the language is of primary importance to the language teacher. Once a teacher is informed about the learners’ needs, there are multiple ways to approach the development of students’ vocabularies, but “not all of the procedures used to teach vocabulary are equally effective” (Carr and Wixson 1986: 588).

#### *2.8.3.1 Guidelines for the teacher*

Several guidelines can be applied to specific vocabulary exercises to judge their effectiveness in the classroom. Carr and Wixson (1986) suggest four questions teachers can ask: 1) Does instruction help students relate the new vocabulary to their previous experience or background knowledge?; 2) Does instruction help students increase the depth of their knowledge of a word as opposed to only providing a definition?; 3) Does instruction provide for active student involvement in learning new vocabulary?; and 4)

Does instruction help students develop strategies for acquiring new vocabulary independently?

#### 2.8.3.2 Vocabulary activities for the classroom

What are some of the specific activities to help teachers implement the above guidelines? The first guideline is for teachers to help students connect what they will be learning with what they already know. This can be done in several ways, but two are frequently mentioned in the literature. First of all, Anderson (1990:14) mentions that the teacher can get students involved in a pre-reading discussion (Dubin and Bycina 1991). This activity is initiated by the teacher with a question, preferably provocative in nature, related to what they are about to read. Many students think they lack knowledge about a subject until they hear their classmates talking. Then they realize they, too, have something to contribute. Secondly, background knowledge can be activated through semantic mapping. In this activity, the teacher introduces a concept or keyword found in the reading, and then asks students to provide words they associate with that concept. The teacher illustrates on the blackboard, with the input of students, how the concepts are related. In another version of this technique, the teacher could just read the title of the story and ask students to relate words and concepts they associate with the title. Again, the relationships between words and concepts should be illustrated on the blackboard.

Through the second guideline the teacher seeks to assure that students are growing in their knowledge of a word, beyond a simple definition. Activities of this sort should be thought of as increasing the depth of knowledge of a word. Viewing a

word in multiple contexts is one way to deepen knowledge of a word. This can be done through extensive reading of graded readers, or through other activities where learners have to grapple with the multiple contexts possible for a given word. Another activity helpful in deepening word knowledge calls for students to connect words from one list to a second list of separate words. The students try to think of something that a word in one column has in common with a word in the second column. It can be as simple as recognizing that two words are the same part of speech, or to demonstrate a deeper understanding, the student may explain, for example, that the two words are associated with the emotion of happiness, as in excited and smiling.

The third guideline encourages active student participation in contrast to the teacher being at the center of the activity. The more involved students can be in constructing the meanings of new words, the more likely they are to remember what they have learned. Nagy (1988:24) says, "Vocabulary instruction that makes students think about the meaning of the word and demands that they do some meaningful processing of the word will be more effective than instruction that does not". For example, in the activity of semantic mapping, it would be more beneficial for students to wrestle with the word associations than for the teacher simply to illustrate those relationships on the board as s/he sees fit. For example, if the subject is 'trees', and the students generate the words, 'fruit', 'medicinal', 'mango', 'evergreen', 'deciduous', 'building', 'rubber', then the teacher should let the students come up with how to organize these words around the word 'tree', rather than provide a framework

him/herself. If it is necessary to clarify the reason for the choices students make, the teacher can ask students to justify their responses.

Finally, the last guideline promotes activities that will encourage the development of vocabulary learning strategies that students can use independently. Because of the number of words a student must learn, and the impossibility of learning all of them in the classroom, students must learn how to glean the meanings of new words independently. For example, if students learn common affixes and their meanings, this knowledge helps them to guess the meanings of unknown words in context when reading on their own. Another activity that helps students is for the teacher to read a portion of a text and then stop to have students guess what will happen next. The teacher should then ask the students to explain why they made a certain prediction. Showing students what words give clues in a text will help them to monitor their own comprehension of texts when they are reading independently.

These are but a few of the many activities that teachers can use to improve vocabulary performance in the classroom. In the following case study, we'll read about some successful vocabulary interventions among migrant children in Holland.

#### *2.8.4 Case study from Holland*

Now that we have reviewed, rather generally, some different principles and activities for the acquisition of vocabulary in the classroom, let us look at a specific case study from Holland that sought to increase the rate at which migrant children acquired Dutch vocabulary (Appel and Vermeer 1998). This four-year longitudinal study compared the vocabulary development of two groups of migrant children to a typical

group of Dutch children from kindergarten through grade four. The one group of migrant children received vocabulary interventions and the second group did not. At the end of a four-year study, even though the experimental group lagged a year behind their Dutch classmates in vocabulary, they had still made significant gains and outperformed the comparison group.

The interventions began with preparation of materials specifically for children learning Dutch as a second language. The teachers gave 30 minutes of instruction four times a week to the experimental group. The goal was to reach a level of vocabulary development equivalent to that of Dutch children at the end of four years. In order to do so, 1000 target words were presented each year to the children, half of which were in the regular curriculum. The other half was presented in a story format supported by pictures. Teachers' activities included activating prior knowledge, explaining meanings of target words, language games, dialogue, small tasks and Total Physical Response (particularly in the lower grades). The experimental program relied on 'implicit acquisition of the target language in meaningful contexts and communicative tasks' (Appel and Vermeer 1998: 163).

At the end of four years, the experimental group exceeded the comparison group not only in vocabulary, but also in general reading ability. However, the experimental group still lagged about a year behind their Dutch classmates in vocabulary development. Whereas their Dutch classmates had productive vocabularies of 3900 words at the end of grade four, the migrant children had productive vocabularies of only 3300 words. In another test administered three years after the initial experiment,



migrant children in the experimental group had maintained the effects of their vocabulary and reading achievement. The recommendation was that the program should continue through eighth grade to facilitate successful scholastic achievement for migrant children.

These results show us that although there may be specific challenges in developing the vocabulary of L2 learners so they can function effectively in an L2 academic environment, it is not an impossible task. Each situation may require a special set of interventions, but with pedagogically sound instruction and materials, willing teachers, motivated students, and enough time, vocabularies can be fortified and students armed with strategies that help them to uncover the meanings of even more words independently.

The following chapter will describe the English curriculum in Grades 2-5 in terms of the themes covered in each grade, the new elements taught, and the activities used to teach them. Also included is a description of the results from the English portion of the test results in Grades 2, 3, and 5 of the 2002 NRS (Walter and Davis 2002).

## CHAPTER 3

### DESCRIPTION OF CURRICULUM AND READING SURVEY

#### 3.1 English instruction in the current curriculum

Up until 2004, English was taught as a subject beginning in Grade 2. At present, however, a new English, oral Grade 1 curriculum is in place. As the English curriculum in Grade 1 was put into effect a year after the NRS in 2002 (i.e. in 2003), a description of Grade 1 will not be included in this study.

Children in Grades 2 – 5 of primary school have, in principle, one hour of English each day. However, the actual teaching time is typically more like forty minutes. After Grade 5, English is the language of education and students are expected to have the skills and vocabulary necessary to transition to education exclusively in English. The following description will give an idea of what students are expected to learn from Grades 2-5, and some of the themes and activities that are used to teach these elements.

#### *3.1.1 Description of the curriculum in Grade 2*

Overall, the Grade 2 English curriculum is focused on oral language development rather than written skills. The writing exercises that do exist emphasize letter formation and simple words and phrases. One hundred forty-one separate words are introduced in the Grade 2 text. For example, words like *have*, *has*, and *am*, *are*, *is* are all considered separate words, as are singular and plural nouns. The new elements

are introduced through subject matter that is culturally appropriate. If there is a review of new items learned at the end of each lesson, it is not evident from the student's books.

#### 3.1.1.1 Grade 2 themes

The English curriculum for Grade 2 is not specifically divided into lessons as it is for Grades 3-5. The following seem to be the main themes: school, colors, numbers, animals, family, home, days of the week.

#### 3.1.1.2 New elements taught

The elements taught are as follows (though not specifically stated as such nor presented necessarily in this order):

- pre-reading exercises (matching, identification, tracing),
- simple yes/no questions (is that \_?) and who, what, where questions,
- the verbs 'to be', have, come and look, as well as the verbs follow, find, draw, match, read, write, color, count (by means of instructions included in the lessons),
- basic colors,
- numbers 1-10,
- upper case/lower case letter distinction,
- simple introductions (my name is, I am),
- adjectives (long, big, small),
- prepositions of location (in, on, under),
- determiners (this/that),
- possessives (my, your, his/her),
- pronouns (I, he/she, they, it),
- singular/plural distinction,
- the negative 'not'
- and various content nouns based on themes from the units.

#### 3.1.1.3 Teaching activities

The activities used to teach the different elements include:

- tracing,

- matching,
- finding,
- copying,
- reading and writing,
- coloring and drawing,
- question/response,
- multiple-choice fill in the blank with illustrations,
- simple fill in the blank,
- counting,
- story sequencing through illustrations,
- and choosing the correct sentence to match an illustration.

### *3.1.2 Description of the curriculum in Grade 3*

The Grade 3 curriculum is made up of individual words and simple sentences using subject matter that is culturally appropriate. Two hundred fifty-two new words are introduced in Grade 3. With the increase in new word forms comes an increase in the number of exercises for writing word forms. The stories are made up of paragraphs of no more than 2-3 sentences in length with corresponding illustrations as an aid to comprehension. Judging from the student books, all learning activities appear to be done individually. The Grade 3 student textbook doesn't have any kind of formal review of new items learned at the end of each unit.

#### *3.1.2.1 Grade 3 themes*

The English curriculum for Grade 3 is divided into 8 units on the following themes: school, house, food, Eritrea's plants, Eritrea's animals, occupations, daily activities, telling time, and the story of the three pigs.

#### *3.1.2.2 New elements taught*

The elements introduced in the units are:

- adjectives (tall, short, many),

- intensifier very,
- quantifier every,
- verbs (do, go, like, can, dig, plant, water, grow, see, cook, live, shut, jump, wax, work, use, make, milk, look (after), teach, sit, wash, play, get, drink, fly, run, sleep, drive, teach, work),
- some present and present progressive forms of verbs,
- some simple past forms of verbs,
- prepositions of location (beside, in front of, behind, near),
- recognizing similar sounds in word endings and beginnings,
- comparatives (longer, smaller, taller, shorter, bigger),
- more family terminology,
- review of numbers,
- possessives,
- polite form please,
- times of day (both generic as in morning, afternoon, evening and telling time by the hour)
- and several content nouns relating to the themes covered in the curriculum.

### 3.1.2.3 Teaching activities

Some of the activities used to teach the different elements are:

- matching,
- finding words beginning with same sounds,
- writing letters, words, and sentences,
- identifying a beginning sound from an illustration,
- fill in the blank,
- tracing,
- reading,
- yes/no questions,
- matching a picture with a phrase,
- reading charts,
- comparisons,
- and basic content questions.

### 3.1.3 Description of the curriculum in Grade 4

In Grade 4 the amount of reading material included in the text increases considerably over Grade 3. Whereas in Grade 3 there are only a few simple stories

made up of simple sentences, in Grade 4 the text increases in size and complexity and relies less on illustrations to convey the message. Paragraphs from the stories are more developed, and compound sentences are introduced as well as some conjunctions. New words increase significantly, up to 673 from 252 in Grade 3. Creative writing is introduced in some of the exercises. Again, the subject matter is culturally appropriate. More of the learning activities, as per instructions in the book, are to be either group work or pair work, whereas in Grades 2 and 3 it appears that all exercises are to be done individually. Judging from the Grade 4 student textbook, there is no formal review of the new material covered in each unit.

#### 3.1.3.1 Grade 4 themes

The Grade 4 curriculum is divided into 9 units with the following themes: family life, towns in Eritrea, weather in Eritrea, water, the human body, Eritrea's birds, travel, shapes, and a story about Mr. Fox (animal).

#### 3.1.3.2 New elements taught

The following are some of the new elements taught in the units (this is not an exhaustive list):

- discourse markers (first, then, next),
- spelling out numbers,
- abbreviations of weekdays,
- reading a calendar (day, month and year),
- relative adjective which,
- consonant clusters (th, ch, sh, cl, ck, pl, st, sw, ly),
- adjectives (young, old, new, angry, frightened, happy, sad, clean, dirty, heavy, light, fat, thin, kind, cruel, hungry, thirsty, tired, beautiful, ugly, poor, rich, strong, hot, cold, cloudy, sunny, wet, dry),
- quantifiers (a lot of, some),
- adverbs (carefully),

- preposition of location between,
- polite form excuse me,
- verbs (plough, sell, help, wear, climb, dig, laugh, carry, to become, rise, come, answer, etc.),
- items of clothing,
- past tense of some irregular verbs (sweep, put, draw, shine),
- time markers (yesterday, today),
- weather terminology and directions (north, south, east west),
- some distinctions in vowel sounds (long and short 'i', long 'e'),
- body parts,
- writing the words for numbers,
- reading graphs and tables,
- introduction of compound sentences (...and..., but...),
- opposites,
- comparatives \_est (tall, small, fast, slow, light, heavy, strong, big)
- more and less,
- bird parts,
- simple shapes,
- contractions,
- and why/because construction.

### 3.1.3.3 Teaching activities

Some of the activities used to teach the different elements are:

- question and answer,
- family tree diagram,
- a variety of matching exercises,
- finding words beginning with same sounds,
- crossword puzzles,
- stories and comprehension questions,
- fill in the blank,
- giving directions from a map,
- describing people and scenes,
- yes/no questions,
- finding opposites,
- reading charts and filling in the blanks,
- comparisons,
- writing stories from a sequence of pictures,
- writing the word for a picture,
- putting events from a story in sequence,
- relating locations to one another on a map,

- finding differences in two illustrations,
- labeling,
- reading graphs,
- guess who game,
- true/false,
- writing words/sentences and original stories,
- filling in a table,
- and multiple choice.

### *3.1.4 Description of the curriculum in Grade 5*

The Grade 5 curriculum differs from Grade 2-4 in that it begins to introduce some of the subject matter that will be introduced in Grade 6 such as math and geography. Also included is a section on what subjects a typical Grade 6 timetable would cover. The total number of new word forms introduced in Grade 5 is 630. Similar to the other grades, the subject matter is culturally appropriate. Also similar to Grades 2-4 is the fact that there is no formal review of new items encountered at the end of each unit.

#### *3.1.4.1 Grade 5 themes*

The Grade 5 curriculum is divided into 9 units, plus a section at the back of the book that lists the new vocabulary introduced in this textbook, as well as the vocabulary (by word family) that is covered in Grades 2-5. The themes, some of which are building on former themes from other books, are: school, food (of Eritrea), where our food comes from, towns and villages (of Eritrea), clothes, introduction to math, thieves, Eritrea's nomads, and soccer.



#### 3.1.4.2. New elements taught

Since the new vocabulary introduced in Grade 5 is listed in the back of the book, only a brief description of the new elements taught will be provided here:

- 25 new verbs,
- 31 adjectives,
- 89 nouns,
- 16 school subjects,
- and 24 words categorized as 'other'.
- Some of the concepts taught and/or reviewed in Grade 5 are: nouns (non-countable and countable), adjectives, verbs, prepositions (in, on, at), pronouns (me, you, him, her, it, them, us), introduction to math, constructing how-to texts, and spelling rules for English plurals.

#### 3.1.4.3 Teaching Activities

The activities used to teach the new elements are:

- finding things on a map,
- interpreting a timetable,
- filling in tables,
- writing,
- fill in the blank,
- reading stories and answering comprehension questions,
- matching exercises,
- categorizing words,
- question/answer,
- writing how to passages,
- finding opposites,
- sequencing stories,
- finding differences in two pictures (and describing differences in two things),
- giving directions,
- true/false,
- crossword puzzles,
- and playing games.

### *3.1.5 Conclusion*

In conclusion, whereas the material taught in Grade 2 starts off at a slow pace, the level of difficulty increases dramatically in Grade 4 as evidenced by the complexity of text, the inclusion of new grammatical constructions, and the sheer number of new vocabulary items. With the amount of time spent in the study of English remaining the same each year (40 minutes/day), it is unlikely that the material can be learned, let alone mastered. Indeed, this proves to be the case, as shown by the 2001-2002 NRS, of which a short description follows.

## 3.2 The 2001-2002 National Reading Survey

### *3.2.1 Background*

Since independence in 1991, Eritrea has sought to implement mother-tongue education in all of the national languages at the primary school level. The intent is to give students a good foundation in their own languages before they make the switch to an all-English curriculum in Grade 6. From the beginning, the task has not been an easy one, as at least half of the national languages had never been developed for educational purposes. In addition, educational materials did not exist, nor the trained teachers to implement them. From the inception of this multi-lingual model, the Eritrean Ministry of Education has shown an eagerness to evaluate its effectiveness and to make adjustments for its improvement. Prior to the 2002 NRS, two other national assessments of the educational model had been done, both of which showed less than satisfactory results concerning the scholastic achievements of students, both in mother tongue and English.

### *3.2.2 Objectives of the National Reading Survey 2001-2002*

In order to evaluate this educational model further, the Ministry of Education invited a team of consultants from SIL International to conduct the NRS in 2002, with funding provided by the Danish International Development Agency. Prior to that, in late 2001, SIL consultants met together with the Curriculum Division of the Ministry of Education for planning sessions and the development of a pilot study carried out later that year. After revision of the research instruments following the pilot study, data gathering for the official survey began in early 2002.

The objectives of the Reading Survey as stated in the report (Walter and Davis 2002) were as follows:

- To do a national assessment of reading skills and practices in all languages used for instructional purposes at the elementary level in Eritrea (eight local languages and English)
- On the basis of the assessment carried out, to develop a set of recommendations and guidelines designed to improve the teaching of reading in all languages at the elementary level.

As the interest of this research lies with the English curriculum in particular, the description that follows will concern that aspect of the evaluation. Instruments that refer to mother tongue aspects of the research will not be included.

### *3.2.3 Basic research design – English*

From each of the eight<sup>5</sup> nationalities, five schools, representative of both urban and rural settings, were selected. These schools were the same ones selected for the mother tongue testing. From each school, ten students from Grades 2, 3, and 5 were randomly selected. The students selected from Grades 3 and 5 were randomly selected from the pool of 20 students that had participated in the mother tongue testing. Although ideally fifty students from each language community were to be tested as per the design (400 total), the actual number was 391 students.

The following instruments were used in the Survey to collect both qualitative and quantitative evaluations relevant to the two stated research objectives: 1) student testing, 2) literacy practices inventory, 3) timed classroom observation, 4) school environment study, 5) teacher assessment of student progress and 6) teacher's perspective on teaching in English.

The student-testing inventory is most relevant to this research and as such, will be the central focus.

### *3.2.4 Grade 2 testing inventory*

The Grade 2 student-testing inventory is designed to test a representative sample of the Grade 2 curriculum's specified Knowledge, Skills and Attitudes (KSAs) (Attitudes were not explicitly tested). The inventory consists of two portions, oral and written development. As oral development is the emphasis of Grade 2 instruction, this

---

<sup>5</sup> At the time of the survey, a ninth national language, Hidareb (now known as Bidhaawyeet), was not being used as a language of instruction.

portion of the inventory is more heavily weighted than the written portion. It should be noted that all items from the test came directly from the Grade 2 textbook. The oral portion of the assessment tests these KSAs: 1) Word-Object Recognition, 2) Listening Skills, 3) Understanding Word Meanings, 4) Understanding Sentence Meaning, 5) Reading and Answering in English, and 6) Reading Accuracy, Fluency and Comprehension. The written portion tests three KSAs: 1) Sentence Meaning, Grammar, and Reading Comprehension.

#### 3.2.4.1 Description of Grade 2 sample

In the sample, the ratio of males to females was about 60:40 falling within the expected range for a randomly drawn sample when compared with the 1998 statistics from the Ministry of Education (Walter and Davis 2002:182). The rural population of the eight-language group sample was 82.35%. Of the population, four language groups were entirely rural, and three were between 60-80% rural. Only one group had a majority of urban students at around 60%. The sample ranged in age between 8-12 years, with only 11% falling outside of this range. The mean age was 9.65 years.

#### 3.2.4.2 Overall Grade 2 results

The mean score of the Grade 2 sample on the testing inventory was 55.9 (out of 100) with a standard deviation of 28.21. See Table 3.1 for mean scores of all tasks and Table 3.2 for differences in mean scores by language groups. With all items from the test taken directly from the curriculum, it would have been reasonable to expect an overall national performance to fall between 65-70%. But only four out of the eight nationalities met or surpassed this standard with another one trailing not far behind.

The other three, however, failed to come close to this standard and as a result lowered the national average to 55.9%. (For a breakdown of mean performances by language group, see Table 1.3.) To summarize, five-eighths of the students did well on the Grade 2 inventory and three-eighths did poorly (Walter and Davis 2002:207). If we compare all the tasks students were required to do, the highest means were for listening skills, and word object recognition (identification and reading), both of which were supported by pictures. The lower scores, with means less than 50%, were on meaning related tasks, comprehension, and reading rate.

**Table 3.1 Summary results of Grade 2 testing by task.**

All results are expressed as a percentage except for Section 5A (Reading rate), which is expressed in terms of words per minute.

<b>Rank</b>	<b>Test Section from the Grade 2 English test</b>	<b>Mean Score</b>
1	Section 2 - Listening skills	74.17
2	Section 1A - Word-object recognition (identification)	73.08
3	Section 1B - Word-object recognition (reading)	70.65
4	Section 6 - Sentence Meaning	60.87
5	Section 3A - Understanding word meanings (reading words)	60.27
6	Section 8 - Reading Comprehension	57.54
7	Section 5A - Accuracy	55.63
8	Section 3B - Understanding word meanings (translating into own language)	55.32
9	Section 4A - Understanding sentence meanings (reading)	53.88
10	Section 7 - Grammar	53.07
11	Section 4B - Understanding sentence meanings (reading)	45.78
12	Section 4B - Understanding sentence meanings (answering in English)	45.27
13	Section 4A - Understanding Meaning (sentences -translate to MT)	33.38
14	Section 5B - Comprehension	29.24
15	Section 5A - Reading rate	16.94

Table 3.2 Mean scores on all tasks of Grade 2 English testing by language group.

Language group	Mean score for all students
Afar	67.56
Arabic	60.26
Bilin	64.57
Kunama	74.06
Nara	44.48
Saho	74.68
Tigre	40.08
Tigrigna	21.10

### 3.2.5 Grade 3 testing inventory

The Grade 3 student-testing inventory is designed to test a representative sample of the Grade 3 curriculum's specified Knowledge, Skills and Attitudes (KSAs). Again, all items from the test came directly from the Grade 3 textbook. The inventory tests these KSAs: 1) Word-Object Recognition, 2) Listening Skills, 3) Word Identification, 4) Fluency (rate) and Accuracy, 5) Sentence Awareness, 6) Phonemic Awareness, 7) Grammar, 8) Sentence Meaning, and 9) Reading Comprehension.

#### 3.2.5.1 Description of Grade 3 Sample

The ratio of males to females was about 65:35 and is a higher proportion of males than is cited in the 1998 statistics from the Ministry of Education. These statistics report a percentage of 54.18 males (Walter 2002:182). The rural population of the eight-language group sample was at 82%. Four groups were entirely rural, one group was about 60% urban, and the other three were entirely urban. The third variable, age, cannot be reported on for lack of data.

### 3.2.5.2 Overall Grade 3 results

The mean score from all categories of the student-testing inventory was 58.162 (out of 100) with a standard deviation of 17.09 (Walter 2002). See Table 3.3 for mean scores of all tasks. Of the total number of students who took the test 45.43 % scored over 60% on the test. While this is not the ideal (a mean of 65-75%), it is still evidence that many are making good progress in their mastery of the English 3 curriculum. If we compare all the tasks they were required to do, the highest means were for listening skills and phonemic awareness, both of which were supported by pictures. The remaining tasks in descending order by mean were: word object recognition, accuracy, sentence meaning, word identification, reading comprehension, grammar, and reading rate. All of these are well below what will be needed to continue moving forward in preparation for an all-English curriculum in Grade 6.

Table 3.3 Summary results of Grade 3 testing by task.

All results are expressed as a percentage except for Section 4 (Reading rate), which is expressed in terms of words per minute.

Rank	Test section from the Grade 3 English test	Mean Score
1	Section 6 – Phonemic Awareness: Consonant sound ‘t’	89.21
2	Section 2 – Listening Skills	83.17
3	Section 8 – Sentence Meaning: Comparisons	79.44
4	Section 6 – Phonemic Awareness: Consonant sound ‘k’	79.15
5	Section 6 – Phonemic Awareness: Vowel sound	69.49
6	Section 5 – Sentence Awareness	61.93
7	Section 1 – Word Object Recognition: Reading	59.60
8	Section 4 – Accuracy	59.15
9	Section 1 – Word Object Recognition: Identification	49.96
10	Section 8 – Sentence Meaning	44.29
11	Section 3 – Word Identification	44.16
12	Section 9 – Reading Comprehension	33.82
13	Section 7 – Grammar	33.67
14	Section 4 – Reading Rate	26.74



### 3.2.5.3 Grade 3 Reading Ability

In order to ascertain where students were in actual reading ability, three other indices were applied to the data: the Eritrean English Reading Index<sup>6</sup>, the Conventional 'at risk' Index – Grade 3, and the Conventional 'on grade level' Index – Grade 3. Each one had a specific purpose. The first, the Eritrean English Reading Index, was designed so that a standard score of 100 would indicate that a child is able to read in the most basic way, even if with considerable difficulty. This index indicated that of the students sampled, 46.7 % met the standard of 100. However, 25% of the students were not able to read in even this most basic way. Their attempts were described as 'only being able to identify occasional words (or less)' (Walter and Davis 2002:238).

The Conventional 'at risk' Index – Grade 3 was used to give an idea of how the Eritrean students were doing in comparison to the 'at risk' level students in a typical Grade 3 mother tongue speaking context. 'At risk' describes students who, because of their poor performance at reading, might not be promoted to the next grade level. When Eritrean students' L2 reading scores are compared to L1 reading standards, only 19.5% of students were considered at least at risk (or higher), while the remaining 80.5% fell below this standard.

The final index, the Conventional 'on grade level' – Grade 3, is the mother tongue reading standard set for Eritrean languages. It is obviously unrealistic to expect that Eritrean students, who at best have only one hour of English a day, could meet this

---

<sup>6</sup> All three reading indices were measured by three criteria: reading rate, reading accuracy, and comprehension.

standard in the L2. However, it was included in the NRS to provide perspective and comparison. The reading standard for this index was measured by three criteria: reading rate, reading accuracy, and comprehension. "According to this 'on grade level' standard, just 6 out of 394 students would be considered to have English reading skills adequate to advance to the next grade level" (Walter and Davis 2002:240).

Whereas the overall Grade 3 results were somewhat positive, indicating that some of the basic English skills were being mastered, the reading indices demonstrated that students are struggling to read. Walter and Davis (2002) suggest three reasons for this result: 1) poor foundation in Grade 1 mother tongue reading, 2) English level of teachers in the early grades is weak, and 3) children have no access to help in English outside the classroom.

### *3.2.6 Grade 5 testing inventory*

The Grade 5 student-testing inventory was designed to test the assumption that four years of English would be enough to prepare students for an all-English curriculum in Grade 6. Therefore, in contrast to the student testing inventories for Grade 2 and Grade 3, the Grade 5 inventory not only tests curriculum content, but also pushes students to demonstrate an ability to use English for academic purposes. The sections of the test were as follows: 1) Phonemic Awareness, 2) Word Meaning and Identification, 3) Fluency (rate) and Accuracy, 4) Antonyms, 5) Word Association, 6) Grammar, 7) Sentence Completion, 8) Reading Comprehension, 9) Reading from Grade 6 History.

### 3.2.6.1 Description of Grade 5 sample

The ratio of males to females was about 70:30 and is a higher proportion of males than is cited in the 1998 statistics from the Ministry of Education for males in Grade 5. These statistics report a percentage of 54.86 males (Walter 2002:182). The rural population of the eight-language group sample was four times greater than the urban population. Four of the language populations were entirely rural, one was about half urban and half rural, and only one language group had a higher percentage of urban students than rural ones. The third variable, age, ranged between 9 – 19 years, with almost half of the sample falling between 12 and 13 years of age. The mean age was 13.08 years old.

### 3.2.6.2 Overall Grade 5 results

The mean score of the Grade 5 sample on the testing inventory was 55.06 (out of 100) with a standard deviation of 18.06. The students' best scores in descending order were on these tasks: accuracy, antonyms and phonemic awareness. The other tasks had means below 60%, well below a level of mastery. See Table 3.4 for mean scores of all tasks. The one task with the lowest mean (24.87%) – reading from the Grade 6 History book – was included for experimental purposes only and was not included as a component of the Grade 5 assessment scores. This task consisted of 6 comprehension questions based on a passage from the first part of the Grade 6 History book. Though three students scored between 80-90%, and fifteen scored between 60 and 69%, the two major groupings of the sample fell between 10 and 39% (181 students) and another

group at 0% (72 students).

Table 3.4 Summary results of Grade 5 testing by task.

Rank	Test Section from the Grade 5 English Test	Mean Score
1	Section 3 B – Accuracy	78.2442
2	Section 4 – Antonyms	71.1406
3	Section 1 A – Phonemic Awareness: Letters & Consonant Clusters	67.7636
4	Section 1 B – Phonemic Awareness: Rimes	62.0341
5	Section 2 – Word Meaning and Identification	59.7216
6	Section 5 – Word Association	57.4623
7	Section 6 – Grammar	47.9233
8	Section 7 – Sentence Completion	46.4537
9	Section 8 – Reading Comprehension	42.7583
10	Section 3 A – Reading Rate	41.7504
11	Section 9 – Grade 6 History Reading	24.8669

### 3.2.7 Comparative analysis of Grade 6 History and Grade 5

Because of these disturbing results, a more detailed comparative analysis of the Grade 6 History book and the Grade 5 curriculum was done by the survey team in terms of vocabulary and sentence length. This analysis revealed the following:

“The total vocabulary of the English curriculum from Grades 2 to 5 is approximately 871 words. In contrast, the vocabulary of the Grade 6 history book is 1866 words. Of the 1866 unique vocabulary items in the history book, only about 395 are included in the English curriculum of Grades 2-5” (Walter and Davis 2002:276). Furthermore, 40% of the new vocabulary items encountered in the textbook are abstract nouns and verbs and 12% are proper names never seen before. The average sentence length is two to three words longer for the History book than for the English material

encountered in the Grade 5 text. In addition, the text contains complex constructions and grammar features that students are not familiar with.

Performance on the Grade 6 comprehension task suggests that only about 20% of Grade 5 students on the national level have a good enough grasp of English to warrant being promoted to Grade 6<sup>7</sup>. Because of this surprisingly weak result, further analysis was done in an effort to better understand the result. The data were examined further in terms of age, gender, type of school, ethnicity, school/teacher/classroom, etc. The most important significant finding was the existence of isolated classes in which students scored very well. These differences were highly significant statistically. Though the reason behind this result was not entirely evident, the “most plausible explanation would be differences in teacher preparation, aptitude, and experience” according to Walter and Davis (2002: 284).

### *3.2.8 Conclusion*

The overall conclusion of the survey was that in spite of the fact that some students and classrooms were performing well, the majority of Grade 5 students were NOT prepared for the all-English curriculum of Grade 6. Many were still struggling with the basics of grammar and orthographical conventions, not to mention reading and comprehension. In addition, students have vocabularies only approximating 1000 words at best (Walter and Davis 2002:286). According to Walter and Davis (2002:286-287), these weaknesses appear to be due to: 1) a big jump in complexity and difficulty

---

<sup>7</sup> The standard for making this judgment was a score of 50% or higher on the Grade 6 reading comprehension task.

in the curriculum between Grade 5 and Grade 6, 2) a weak foundation in English from the beginning grades, 3) not enough time spent on English in all grades, 4) large variations in teacher preparation and skill, 5) lack of reading practice at all levels, and 6) little support for English language learning outside the classroom.

The NRS suggests that there are significant hurdles to overcome if English medium education beyond Grade 5 is to be effective. The Eritrean Ministry of Education has already begun to implement some of the recommendations from the Reading Survey to ameliorate the current deficiencies in both the mother tongue and English curricula. The research reported in the next chapter seeks to shed light on a specific aspect of the existing curriculum – vocabulary development, and its relationship to reading comprehension and overall performance in language learning.

## CHAPTER 4

### ARE STUDENTS READY FOR GRADE 6?

#### 4.1 Review of the National Reading Survey results

The NRS results suggested that in 2002 Grade 5 students, on the whole, were unprepared for the rigors of the Grade 6 all-English curriculum. This outcome was suggested by results of the Grades 2-3 testing inventories and confirmed by the results of the Grade 5 English testing inventory which left no doubt as to the huge discrepancy between what would be required of these students and what they were actually able to handle.

##### *4.1.1 A closer examination of the gap between Grade 5 and Grade 6*

In the Grade 5 assessment, students were evaluated on one section of the Grade 6 History book in order to ascertain their readiness to handle an all-English curriculum in Grade 6. To alleviate any pressure on the students' parts, they were informed that this section would not be scored as a part of the actual assessment for Grade 5, and it was not. The task consisted of a 300-word passage taken directly from the first unit of the History book with six comprehension questions on this passage. Students were given up to fifteen minutes to read the section and then answer the questions. The results were quite dramatic. The overall mean score on this task was only 24.9%. Twenty-three percent were unable to answer even one question correctly. Over half of the students were unable to answer more than one question out of six correctly. Of the

313 students who took the Grade 6 History test only 60 (19.2%) met the minimum passing criterion, set at 50%, for showing at least some ability to handle Grade 6 English (Walter and Davis 2002).

In an effort to better understand these results, the research team did a further comparative investigation of Grade 5 and Grade 6 English requirements in terms of vocabulary and sentence length. The results of the vocabulary comparisons by category are shown in Table 4.1. Any discrepancies in the vocabulary counts from the Grades 2-5 data in Walter and Davis (2002) and the following study are due to the fact that the counts were taken from a vocabulary list at the back of the Grade 5 textbook, which after doing a careful count, was found to be incomplete.

Table 4.1 Contrast between the English curriculum and History 6 in terms of language level. (Walter and Davis 2002:277)

Category	The Curriculum (E2-E5)		History 6			
	Total	Percent of Total	Total	Percent of Total	New	Percent New
Common nouns	257	29.5	246	13.2	153	62.2
Abstract nouns	136	15.6	512	27.4	466	91.0
Common verbs	198	22.7	224	12.0	132	58.9
Abstract verbs	18	2.1	255	13.7	242	94.9
Proper names	50	5.7	223	12.0	223	100.0
Pronouns	28	3.2	37	2.0	11	29.7
Adjectives	118	13.5	258	13.8	182	70.5
Adverbs	26	3.0	52	2.8	35	67.3
Prepositions	30	3.4	39	2.1	16	41.0
Conjunctions	4	.5	16	.9	11	68.8
Articles	3	.3	3	.2	0	0.0
Interjections	3	.3	1	.05	0	0.0
<b>TOTALS</b>	<b>871</b>	<b>100.0</b>	<b>1,866</b>	<b>100.0</b>	<b>1,471</b>	

The total vocabulary of the Grade 6 history book is 1,866 word types. Of the 1,866 word types in Grade 6, only 395 appear in the curriculum of Grades 2-5. "This



means that, in addition to the history content, Grade 6 students are expected to master more English vocabulary in that one subject in one year than they learned in four years of English instruction” (Walter and Davis 2002:276). This large discrepancy does not take into consideration other unique vocabulary that students will encounter in the remaining four subjects of the Grade 6 curriculum (Math, Science, English, and Geography).

#### 4.2 Introduction to the research questions

The curriculum in Grades 2-5 is primarily designed to develop conversational fluency. On the other hand, the curriculum in Grade 6 assumes academic language skills and subject matter. Cummins (1979) points out that developing conversational fluency (BICS – basic interpersonal communicative skills) requires much less time than developing academic proficiency (CALP – cognitive academic language proficiency). One reason for this is that the vocabulary in academic English is more difficult by nature than the vocabulary typically used in conversational English. This is certainly true of the new vocabulary introduced in Grade 6 as opposed to the common nouns and verbs introduced in Grades 2-5. Note in Table 4.1 (Walter and Davis 2002:277) that there is a significant increase in abstract nouns and verbs, proper names, adverbs, and conjunctions in Grade 6. Many of these, particularly the abstract nouns and verbs, would require intensive vocabulary instruction to be mastered because they are conceptually difficult words and not part of the students’ everyday experience.

What constitutes a word being ‘conceptually difficult’? One scale to describe the learning burden of conceptually difficult words for L2 language learners was cited

in Nation (1990:141) as originally presented in Nagy et al. (1985). The following scale moves from the least difficult to the most difficult:

- 1) The reader knows the concept and knows a one-word synonym,
- 2) The reader knows the concept but there is no one-word synonym – apologize means to say you are sorry,
- 3) The concept is not known but can be learned on the basis of experience and information already known by the reader, and
- 4) The concept is not known and learning it requires new factual information or learning a related system of concepts.

Difficult word concepts are not the only problem in Grade 6. In addition to the enormous amount of new and challenging vocabulary introduced in Grade 6, there is also the matter of complexity in the sentence structures of the Grade 6 text. Not only are the average sentence lengths two to three words longer than what was found in Grades 2-5, they are also more complex grammatically in ways the students have not seen before.

The enormity of the jump in vocabulary, both in sheer numbers and difficulty, and the complexity of sentence structures would appear to be two good explanations for the poor performance on the Grade 6 History text reading and comprehension test. The poor performance clearly indicated that students were not ready to handle the Grade curriculum. The obvious question is why not. These are three plausible and possibly overlapping hypotheses:

- 1) The Grades 2-5 curriculum does not adequately prepare students for an all-English curriculum in Grade 6, and
- 2) The Grade 6 curriculum is too advanced.
- 3) Both curricula are satisfactory, but the instructional/learning process is inadequate.

As no careful research data has been gathered to test the third hypothesis, it will not be addressed in this study. The other two hypotheses will be examined in light of the vocabulary requirements in Grades 2-5 and in Grade 6.

#### 4.3 Research questions

##### *4.3.1 Overall research question and sub-questions*

- Does the existing Grades 2-5 curriculum provide Eritrean students with the English vocabulary needed to comprehend academic English at Grade 6 level?

Though 'curriculum' can encompass textbooks, classroom activities, and other materials, for the purposes of this study, curriculum will refer to only the textbook, for lack of any other detailed information on other practices in the classroom. The overall research question will be addressed by asking and answering the following more specific research questions:

1. What percentage of the vocabulary found in the Grade 6 curriculum is found in the Grades 2-5 curriculum?
2. Given that a word family from any given category in the Grade 6 curriculum is found in the Grade 2-5 curriculum, how many of the words occur more

than twenty times? What are the categories of those words (basic (from the adapted General Service List - Bauman and Culligan 1995), academic, technical, or proper nouns)? What is the likelihood of their having been mastered?

3. What percentage of the new words found in Grade 6 (that are not found in Grades 2-5) would be considered conceptually difficult words, requiring intensive vocabulary instruction?
4. What is the density of known to unknown words in Grade 6?
5. How does the Eritrean English vocabulary from Grades 2-6 compare with the vocabulary found in elementary grade texts of an English curriculum in the United States (as taken from the American Heritage Word Frequency Book (1971 Carroll et al.))?
6. Is there a correlation between the scores on vocabulary related tasks from the NRS and the frequency of repetition of that vocabulary?
7. Is there a correlation between vocabulary scores and reading comprehension scores from the Grade 5 inventory of the NRS?

The research questions are based on the vocabulary input from the Grades 2-6 textbooks of the Eritrean English curriculum. The vocabulary and comprehension measurements are taken from the 2002 NRS (Walter and Davis 2002).

As the Grade 6 curriculum introduces for the first time several new subjects, a few of which were touched on briefly in Grades 2-5, it is natural that a good deal of new terminology would be introduced, particularly terms that are relevant to the specific

topics. But the question is still germane, has the Grades 2-5 curriculum prepared the learner with enough vocabulary to comprehend the text, so that learning of the subject matter can take place? To answer this question, we will first examine the sub-questions related to it.

#### 4.3.1.1 Sub-question 1

- What percentage of vocabulary found in the Grade 6 curriculum is found in the Grades 2-5 curriculum?

The relevant data to address this question is found in Table 4.2.

Table 4.2 Basic data on presence of word families in the two curricula.

	<b>Grades 2-5 English</b>	<b>Grade 6</b>
Number of word families in the curriculum	1,076	3,553
Number of word families common to both curricula	857	857
Number of words unique to each curriculum	219	2,696
Unique items as a percent of total in the curriculum	20.4	75.9

The total number of the word families found in Grades 2-5 is 1076, whereas in Grade 6 there are 3553 word families. Of these 3553 word families, 2696 are unique to Grade 6. Of the 3553 word families in Grade 6, 857 are common to both Grades 2-5 and Grade 6. Another 219 word families occurring in Grades 2-5 are never repeated in Grade 6. Basically, 75.9% of the word families used in Grade 6 have never been presented in any formal way in the curriculum of Grades 2-5. Not only that, but it is clear that not all of the 24.1% presented in Grade 2-5 have actually been mastered. We will consider the likelihood of this in the second sub-question.

#### 4.3.1.2 Sub-question 2:

- Given that a word family from any given category in the Grade 6 curriculum is found in the Grades 2-5 curriculum, how many of them occur more than twenty times in Grades 2-5? What are the categories of those words (basic (GSL), academic, technical, proper nouns)? What is the likelihood of their having been mastered?

For a look at the differences in categories between Grades 2-5 and Grade 6, see

Table 4.3.

Table 4.3 Categories of words in Grades 2-5 and Grade 6.

	Grades 2-5	Grade 6	Ratio
Basic vocabulary	707	1,652	2.34
Academic vocabulary	17	298	17.53
Technical vocabulary	163	1,143	7.01
Proper nouns	183	460	2.51

Even though we know from the literature that there is more to remembering a word than just how frequently it appears in a text, it is true that the likelihood of remembering a word increases with more input. L2 learners seem to require anywhere from eight to fifteen repetitions for good recall (Waring 2003). However, because the language input in the Eritrean situation is limited for the most part to what students encounter in the classroom, the following analysis will use 20 times as the criterion for what words are more likely to be retained.

The word families common to Grades 2-5 and Grade 6 will be reported in four different categories (See Table 4.4): 1) basic vocabulary (from the 2000 most frequent

word families in the General Service List), 2) academic vocabulary (from the Academic Word List), 3) technical vocabulary, and 4) proper nouns.

Table 4.4 Categorization of word families common to the two curricula.

	Number of word families	Number occurring more than 20 times	Percent of total
Basic vocabulary	662	268	40.5
Academic vocabulary	17	1	5.9
Technical vocabulary	112	17	15.2
Proper nouns	66	10	15.2
<b>TOTAL</b>	<b>857</b>	<b>296</b>	<b>34.5</b>

It is not surprising that the category of word families occurring most frequently is found in the basic vocabulary of the 2000 most frequent words (GSL). In descending order of frequency the other categories are technical, proper nouns, and academic. The fact that only 17 academic words are presented in the Grades 2-5 curriculum is, itself, a clear indication that the focus of the curriculum is primarily on BICS-level proficiency. A more detailed picture of the frequency of common vocabulary shared between Grades 2-5 and Grade 6 is found in Table 4.5.

Table 4.5 Frequency characteristics of the common vocabulary between Grades 2-5 and Grade 6.

Occurrence category	Number of words	Percent of total
Occurring only once	86	10.0
Occurring less than 5 times *	235	27.4
Occurring between 5 and 20 times	226	26.4
Occurring more that 20 times	296	34.5
<b>TOTAL</b>	<b>857</b>	<b>100.0</b>

Out of a total of 857 word families shared between Grades 2-5 and Grade 6, only 34.5% occur 20 times or more in Grades 2-5. Another 27.4% occur less than five

times, and 10% of the word families shared between Grades 2-5 and Grade 6 occur only once. If we assume that a frequency input of 20 times is required for mastery, then only about 1/3 of the vocabulary that reappears in Grade 6 (having been taught in Grades 2-5) will have been acquired. From Table 4.2 we find that only 24.1% of the vocabulary of Grade 6 had been covered in Grades 2-5, and only 34.5% occur 20 times or more. That leaves us with the likelihood that only 8-10% of the vocabulary encountered in the Grade 6 curriculum will be reasonably well known by the student beginning Grade 6.

Another interesting fact is that 219 word families are taught in Grades 2-5, which are never repeated again in Grade 6. For details on these word families see Table 4.6.

Table 4.6 Categorization of words unique to Grades 2-5.

	Number of Words	Number occurring more than 20 times	Percent of total
Basic vocabulary	45	3	.7
Academic vocabulary	0	0	0.0
Technical vocabulary	51	5	9.8
Proper nouns	117	15	12.8
Nonwords	7	0	0.0
<b>TOTAL</b>	<b>219</b>	<b>23</b>	<b>10.5</b>

Of these unique word families, 53% are proper nouns, 23% are technical words, and 21% are basic words. Some repetition will be necessary for these words not to be lost by the learner. However, the fact that so many of these word families are not repeated in Grade 6 makes one question the rationale behind their having been taught in the first place. At the very least, the teaching of these words merits a second look.



Having examined the frequency of repetition of the common vocabulary items in Grades 2-5 and Grade 6 and the respective categories in to which they fall, we should now ask: Of the word categories taught in Grades 2-5 that appear again in Grade 6, which categories are more difficult to learn and, therefore, need the most attention in terms of teaching to make them more accessible to students?

Nation (1990:33) defines the 'learning burden' of a word as the "amount of effort needed to learn and remember it". Overall, nouns have been found to be the easiest to learn, and proper nouns may take less effort also, but they basically have to be memorized as opposed to being able to use word-learning strategies to deduce their meaning. Schmitt (2000:29) says about proper nouns,

When teaching the meaning of a proper noun, it may be sufficient merely to exemplify its referent in some way, as with a picture of the Eiffel Tower, or an explanation of it. Because the referent is a single, unique identity in the case of proper nouns, there should be little problem in delineating what the word represents. In addition, because the single referent is usually fixed and unchanging, one exemplification may be enough to adequately define that word.

According to this author, therefore, it appears that proper nouns and nouns, in general, are two of the easiest categories of words to learn.

Typically the more difficult word categories to learn are technical and academic words. The technical words are associated with a particular topic, field or discipline, and are often low frequency words except in their particular discipline. They are typically difficult words to learn, especially if they describe concepts the student is not familiar with and for which the student has no personal experience (Nation 1990). However, some technical words have a wider range than others and would, therefore, be more productive to teach first.

As for academic words, because they are typically more conceptually difficult, they will take more time to learn and will need to be taught directly as well as be presented in a variety of contexts. All of this information describing difficulty or ease with which words are learned will be useful as we make suggestions as to how to increase vocabulary development in the present curriculum.

Let us now turn to the question of likelihood that words have been mastered. What can we surmise from the observations and the data? Basically, 1/3 of the common words taught between Grades 2-5 and Grade 6 have been encountered 20 times or more. We will assume that these words are more likely to be learned, if even in a most basic way. The truth of this assumption will be addressed empirically in question 3 below. Another 1/3 of the common words taught between Grades 2-5 and Grade 6 have only been encountered five times or less in Grades 2-5, meaning that they are less than likely to have been mastered fully, especially if one considers all the aspects of knowing a word. This leaves a remaining 1/3 of the words that occur somewhere between 5 and 20 times, and which may or may not have been mastered.

In revising the curriculum and the method of teaching, it would be advisable to categorize the words which occur less than five times and/or between five and 20 times to determine their learning burden. If a word has a heavier learning burden and will be seen in a wide range of subjects, the student would benefit both from encountering it more often, and from having some kind of direct vocabulary instruction. However, if some of these words are not absolutely necessary, it might be more beneficial to replace them with simpler synonyms.

One other noteworthy fact from the data is that 219 word families were introduced in Grades 2-5, but were never again repeated in Grade 6. It would be wise to have another look at these words to see if the teaching time necessary for them could have been better spent on words that have a wider range and that could potentially be useful again in Grade 6.

We should now examine the word families unique to Grade 6 and ask:

#### 4.3.1.3 Sub-question 3

- Given that a word family is found in Grade 6, how many occur more than twenty times? What are the categories of those words (basic (GSL), academic, technical, proper nouns)?

The relevant data to address this question is found in Table 4.7.

Table 4.7 Categorization of words occurring often in the Grade 6 curriculum.

	Number of Words	Number occurring more than 20 times	Percent of total
Academic vocabulary	299	37	12.4
Basic vocabulary	1,946	1,647	84.6
Proper nouns	460	20	4.3
Technical vocabulary	1,147	95	8.3
<b>TOTAL</b>	<b>3,553</b>	<b>1,799</b>	<b>50.6</b>
All non-basic vocabulary	1,607	152	9.5

Of the different categories, the basic vocabulary has by far the greatest percentage of word families occurring more than 20 times, followed by academic, technical, and proper nouns. Of the word families occurring in the non-basic categories, only 9.5% of them occur more than twenty times.

#### 4.3.1.4 Sub-question 4

- What percentage of the new word families found in Grade 6 (that are not found in Grades 2-5) would be considered conceptually difficult words, requiring intensive vocabulary instruction? Refer to the list of criteria for conceptually difficult words as per Nation (1990) on page 75.

The relevant data to answer this question is found in Table 4.8 below. The new word families found in Grade 6 are divided into four categories: 1) Basic – 990 word families, 2) Technical – 1031 word families, 3) Academic – 281 word families, and 4) Proper nouns – 394 word families. If we consider the academic and technical word families to be the more conceptually difficult word families, then 48.6% of the total new word families encountered on entering Grade 6 will be particularly challenging to acquire, especially given that only 7.5% of these word families occur more than twenty times.

Table 4.8 Categorization of words unique to Grade 6.

	Number of words	Percent of total new words	Number occurring more than 20 times	Percent of total
Academic vocabulary	281	10.4	32	11.4
Basic vocabulary	990	36.7	161	16.3
Proper nouns	394	14.6	13	3.3
Technical vocabulary	1,031	38.2	66	6.4
<b>TOTAL</b>	<b>2,696</b>	<b>100.0</b>	<b>272</b>	<b>10.1</b>
Conceptually difficult word families	1,312	48.6	98	7.5

#### 4.3.1.5 Sub-question 5

- How does the Eritrean English vocabulary from Grades 2-6 compare with the vocabulary found in elementary grade texts of an English curriculum in the United States (as taken from the *American Heritage Word Frequency Book* (1971 Carroll et al.)?)

The *American Heritage Word Frequency Book* (Carroll et al. 1971) is based on a corpus from written texts over a range of grades (3-9) and subject areas in the U.S. Because of its focus on school texts and its listing of frequencies for each word in each grade level and subject area, this list seemed an appropriate frame of reference to evaluate the vocabulary of Grade 6. The original list contains some 87,000 word types. This study only utilized the first ten thousand most frequent words, and used a regression line to predict what would happen had we entered the data for all 87,000 words. The regression line shows that with the difficulty level of the Grade 6 vocabulary, using the American Heritage List as a standard of difficulty, one would need a vocabulary of 13,500 word types to get to the point where no more than one in 20 unknown words (95% density) would be encountered in the Grade 6 text. In reality, the current Grades 2-5 curriculum provides only 1696 word types, meaning that students lack approximately 11,800 word types to get to the point where they only encounter one out of twenty unknown words when doing random reading of the text material at the difficulty level inherent in the current Grade 6 curriculum. This may be a generous estimate as it is questionable as to whether all these 1696 word types have been fully acquired. If the textbooks aim for a level where students could read them

comfortably, with little interference from unknown words and an ability to guess unknown words from context (a 98% density level), one would need a vocabulary of 21,600 words.

Interestingly, of the 10,000 most frequent words in the American Heritage Word List (AHWL), only 3813 are actually used in the Grade 6 curriculum. The Grade 6 curriculum contains 1802 words that do not even occur in the first 10,000 words of the AHWL. This represents 32.1% of all the vocabulary in Grade 6 and accounts for 7.3% of the running words.

#### 4.3.1.6 Sub-question 6

- What is the density of known to unknown words in Grade 6?

For the purpose of this study, we will propose that a 95% density of known to unknown words would be the minimum necessary for the Grade 6 textbook, since textbooks by nature are not intended for extensive reading, but for the purpose of learning new concepts through the help of various aids, including teacher input.

The actual density of the Grade 6 textbooks combined is only 71.4%. This equates to students encountering approximately one unknown word for every three and a half words read, as opposed to what we set as the minimum of one unknown word for every twenty words. In Grades 2-5 the unique words (not found in Grade 6) make up only 5.4% of the text, whereas in Grade 6 the unique words (not found in Grades 2-5) make up 28.6% of the text. This high percentage of unique words in Grade 6 accounts for the high density of unknown to known words in the Grade 6 curriculum.

If we examine the textbooks individually we find that the densities of known to unknown words vary from book to book. See Table 4.9 for the relevant data.

Table 4.9 Analysis of Grade 6 using Grades 2-5 as the standard.

	Word types in file	Word families in common with Gr. 2-5	Word types not taught	Number of running words	Number of running words taught	Percent of Density
English	2,150	707	1,443	22,726	18,806	82.8
Geography	2,200	478	1,722	15,724	9,324	61.0
History	1,972	455	1,517	9,973	6,297	63.1
Math	1,334	401	933	19,935	13,787	69.2
Science	1,959	547	1,412	19,835	14,263	71.9

The textbooks in order of highest to least density are: 1) English at 82.8%, 2) Science at 71.9%, 3) Math at 69.2%, 4) History at 63.1%, and 5) Geography at 61%.

The extremely low coverage (71.4%) of Grade 6 vocabulary provided by the Grades 2-5 curriculum is at least partly explained by the fact that each of the textbooks of Grade 6 share a strong propensity for introducing and using vocabulary not otherwise used in Grade 6. Consider the following data:

The number of unique vocabulary for each subject in order of most to least breaks down as follows: 1) Geography has 893 unique word types, of which the most common are technical (421), 2) English has 874 unique word types, of which the most common are basic (488), 3) History has 812 word types, of which the most common are basic (319), 4) Science has 567 unique word types, of which the most common are basic (278), and 5) Math has 440 unique word types, of which the most common are technical (194).

Clearly, a part of the problem here is the apparent fact that each textbook was written in isolation from all the others and with little or no regard for the learning burden being imposed on the student.

#### 4.3.1.7. Sub-question 7

- Is there a correlation between frequency of repetitions and mastery of vocabulary?

This question was examined for Grades 2, 3 and 5 using the frequency counts from each grade and the results on vocabulary-related tasks from the 2002 Eritrea Reading Survey (Walter and Davis 2002). All the tasks referred to in the discussion below were devised specifically for this survey, and the items tested all came directly from the curriculum of the specific grade tested.

In Grade 2, 391 students took the test. Four tasks from the inventory tested different aspects and degrees of vocabulary knowledge: 1) word object recognition, 2) listening skill, 3) understanding word meanings, and 4) grammar (testing pronouns). For the first task, word-object recognition, students were asked to read four words (all nouns) aloud and then point to the corresponding picture that matched the word. The second task, listening skill, requires that students know sound to symbol correspondence. They had a list of four words. The examiner read eight words from a list and the student was to say “yes” or “no” depending on whether the word was or was not on his/her list. The third task on understanding meanings was a list of three words that the student was to read and then translate into his/her own language. The final task, testing grammar, was part of the written portion of the exam. The students were to read



three sentences and then fill in the blanks with the appropriate choice from a list of five pronouns.

When a correlation was done between frequency of input of the words tested and the scores on the vocabulary related tasks from the test mentioned above, the following (negative) correlation was found,  $r = -.41$  ( $p=.04$ ). Though this indicates significance, there was one outlier, the pronoun 'it' whose occurrence was disproportionate to the other items in the vocabulary test and may have skewed the results. If 'it' is removed, the correlation is weaker,  $r = -.20$  ( $p=.349$ ). If we remove the other pronouns (his, her) as well as 'it',  $r = -.17$  ( $p=.45$ ). Also, several words in the test occurred '0' times (floors, cool, cuts) in the curriculum. Thinking that these may also have skewed the results, they were removed, as well as 'it' and the pronouns, resulting in  $r = -.04$  ( $p=.87$ ).

All of the correlations were negative, but in the last case ( $r = -.04$ ), there is essentially no correlation. The negative correlation suggests that frequency might be a negative indicator of mastery. In sum, there is no support from Grade 2 for the hypothesis that frequency of repetition of vocabulary correlates with mastery of that vocabulary. This is likely due to the fact that students' reading abilities are not developed enough to make use of the frequency of repetition of words. Their focus is more on decoding and not on taking note of repetitions of words they have already seen.

In Grade 3, 394 students took the test. Four sections of the test were specifically related to vocabulary mastery: 1) word-object recognition, 2) listening, 3) word identification, and 4) sentence meanings. The first task of word-object

recognition was a list of six body parts. The students were to read the words and then point to the corresponding part on their body. The second task, listening skill, tested sound to symbol correspondence. The examiner read a list of ten words. The students were given a list of six words, of which only four were on the examiner's list. Depending whether the student saw the word in their list or not, they were to say "yes" or "no". For the word identification task, the student was given around ten seconds to read each of eight words in a list. On the final task, sentence meanings, the student was to read three questions and respond by circling the appropriate response depicted visually.

If we include all the test items from above,  $r=.04$  ( $p=.83$ ). This is basically a flat line with no correlation. However, when we remove the word 'write', which occurred a disproportionate number of times and was mainly used as a part of the instructions in the curriculum and not in the main lessons,  $r=.40$  ( $p=.025$ ). The outcome is statistically significant. However, when the actual data plot was examined, it was observed that the data set is bifurcated between words that occur less than seven times and those that appear sixteen times or more. When these words were separated into two data sets – the ones occurring sixteen times or more had a correlation of  $r=.56$  ( $p=.175$ ), and the ones occurring seven times or less had a mild correlation of  $r=.11$  ( $p=.61$ ). Neither of these results is significant. However, this could have been significant with more data. After testing all these combinations for correlation, the only one that was significant was the one that included all the vocabulary words together with the exception of 'write'. There

is mild evidence in Grade 3 for the hypothesis that frequency input affects vocabulary mastery.

However, if we combine the frequencies of the words tested in Grade 3 with the frequencies of those same words from Grade 2 and correlate that with the scores on the Grade 3 testing inventory for those words (with the exception of 'write'),  $r=.40$  ( $p=.023$ ). The result is significant, showing the correlation benefited from carrying over the repetitions from Grade 2.

From this outcome, we might expect that the correlation in Grade 5 between frequency of repetition and vocabulary mastery would also benefit from the accumulated frequencies from Grades, 2, 3, and 4. In Grade 5 we will look at the accumulated effects only of vocabulary frequency from Grades 2, 3, and 4.

In Grade 5, 313 students took the test. Three tasks in the Grade 5 testing inventory were specifically vocabulary related: 1) lexical word matching, 2) antonyms, and 3) a grammar section that tested knowledge of prepositions, a pronoun, an article and a conjunction. In the first task, lexical word matching, the students had to examine two lists of words. The seven words in the first list had some kind of relationship to seven of the eight words in the second list. Students had to draw a line between the words that were somehow related. For the second task, antonyms, students had to read a list of seven words and find the opposites in a list of eight words, drawing a line to connect them. In the last task, grammar, students were expected to complete the blanks in six sentences choosing from a list of eleven words provided.

The correlation for the grammar task will be figured independently of the other two tasks because the words tested therein are significantly difficult to master in comparison to the other tasks that tested primarily content words.

The lexical word matching and antonym tasks, combined, tested knowledge of 14 content words. Three hundred and thirteen students took the test and a computation of correct answers for each student was done. When the correct answers were correlated with the frequency of occurrence for each word, there was a correlation of  $r=.53$  ( $p=.06$ ), which just misses being significant.

Another correlation between the frequency of words from one of the grammar sections of the Grade 5 test and the scores from this test was  $r = -.68$  ( $p=.18$ ). Because there were only five data points, it was not statistically significant despite the fairly high  $r$ . The correlation was negative, suggesting that frequency may be a negative indicator of mastery. The vocabulary in this grammar section included prepositions, a pronoun, an article and a conjunction. Some of these words are notoriously hard to master, regardless of their frequency. This confirms that some of the words which occur commonly in the language are also the most difficult to master. The hypothesis that frequency of repetitions correlates with vocabulary mastery in Grade 5 cannot be confirmed. It would appear that the frequency hypothesis applies more to content words than it does to functors.

The results show that frequency of repetition of a word benefited vocabulary mastery in Grade 3, but not in Grade 2 and Grade 5. In Grade 2, we can speculate that the reading abilities of the students were not developed enough to benefit from the

repetitions present in the curriculum. However, what can we deduce from the results of Grade 5? One possibility is that the small data pool skewed the results. Another possibility might be that the difficulty of the vocabulary (particularly the grammar section) and the depth of vocabulary measured were unknown to the students. It is one thing to know a word, and another to know its antonym, for example. However, these tests were based on what students had covered in the curriculum and it was assumed that they could have potentially mastered it. At any rate, our data supports the statement that frequency is not the only factor in mastering vocabulary, at least in the Eritrean data.

#### 4.3.1.8. Sub-question 8

- Is there a correlation between overall vocabulary scores and reading comprehension scores?

In response to this question, the Grade 5 vocabulary and comprehension inventories were compared against each other. Afterwards, the Grade 5 vocabulary inventories – lexical word matching and antonyms, were compared against the additional task measuring comprehension of a section from the Grade 6 History book. The results follow.

When the raw scores from the lexical word-matching task of Grade 5 were compared with the reading comprehension task from Grade 5, it was found that there was a positive correlation of  $r=.33$  ( $p=.000$ ). The antonym task when compared with the reading comprehension task had a correlation of  $r=.19$  ( $p=.001$ ). These outcomes are statistically significant. However, when similar correlations were computed

between the lexical matching task from Grade 5 and the Grade 6 History comprehension task, a very different result was obtained ( $r=.001$  ( $p=.627$ )). In addition, the correlation between the antonym task in Grade 5 and the comprehension testing inventory from the Grade 6 History book was low ( $r=.002$  ( $p=.482$ )). There is no correlation between the two variables.

These results indicate that overall vocabulary mastery was a good predictor of Grade 5 comprehension. On the other hand, overall vocabulary mastery was not a predictor of comprehension on the Grade 6 inventory. This somewhat surprising result requires interpretation. It is possible that there was something defective about the test. Another possibility is that the Grade 6 curriculum was so far advanced for the students that they were reduced to random guessing. The evidence appears to support the latter.

In an effort to better understand these findings, another correlation was done using a composite measure for all the test sections that had to do with word knowledge from Grade 5. When this was correlated with the reading comprehension task from Grade 5,  $r=.47$  ( $p=.000$ ). This is statistically significant and supports the observation that there is, as one would expect, a strong correlation between vocabulary knowledge and comprehension for Grade 5 readers.

However, when the composite measure for word knowledge of Grade 5 was correlated with the reading comprehension task for Grade 6, a very low correlation was found ( $r=.005$  ( $p=.215$ )). Again we find there is a low correlation between Grade 5 vocabulary mastery and Grade 6 comprehension scores. These results indicate that there is a substantial difference in difficulty between the material tested in Grade 5 and

that tested in Grade 6. The pattern of student responses on this task suggests that students were randomly guessing on the comprehension questions from the Grade 6 task.

To verify this hypothesis, another correlation between actual scores and predicted scores (assuming random guessing) was calculated for the Grade 6 comprehension task. There were six comprehension questions in the Grade 6 History reading inventory. Each question was a four-item multiple-choice question. Therefore, a test taker had a 25% probability of getting the answer correct by simply guessing. With this information, the probability of getting any number of the answers correct by random guessing was computed. The number of students who took the actual test was 313. Using the probabilities from above, one can predict how many of these students would get 0, 1, 2, 3, 4, 5, or 6 correct, provided they were guessing randomly. If the match between the actual scores is close to what would be predicted by random guessing (Table 4.10), then there is evidence that the measure of performance is a product of random guessing. In this case the correlation was very high,  $r=.98$  ( $p=.000$ ). Therefore, the hypothesis that students were reduced to random guessing is supported. The gap between what they had learned and what they were expected to know was too great for them to do anything but guess.

Table 4.10 Predicted vs. actual scores if random guessing is the basis of performance.

Questions correct	Predicted scores	Actual scores
0	56	72
1	111	96
2	93	85
3	41	42
4	10	15
5	1	3
6	0	0

The examination of the data reveals that in Grade 5 there IS a correlation between vocabulary scores and reading comprehension scores, indicating that to the degree one knows vocabulary, one is able to comprehend a text at a comparable level. However, when those same vocabulary scores were compared with the experimental text from the first section of the History book in Grade 6, there was no correlation. This is an indication that the material in Grade 6 is significantly more difficult than what was covered in Grade 5. As a result the students were reduced to random guessing.

#### 4.4 Summary of the research questions

Now that we have answered the more specific questions related to the overall research question, we should return to the overall research question:

- Does the existing Grades 2-5 curriculum provide Eritrean students with the English vocabulary needed to comprehend academic English at Grade 6?

The evidence from the research and the NRS points to the fact that, at the time of testing, students in Grades 2-5 were not acquiring the vocabulary necessary to read and understand the Grade 6 curriculum at a level that facilitates learning of the subject



matter. The study together with the 2002 NRS (Walter and Davis) found the following evidence for this lack of competence in the academic English of Grade 6:

1. The different types of vocabulary in Grades 2-5 and Grade 6,
2. The sheer amount of new vocabulary introduced in Grade 6,
3. The comprehension results in Grade 5 as compared with Grade 6,
4. The evidence of random guessing on the Grade 6 History comprehension task, and
5. The NRS (2002:278) report from Grade 6 teachers that students were totally unable to read Grade 6 material on their own.

#### *4.4.1 The different types of vocabulary in Grades 2-5 and Grade 6*

Whereas Grades 2-5 vocabulary covered 707 basic word families, 17 academic word families, 163 technical word families, and 183 proper nouns, the Grade 6 vocabulary covered 1652 basic vocabulary items, 298 academic vocabulary items, 1143 technical vocabulary items, and 460 proper nouns. A significant increase in all categories of word families, including words that are more conceptually difficult, suggests that the Grade 6 material will be too advanced for the student promoted from Grade 5.

#### *4.4.2 The sheer amount of new vocabulary introduced in Grade 6*

While it is assumed that some unknown vocabulary would be encountered each year, the number of new word families students were faced with in Grade 6 was disproportionate. The study showed that the vocabulary introduced in Grades 2-5 was only 24.1% of what students were expected to know in Grade 6. In other words, 75.9% of the vocabulary the students encounter in Grade 6 had never been seen before.

#### *4.4.3 The comprehension results in Grade 5 compared to Grade 6*

The test results of correlation between Grade 5 vocabulary related task scores and comprehension showed that overall vocabulary mastery was a good predictor of comprehension in Grade 5. However, when those same vocabulary related task scores in Grade 5 were correlated with the Grade 6 comprehension scores, the results were just the opposite. Overall vocabulary mastery was not a predictor of comprehension on the Grade 6 inventory. This evidence suggests that the Grade 6 material is too advanced for the level of vocabulary mastery attained in Grades 2-5.

#### *4.4.4 The evidence of random guessing*

When a correlation was run between the actual scores on the comprehension task in Grade 6 and the predicted scores provided students were randomly guessing, the correlation was very high, and statistically significant. This supports the hypothesis that students were randomly guessing because the material was too advanced for them.

#### *4.4.5 The NRS report from Grade 6 teachers*

Grade 6 teachers report that “students hardly understand anything in the textbook and everything has to be explained either in special English or in mother tongue” (Walter and Davis 2002:278).

These lines of evidence provide strong support for the conclusion that students in Grades 2-5 (2002) were not acquiring the vocabulary necessary to read and understand the academic English of the Grade 6 curriculum. The obvious question now is: What can be done to improve the curriculum and instruction so that students are

equipped to comprehend the academic English of Grade 6? Some suggestions for improvements follow in the next chapter.

CHAPTER 5  
SUGGESTIONS TO IMPROVE THE CURRICULUM

5.1 Introduction

The following suggestions are not meant to ignore the fact that some of the improvements recommended are being implemented at the time of this writing. The Ministry of Education in Eritrea is well aware of the fact that students are struggling with the academic English of Grade 6, and have sought the help and advice of outside consultants to aid them in knowing how to proceed in making improvements. The NRS 2002 (Walter and Davis) was a part of that effort. Not only is there awareness on the national level of the need for an improvement in the curriculum, but it is also possible that some of the suggestions below have been implemented in the classrooms by innovative teachers who have recognized the need to make the subject matter comprehensible to students. Recently, new ESL textbooks for Grades 1 and 6 have attempted to implement different aspects of these suggestions, as well. Nevertheless, the following suggestions are proffered as an outline of possibilities for improving the curriculum of Grades 2-6, as it existed in 2002, with respect to vocabulary development.

On the whole, the classroom practices that are most helpful for L2 learners are those that teach vocabulary directly. While direct teaching is also beneficial for developing vocabulary in L1 learners, L2 learners seem to benefit more, perhaps because of the interference they experience when trying to learn indirectly, both from

their different knowledge of the world and/or the differences between their language and the target language. Obviously, not all unknown vocabulary needs to be directly taught. For that reason, some of the suggestions below also include indirect strategies for teaching vocabulary.

Whether by direct or indirect means, the goal of vocabulary development is to ensure that English becomes a path that leads students towards a greater understanding of the world around them, and not a locked gate that bars them from the opportunities that learning affords.

### 5.2 Suggestions for improvement

The following eight major suggestions for curriculum and teacher training program improvements can help provide students with the vocabulary needed to comprehend the academic English of Grade 6:

1. Reduce the complexity of the content and vocabulary in Grade 6 textbooks;
2. Create a glossary or dictionary of the more frequent basic and academic vocabulary;
3. Develop a more focused approach to teaching the technical vocabulary in Grade 6;
4. Add more content in Grades 1-5;
5. Provide supplemental graded readers in Grades 1-5;
6. Include modules on the importance of vocabulary development in the teacher training courses at the national level;

7. Strengthen coordination between the English panel and subject matter specialists as textbooks are written;
8. Produce a series of textbooks with a graduated progression of difficulty throughout the remaining grades of high school.

Each of these eight points will be discussed in greater detail below.

#### *5.2.1 Reduce the complexity of the content and vocabulary in Grade 6 textbooks*

One of the easiest solutions for making a text more comprehensible is reducing the amount and complexity of new vocabulary. Kameenui, Carnine and Freschi (1982) found that substituting easy words for difficult words in a text made the text significantly more comprehensible. Students promoted from Grade 5 to Grade 6 will not have seen 75.9% of the words they encounter in the 2002 Grade 6 textbooks (at least not in the Grades 2-5 English textbooks). It is almost certain that many of these could be eliminated in favor of a simpler vocabulary that would promote better comprehension of the texts. Nation (2001:245) says, "If many unknown words are close to each other, they will be harder to guess". If as many words as possible are simplified (meaning they are already known by students, or are surrounded by obvious clues in the text), then the density of unknown words will be lowered, making it more possible for students to successfully guess the unknown vocabulary.

In order to simplify the vocabulary, one needs to examine from which categories the words come, the likelihood of whether these words would be useful in the future (i.e., what is their frequency in a wide range of texts?), and whether or not they

are essential to the understanding of the subject matter. An examination of these criteria follows.

#### 5.2.1.1 The categories of words unique to Grade 6, their frequencies and necessity

The following paragraphs will examine the four categories of words unique to Grade 6: 1) technical vocabulary, 2) basic vocabulary, 3) proper nouns, and 4) academic vocabulary.

##### *Technical vocabulary*

The greatest percentage of the words unique to Grade 6 consists of technical words – 1031 word families, which may or may not be crucial to the explanation of the subject matter. However, often it is these very words that describe the essence of the concept, and therefore are indispensable. Regardless, technical words should be scrutinized closely to see how essential they are for comprehension of the subject matter. Let us look, for example, at a paragraph from a chapter on Natural Resources that comes from the Geography book, and discuss how we could simplify both the content and the vocabulary.

In the textbook, this paragraph is accompanied by a very helpful diagram of a tree. A type of semantic map in its branches categorizes the usefulness of trees. The italicized words in the paragraph below do not occur in Grades 2-5.

This is a tree. We get *timber* from trees for building, making tables, chairs and *cupboards, etc.* We get medicines from trees. *Over 2000 drugs against cancer* are obtained from trees. *Drug* is any thing used as a *medicine*. *Contraceptive pills* are made from trees. *Pills* are small ball-like *tablets*. *Contraceptive pills* are used to *prevent fertilization* of the *human* eggs. *Commercial* crops like *rubber, palm oil, gums, tobacco etc.* are also *obtained* from trees. *Commercial* crops are crops *produced* to sell. We also get food

*stuffs* like coffee, *spice*, *chewing gums* etc. from trees. *Thus* trees are *important natural resources*.

The above paragraph, in terms of running words, breaks down as follows: 77 basic vocabulary, 17 technical vocabulary, and 4 academic vocabulary. Therefore, 39 words are unknown out of 108 running words in this one paragraph, giving it a density of 63.9%. The overall density of the Geography book was 61%, so this is fairly representative of the book throughout. One solution for raising the density to a minimum of 95% would be to simplify the content.

In simplifying the content, we may also simplify the vocabulary. Although judgment calls on simplifying content are better left to subject matter experts, for the purpose of demonstration, some suggestions will follow. The major topic in the above paragraph is the explanation of how trees are an important natural resource. A sub-topic is that trees provide medicines that we can use to treat many problems. A few references to contraceptive pills, and how they are used to prevent fertilization of the human egg, could be eliminated from this sub-topic and perhaps covered at a later date in a biology course or module on human sexuality. Removing these references, would simplify the text considerably. By removing these phrases on contraceptive pills, we have eliminated three technical vocabulary words, and one multi-word technical concept: 1) contraceptive, a term occurring only twice in all of the Grade 6 curriculum, both of them in this paragraph, 2) pills, which occurs five times in Grade 6, with three out of five occurrences appearing in this paragraph, 3) fertilization, a term found only once in all of Grade 6, and 4) human eggs, two basic words which may or may not be



unfamiliar in and of themselves (check Grades 2-5). However, the concept of the two words together might best be included under the topic of human sexuality.

Removing the material on contraception does not compromise the central content, which is a discussion on trees. In fact, it could readily be claimed that the readability of the paragraph is helped both by removing content which is off theme, as well as eliminating technical vocabulary. This same process of simplification applied to an entire textbook could easily eliminate hundreds of new words from the vocabulary requirements of the curriculum. The following rewrite of the sample paragraph on trees is one illustration of how this simplification might be done.

This is a tree. There are many different trees growing around us. Trees are important for a number of reasons. We get wood from trees for building, and for making tables and chairs. We get medicines from trees. More than 2000 different medicines come from trees. Trees also produce many products we can sell such as rubber and oil. Trees produce many food products such as coffee, mangos, oranges, and other fruit. Trees are important in our lives.

Words eliminated: timber, cupboards, etc., drugs, cancer, obtained, contraceptive, pills, prevent, fertilization, human eggs, commercial, gums, tobacco, obtained, stuffs, spice

Secondly, we should examine the remaining difficult technical vocabulary to see how much of it is really necessary to communicate the message intended and then note the frequency of occurrence of those words in the Grade 6 curriculum. If these words occur frequently throughout Grade 6 and are needed to express a concept, then they should be given extra attention at some point – whether by glossing, restating the definition in the text, or explicit teaching.

### *Basic vocabulary*

The second greatest number of words not taught in Grades 2-5 belongs to some of the most frequent word families in the English language, referred to in this study as 'basic' vocabulary. Nine hundred and ninety additional word families from this category are introduced in Grade 6. Without a doubt, these are words that will be found in a wide range of texts and therefore merit being taught at one point or another. Also, because these words do occur frequently in a wide variety of texts, there is a greater chance that students will retain them once they are taught. However, the question is, at what point do we teach these words? One likely solution is to try to introduce a greater number of these words in the Grades 1-5 curriculum, especially those that occur the most frequently in Grade 6. Another is to prepare a dictionary/glossary of the 2000 words from the General Service List (West 1953) that are considered of the best 'general service' to English language learners. At least if a glossary is available, students will have easy access to a definition if working out the definition from context is not possible.

### *Proper nouns*

The third most frequent category of words is proper nouns (394 word families). Proper nouns may take less effort to learn, but they basically have to be memorized as opposed to being able to use word-learning strategies to deduce their meaning. It is a good idea, when possible, to include a visual aid or at least an explanation, either in the text or verbally. However, even though proper nouns may not carry a heavy learning burden, when several of them are in the same paragraph and none of them are known,

comprehension will suffer. A good example of this is a section from the History book on Chinese history that identifies the names of eight ancient Chinese states, with no further information given on seven of the eight states. These seven ancient Chinese state names could be removed without interfering with the basic content of the section. Therefore, it is recommended that subject matter specialists reexamine the texts in that light. If decisions are made to keep a high density of proper nouns in a text, at the very least, a visual aid or explanation should be given.

#### *Academic vocabulary*

Finally, there are 281 academic word families introduced in Grade 6. These are words that will eventually be valuable for students continuing academic studies in English. However, in light of the fact that time constraints do not allow for a great number of words to be taught explicitly, these words should be examined to see if any of them can be replaced by simpler, known synonyms and/or removed completely. If possible, some of the simpler academic terms could be introduced in Grade 5 or before. Academic vocabulary should also be included in a glossary, so that both students and teachers can have access to a simplified definition plus accompanying sentences using the word in different contexts.

#### 5.2.1.2 Summary

Reducing the complexity of the content and vocabulary in Grade 6 textbooks is a task that requires careful attention to details. Several things should be kept in mind when making decisions: 1) How necessary is this word/concept to conveying the intended message? 2) How 'useful' will the word/concept be to students in the future?,

and 3) Does the word/concept appear enough times in subsequent lessons to increase the likelihood of retention? If the words are necessary to convey a message, useful for the future, and repetitive in upcoming text, then keep them, if not, consider deleting them altogether or finding other ways to express the same meaning.

### *5.2.2 Create a glossary of the more frequent basic and academic English vocabulary*

Because the basic and academic vocabulary together cover between 86-92% of a typical academic text at the university level (Nation 2001:13), both categories are invaluable for the English language learner and merit the effort required to learn them. Together, the GSL and the academic vocabulary account for 86.1% of the running words in the Grade 6 curriculum. The fact that these two word lists provide only 86.1% coverage compared to the results reported by Nation for university textbooks hints at the difficulty level of the Grade 6 materials.

Nation (2001:16) claims, "In general, high-frequency words (basic words) are so important that anything that teachers and learners can do to make sure they are learned is worth doing". Because of their frequency, coverage and range, learning them will yield great benefits to learners by increasing the likelihood of comprehension of a wide variety of texts. Therefore, creating a glossary is one way of giving these words focus in the classroom and making them accessible to students. However, providing a glossary should not be seen as the sole remedy for vocabulary improvement. Nagy et al (1985:236) quotes Beck, McKeown and McCaslin (1983:180-181) in reference to glossaries and other less explicit strategies, "Children most in need of vocabulary development, less-skilled readers who are unlikely to add to their vocabulary from

outside sources, will receive little benefit from such indirect opportunities". Nonetheless, a glossary is a first step in the right direction and will give easy access to simplified definitions for both the teacher and student.

Learning basic words is the starting point, but students using English to study academic subjects should also make an effort to learn the more frequently used academic words. Nation (2001) gives several reasons why learning academic vocabulary should be deemed a worthy goal for English language learners who will be engaging in academic study. First of all, academic vocabulary is common over a wide range of academic subjects, and is not likely to be found outside of those arenas. Secondly, academic vocabulary accounts for between 8.5-10% of vocabulary in academic textbooks. In the case of Eritrea, the academic vocabulary in Grade 6 makes up about 12.4% of the vocabulary, a higher percentage than what was considered "typical" in the research literature. The Grades 2-5 vocabulary has 0% (check this number) academic vocabulary.

Third, Nation (2001:190) reported a study done by Cohen et al (1988) that investigated difficulties of second language learners reading academic texts. Cohen et al found that one common problem students had with academic vocabulary was that they weren't aware that sometimes academic vocabulary was used with a technical meaning (a meaning unique to academic context), and sometimes it was not. For example, with the word *foundation* – the core definition is the base of a building whereas the more technical meaning is the core or basis of an idea/model/discipline. Another example is the word *compound*. The core meaning in the Eritrean culture

would be the enclosed land around a house. However, in the academic sense it is used in a variety of ways, of which not all are mentioned here. For example, in grammar it refers to a word composed of two or more other words. In science it refers to the way elements are put together to form chemicals. In academic English it has the more abstract meaning of making ideas more difficult by the addition of some factor.

The fourth reason for making academic vocabulary a priority has to do with the teacher. Academic vocabulary, in contrast to technical vocabulary, is an area that a typical English teacher can help students learn. Technical vocabulary usually requires an understanding of the particular subject matter in order for a teacher to help a student comprehend the underlying concepts and definitions. Learning academic vocabulary is more like learning basic vocabulary. Therefore, it is recommended that the more common academic vocabulary be included in a glossary along with the basic vocabulary.

As well as creating a glossary, academic and/or basic vocabulary can also be given focus in classroom practices and textbooks by: 1) Glossing it, on the side of the text or in a separate glossary perhaps at the beginning of the lesson, 2) restating it more simply within the text, 3) teaching it explicitly, 4) teaching word parts so learners can guess independently, and/or 5) having students read extensively within the subject matter.

### *5.2.3 Develop a more focused approach to teaching technical vocabulary in Grade 6*

According to Nelson-Herber (1986), learning content vocabulary (or what has been referred to as technical vocabulary in this study) differs in several ways from

learning general vocabulary. Teachers often mistakenly assume that the reading skills students acquire in Grades 1-5 should be enough to help them comprehend the subject textbooks from Grade 6. But textbooks are not designed to be read and understood independently. The student is there to learn something s/he has not known before. Textbooks contain concepts and vocabulary that are beyond the knowledge of the reader, many of which are embedded in other concepts and vocabulary foreign to the student, making guessing from context virtually impossible. Take, for example, this phrase from the geography book: "Copper is one of the ancient metals". If one does not know the definition of ancient or metal, there is not a lot one can deduce about 'copper' in this phrase.

Another problem in teaching content or technical vocabulary is that it is typically not found outside the subject area. Consequently, unlike basic vocabulary, students lack opportunities to hear such vocabulary outside the classroom. However, in the case of Eritrea, even hearing basic vocabulary outside of the classroom would be rare. A different approach is needed in order for students to learn technical vocabulary so that they can comprehend their textbooks and develop an understanding of the subject matter.

What approaches for teaching technical vocabulary can be applied to the current curriculum? In addition to an overall reduction of the complexity of the vocabulary and concepts taught in Grade 6 – which is beyond the scope of the teacher – the teacher can choose the vocabulary most essential for teaching the core concepts of any/every lesson and present it beforehand to the class. To make sure that these words receive the focus

necessary, they could be highlighted in some fashion in the text, glossed in the beginning and/or glossed next to where they first appear. Stahl and Fairbanks (1986) found that pre-teaching unknown vocabulary, through both definition and context, increased comprehension.

In addition to pre-teaching the vocabulary, a glossary/review of the more important technical words, essential for overall comprehension of the subject matter, should be included at the end of each chapter. This is already being done in the History book, but the Science and Geography books would also benefit from reviews at the end of each chapter.

We also don't want to ignore the guidelines of good vocabulary instruction found in the literature, one of which recommends that students actively participate in the process of learning. Vocabulary can be introduced in several ways that require active participation from the students and which help them connect new words with previous knowledge. Here is one example called 'word expert cards' shared by Richek (2005:417-18).

In this activity, the teacher selects several words from the story or unit of study that are either of general use and/or necessary for comprehension of a particular unit of study. Each student is assigned at least one word, and up to three if necessary. With each assigned word, the teacher also includes a page number(s) where the word can be found. First, the student copies the word at the top of a card, and then includes at least one sentence from the book that contains the word. Second, the student looks up the word in the glossary or an age-level appropriate dictionary/glossary and finds the best



definition to match the way it is used in the sentence in the unit or story. (If students haven't yet been instructed in the use of a dictionary, this activity should be postponed until after they are familiar with how to look up words, find the part of speech, etc.). Then, the student writes the definition in his or her own words, along with the part of speech, and copies it onto the card, followed by an original sentence using the word. If the word can be illustrated, the student should do so. (Using scrap paper is advised before copying the finished product on the card). Students are encouraged to seek out help from the teacher or other students during the entire process. Also, teachers roam the room to give help to anyone who needs it. Finally, students use their cards to teach words to their classmates, moving from one student to the next. This takes less classroom time than if each student were to go forward and explain his/her own word(s).

In the final step, when 'experts' are sharing their words with their classmates, the developers of this activity suggest that students ask their classmates to try to guess the meaning of the words first through the illustration, second through the 'expert's' original sentence, third from the phrase found in the book, and finally from the definition. This forces students to practice using strategies for guessing words in context. When one student 'expert' finishes teaching his word, the other student takes on the role of 'expert'. This process continues until all of the students have learned each other's words.

One disadvantage of this activity in the Ertirean classroom is that it is time consuming. However, it may be a worthwhile technique at the beginning of units of

study that are particularly heavy on technical vocabulary. The meanings of these words will be reinforced as students encounter them again in the text, having learned them already from their fellow students.

#### *5.2.4 Add more content in Grades 1-5*

The evidence shows that a substantial amount of the vocabulary included in the Grade 6 curriculum is not found in Grades 2-5 (the new English curriculum textbook for Grade 1 was not evaluated). At the same time a significant proportion of the vocabulary (20.4%) taught in Grades 2-5, is not repeated in Grade 6. It seems to follow, then, that eliminating some of the vocabulary in Grades 2-5 that is not used in Grade 6, in favor of including vocabulary of greater use to Grade 6, would be part of a solution for increasing the likelihood of comprehension in Grade 6. For example, a good deal of the reading material in Grades 2-5 includes aspects of the Eritrean culture. While teaching local culture is definitely worthy of attention in the classroom, perhaps some of the attention given particularly to folk stories would be better presented in the mother tongue curriculum, OR used as extra reading material in the class library. In this way, there would be more time available in the curriculum to add stories with words that relate more specifically to material students will encounter in Grade 6, particularly items from the basic vocabulary set.

Another option would be to reevaluate word usage in all the stories from Grades 2-5, folk stories included, to see if it is possible to include more of the unique vocabulary that occurs in Grade 6. The main goal in adding more content to Grades 2-5 should be to add substantially to the amount of basic vocabulary taught.

In addition, it would be valuable to assure that vocabulary already being covered in Grades 2-5 is reviewed sufficiently. One way to do this is through making sure that this vocabulary occurs frequently throughout the text, preferably in a variety of contexts. While frequency of occurrence in the lesson where a word is first taught is important, it is also important to intersperse newly learned words throughout other lessons to maximize learning. It has been shown that learning is more effective when new words are encountered on several occasions, rather than all in one lesson (Bloom and Schuell 1981).

Another way to improve retention of learned vocabulary in Grades 2-5 is through periodic reviews. Though this may be occurring already, it is not evident in the student textbooks. Standardizing the vocabulary reviews by including them in a formal section at the end of each lesson will assure that all teachers are preparing students in an equal and adequate manner for what is to come in Grade 6.

#### *5.2.5 Provide supplemental graded readers in Grade 1-5*

One of the most important paths to vocabulary building is extensive reading. The more one reads the more one learns vocabulary. Native speakers acquire more vocabulary through reading than they could ever acquire in the amount of time spent in a classroom. However, for an L2 learner, extensive reading is only profitable for vocabulary development when enough vocabulary is understood that the learner can make intelligent guesses about the unknown vocabulary encountered. For this reason, graded readers, or readers that limit vocabulary based on students' knowledge, are very useful for helping students to widen and deepen their repertoire of words. The

development of graded readers is one area that would substantially benefit the current Eritrean English curriculum. One problem with this suggestion is the time factor in the classroom. Because the time for teaching English is already limited, teachers may be reluctant to give up teaching time to allow students to read. However, the data from the Reading Survey (Walter and Davis 2002) indicates that teachers are not using up to 25% of the class time available. Therefore it would not be unreasonable to expect teachers to add a silent or oral reading component to the class schedule. Including an emphasis on the importance of reading for language development in the teacher-training program would also encourage teachers to make use of class time for reading.

However, if extensive reading is impossible because of lack of resources (not enough books to go around), the teacher could spend at least half an hour each week reading aloud to students. According to Nation (2001), evidence is available to support the fact that learners can acquire new vocabulary via listening. Oral reading can be enhanced if teachers identify new words in the text beforehand and stop to explicitly teach them. Modeling an enthusiasm for reading is an important aspect of encouraging students to value reading.

#### *5.2.6 Include modules on the importance of vocabulary in the teacher-training course*

Without the endorsement of the Ministry of Education through its teacher training program, as well as an understanding of the importance of vocabulary building for overall academic success, teachers will not take precious time in the classroom for extra emphasis on vocabulary learning. For this reason, it is important that modules teaching the importance of vocabulary to academic success be included in the teacher-

training curriculum. In addition, during teacher training sessions, teachers should have ample opportunity to learn and practice specific vocabulary-building activities that they can use in the classroom.

Teachers not only need to know how to introduce vocabulary that will be explicitly taught in the lesson, they also need to be able to teach strategies that help students become independent vocabulary learners. Nation (1990) mentions three major categories of strategies that promote independent learning: 1) guessing from context, 2) memory techniques, and 3) using word parts.

#### *5.2.7 Improve coordination between the English panel and subject matter specialists*

The English subject textbooks of Grade 6 evaluated in this study did not take into account the English vocabulary that had or had not been covered in the Grades 2-5 curriculum. For that reason, it is recommended that those persons responsible for English curriculum and those responsible for subject matter coordinate their efforts. A closer cooperation should assure that both parties are, at the very least, aware of: 1) previously introduced words and the number of times they have occurred, 2) necessary limitations on new words introduced in each unit in order to increase likelihood of comprehension, and 3) the appropriate amount of attention each new word should receive, based on its purpose in the text, usefulness, and learning burden.

#### *5.2.8 Produce a series of textbooks with a graduated progression of difficulty throughout the remaining grades of high school*

Though this study has focused on the vocabulary of the curriculum in Grades 2-6, the same care should be given to the development of vocabulary in the series of textbooks that will follow Grade 6. If appropriate attention is not given to vocabulary in

Grade 7 and subsequent grades, students could again be faced with the frustration of attempting to glean meaning from a text overloaded with unknown words.

## CHAPTER 6

### CONCLUSION

#### 6.1 An overview of the findings

Eritrea is one of the few developing countries where national policy gives students the privilege of learning how to read and write first in their mother tongue. The benefits of mother tongue education have proven to be the most successful path in acquiring a second language (Thomas and Collier 1997). Eritrea is to be commended for the diligence with which they have set forth to make education accessible to everyone in their own language. In addition, Eritrea, through its educational policy, is seeking to help students make a smooth transition to the language of higher education, English, by introducing English as a subject from Grade 1. Though the mother tongue is given prominence beginning in kindergarten and continuing through Grade 5, students are expected to make a full transition to English in Grade 6.

In Eritrea, learning English takes place in an environment where that language is not readily heard or spoken outside of the classroom. There are few telecasts or broadcasts in English, and English literature is not readily accessible. The home environment is likely devoid of English speakers, too, as parents may or may not be educated, and many who are may have been educated under the former educational system when English was not the language of secondary school. Therefore, the English language learner in Eritrea relies for the most part on the English of the classroom to

acquire the skills s/he will need to succeed academically. For that reason, the reinforcement provided by the curriculum, classroom environment, and teacher must be of good quality, both in content and instruction.

The proceeding study has shown that one mark of a good curriculum is a grade appropriate vocabulary, where the amount of attention given to words in the textbook and the classroom is equal to their learning burden. The literature reveals that the challenges of vocabulary development in the L2 differ from those of L1 vocabulary development. Whereas vocabulary input is a constant for the L1 learner in an L1 environment, for the L2 learner outside of the L2 environment (as is the case in Eritrea), vocabulary input outside the classroom is rare at best.

In the case of English, L1 learners enter school with a vocabulary of around 5,000 words. Native English language speakers in an L1 setting have the advantage of being surrounded by a print-rich environment – they are surrounded by the language in the home, in the community, and in the media. In addition to this, a plethora of literature is available to support learning. Considering that most vocabulary is learned through extensive reading, this ample supply of literature is a definite advantage for the L1 English learner. On the contrary, the English L2 learner in Eritrea begins Grade 1 with little to no English vocabulary, receives only forty minutes of English instruction per day through Grade 5, and is rarely exposed to English outside of school.

To counteract the inadequate English input from outside sources, and the limited time available in the classroom, the curriculum and instruction of the classroom needs to be as efficient as possible. In regard to the curriculum, reform is already in process



and can be strengthened by careful attention to the vocabulary content, repetition, emphasis, and review given to words that are most important for maximum comprehension of a variety of texts. Likewise, extraneous and overly complicated words that are not particularly useful for the future or necessary to communicate a point should be removed from the curriculum. A scope and sequence of vocabulary for each subject for each grade should be established all the way through high school.

The Grades 2-5 curriculum needs to focus on the vocabulary that will be of the most service to learners, especially seeking to include a good portion of the 2000 most frequent basic vocabulary (around 1500) and around 200-300 technical terms from Math, Geography and Science. Additional materials, such as glossaries, dictionaries and graded readers should also be developed. Graded readers with appropriate vocabulary for each grade level can be used to encourage extensive reading. Both depth and breadth of knowledge of vocabulary can potentially result from extensive reading.

As for instruction, a good teacher-training course should equip teachers with the tools and experience needed to make the most of the time they have available in the classroom. Specific strategies for both explicit and implicit teaching of vocabulary should be an integral part of the training course. Teacher's guides should detail lesson plans (including vocabulary to focus on) for each day and their use should be modeled during training. Adequate instruction on classroom time management, as well as ample opportunities to practice specific vocabulary development tasks should be incorporated into a training course to assure that teachers find time to include vocabulary development in a given lesson and understand in practice how to perform what is

spelled out in a lesson plan. An improved curriculum is only an improvement if teachers are confident of how to incorporate the changes.

### 6.2 The implications

The research indicated that Eritrean children had difficulty coping with Grade 6 material in English despite the fact they had had 4 years of English as a subject to prepare them for Grade 6 English. If children have this much difficulty with education in an L2 when they have participated in a program which provides them with a measured introduction to the second language, how much more difficult and traumatic must it be for children in other developing countries who are immediately submersed in L2 from the first day of school?

The scholarly claims from researchers such as Cummins (2003) and Thomas and Collier (1997) were confirmed through the evidence of the lack of academic language proficiency of students in Grade 5 who were entering Grade 6. Cummins (2003) and Thomas and Collier (1997) have both argued that there is a large gap between the language of conversation (BICS) and academic language (CALP) and that CALP is the level of language mastery needed to function in L2 education at the middle school level and above.

Other research has suggested that there are practical limits to how fast average children can learn a second language and how much and what kinds of vocabulary they need to know in the L2 before they can effectively use that language for reading that leads to comprehension. The Eritrean study supported the claim that the lack of this

threshold level of vocabulary prevented students from successful comprehension of the Grade 6 curriculum.

The research suggests that careful curriculum planning and development are not only important to preparing children for the transition from L1 to L2 education, but it can also make the difference between successful and less successful use of the L2 for educational purposes.

### 6.3 Limitations

The study was limited by the fact that the National Reading Survey (Walter and Davis 2002), which served as an important instrument in testing hypotheses in this study, was not specifically prepared to test only vocabulary. Therefore, the vocabulary data sets used to test frequency were limited in number. Also, because there were no reports or data for the methods of vocabulary development used in classroom practices, the study relied totally on the curriculum and the NRS to measure vocabulary development. The study also only made use of curriculum books in Grades 2-6. After the time of the initial survey (2002), an English curriculum was added in Grade 1. Also the textbooks from Grades 7 - 12 were not examined.

Certainly, vocabulary development is only one aspect of language learning. However, the research from this study supports the claim that vocabulary is crucial to academic success (Baker, Simmons, and Kameenui 1995) and well worth developing in a curriculum in order to give students a chance to succeed in their educational endeavors.

APPENDIX A

BAUMANN AND CULLIGANS' ADAPTED GENERAL SERVICE LIST

Baumann and Culligans' Adapted General Service List

a	ability	able	about	above	abroad
absence	absent	absolute	accept	accident	accord
account	accuse	accustom	ache	across	act
action	active	actor	actress	actual	add
address	admire	admission	admit	adopt	adoption
advance	advantage	adventure	advertise	advice	advise
affair	afford	afraid	after	afternoon	again
against	age	agency	agent	ago	agree
agriculture	ahead	aim	air	airplane	alike
alive	all	allow	allowance	almost	alone
along	aloud	already	also	although	altogether
always	am	ambition	ambitious	among	amongst
amount	amuse	ancient	and	anger	angle
angry	animal	annoy	annoyance	another	answer
anxiety	anxious	any	anybody	anyhow	anyone
anything	anyway	anywhere	apart	apology	appear
appearance	applaud	applause	apple	application	apply
appoint	approve	arch	are	argue	arise
arm	army	around	arrange	arrest	arrive
arrow	art	article	artificial	as	ash
ashamed	aside	ask	asleep	association	astonish
at	attack	attempt	attend	attention	attentive
attract	attraction	attractive	audience	aunt	autumn
avenue	average	avoid	avoidance	awake	away
awkward	axe	baby	back	backward	bad
bag	baggage	bake	balance	ball	band
bank	bar	barber	bare	bargain	barrel
base	basic	basin	basis	basket	bath
bathe	battle	bay	be	beak	beam
bean	bear	beard	beast	beat	beauty
because	become	bed	bedroom	before	beg
begin	behave	behavior	behind	being	belief
believe	bell	belong	below	belt	bend
beneath	berry	beside	besides	best	better
between	beyond	bicycle	big	bill	bind
bird	birth	bit	bite	bitter	black
blade	blame	bleed	bless	blind	block

blood	blow	blue	board	boast	boat
body	boil	bold	bone	book	border
borrow	both	bottle	bottom	bound	boundary
bow	bowl	box	boy	brain	branch
brass	brave	bravery	bread	breadth	break
breakfast	breath	breathe	bribe	bribery	brick
bridge	bright	brighten	bring	broad	broadcast
brother	brown	brush	bucket	build	bunch
bundle	burn	burst	bury	bus	bush
business	businesslike	businessman	busy	but	butter
button	buy	by	cage	cake	calculate
calculation	calculator	call	calm	camera	camp
can	canal	cap	cape	capital	captain
car	card	care	carriage	carry	cart
case	castle	cat	catch	cattle	cause
caution	cautious	cave	cent	center	century
ceremony	certain	certainty	chain	chair	chairman
chalk	chance	change	character	charge	charm
cheap	cheat	check	cheer	cheese	chest
chicken	chief	child	childhood	chimney	choice
choose	christmas	church	circle	circular	citizen
city	civilize	claim	class	classification	classify
clay	clean	clear	clerk	clever	cliff
climb	clock	close	cloth	clothe	cloud
club	coal	coarse	coast	coat	coffee
coin	cold	collar	collect	collection	collector
college	colony	color	comb	combine	come
comfort	command	commerce	commercial	committee	common
companion	companionship	company	compare	comparison	compete
competition	competitor	complain	complaint	complete	completion
complicate	complication	compose	composition	concern	condition
confess	confession	confidence	confident	confidential	confuse
confusion	congratulate	congratulation	connect	connection	conquer
conqueror	conquest	conscience	conscious	consider	contain
content	continue	control	convenience	convenient	conversation
cook	cool	copper	copy	cork	corn
corner	correct	correction	cost	cottage	cotton
cough	could	council	count	country	courage
course	court	cousin	cover	cow	coward

cowardice	crack	crash	cream	creature	creep
crime	criminal	critic	crop	cross	crowd
crown	cruel	crush	cry	cultivate	cultivation
cultivator	cup	cupboard	cure	curious	curl
current	curse	curtain	curve	cushion	custom
customary	customer	cut	daily	damage	damp
dance	danger	dare	dark	darken	date
daughter	day	daylight	dead	deaf	deafen
deal	dear	death	debt	decay	deceit
deceive	decide	decision	decisive	declare	decrease
deed	deep	deepen	deer	defeat	defend
defendant	defense	degree	delay	delicate	delight
deliver	delivery	demand	department	depend	dependence
dependent	depth	descend	descendant	descent	describe
description	desert	deserve	desire	desk	despair
destroy	destruction	destructive	detail	determine	develop
devil	diamond	dictionary	die	difference	different
difficult	difficulty	dig	dine	dinner	dip
direct	direction	director	dirt	disagree	disappear
disappearance	disappoint	disapprove	discipline	discomfort	discontent
discover	discovery	discuss	discussion	disease	disgust
dish	dismiss	disregard	disrespect	dissatisfaction	dissatisfy
distance	distant	distinguish	district	disturb	ditch
dive	divide	division	do	doctor	does
dog	dollar	donkey	door	dot	double
doubt	down	dozen	drag	draw	drawer
dream	dress	drink	drive	drop	drown
drum	dry	duck	due	dull	during
dust	duty	each	eager	ear	early
earn	earnest	earth	ease	east	eastern
easy	eat	edge	educate	education	educator
effect	effective	efficiency	efficient	effort	egg
either	elastic	elder	elect	election	electric
electrician	elephant	else	elsewhere	empire	employ
employee	empty	enclose	enclosure	encourage	end
enemy	engine	engineer	english	enjoy	enough
enter	entertain	entire	entrance	envelope	envy
equal	escape	especially	essence	essential	even
evening	event	ever	everlasting	every	everybody

everyday	everyone	everything	everywhere	evil	exact
examine	example	excellence	excellent	except	exception
excess	excessive	exchange	excite	excuse	exercise
exist	existence	expect	expense	expensive	experience
experiment	explain	explode	explore	explosion	explosive
express	expression	extend	extension	extensive	extent
extra	extraordinary	extreme	eye	face	fact
factory	fade	fail	failure	faint	fair
faith	fall	fame	familiar	family	fan
fancy	far	farm	fashion	fast	fasten
fat	fate	father	fatten	fault	favor
favorite	fear	feast	feather	feed	feel
fellow	fellowship	female	fence	fever	few
field	fierce	fight	figure	fill	film
find	fine	finger	finish	fire	firm
first	fish	fit	fix	flag	flame
flash	flat	flatten	flavor	flesh	float
flood	floor	flour	flow	flower	fly
fold	follow	fond	food	fool	foot
for	forbid	force	foreign	forest	forget
forgive	fork	form	formal	former	forth
fortunate	fortune	forward	frame	framework	free
freedom	freeze	frequency	frequent	fresh	friend
friendly	friendship	fright	frighten	from	front
fruit	fry	full	fun	funeral	funny
fur	furnish	furniture	further	future	gaiety
gain	gallon	game	gap	garage	garden
gas	gate	gather	gay	general	generous
gentle	gentleman	get	gift	girl	give
glad	glass	glory	go	goat	god
gold	golden	good	govern	governor	grace
gradual	grain	grammar	grammatical	grand	grass
grateful	grave	gray	grease	great	greed
green	greet	grind	ground	group	grow
growth	guard	guess	guest	guide	guilt
gun	habit	hair	half	hall	hammer
hand	handkerchief	handle	handshake	handwriting	hang
happen	happy	harbor	hard	harden	hardly
harm	harvest	has	haste	hasten	hat



hate	hatred	have	hay	he	head
headache	headdress	heal	health	heap	hear
heart	heat	heaven	heavenly	heavy	height
heighten	hello	help	her	here	hesitate
hesitation	hide	high	highway	hill	hinder
hindrance	hire	his	history	hit	hold
hole	holiday	hollow	holy	home	homecoming
homemade	homework	honest	honesty	honor	hook
hope	horizon	horizontal	horse	hospital	host
hot	hotel	hour	house	how	however
human	humble	hunger	hunt	hurrah	hurry
hurt	husband	hut	I	ice	idea
ideal	idle	if	ill	imaginary	imaginative
imagine	imitate	imitation	immediate	immense	importance
important	impossible	improve	in	inch	include
inclusive	increase	indeed	indoor	industry	influence
influential	inform	ink	inn	inquire	inquiry
insect	inside	instant	instead	instrument	insult
insurance	insure	intend	intention	interest	interfere
interference	international	interrupt	interruption	into	introduce
introduction	invent	invention	inventor	invite	inward
iron	is	island	it	jaw	jealous
jealousy	jewel	join	joint	joke	journey
joy	judge	juice	jump	just	justice
keep	key	kick	kill	kind	king
kingdom	kiss	kitchen	knee	kneel	knife
knock	knot	know	knowledge	lack	ladder
lady	lake	lamp	land	landlord	language
large	last	late	lately	latter	laugh
laughter	law	lawyer	lay	lazy	lead
leadership	leaf	lean	learn	least	leather
leave	left	leg	lend	length	lengthen
less	lessen	lesson	let	letter	level
liar	liberty	librarian	library	lid	lie
life	lift	light	lighten	like	likely
limb	limit	line	lip	lipstick	liquid
list	listen	literary	literature	little	live
load	loaf	loan	local	lock	lodge
log	lonely	long	look	loose	loosen

lord	lose	loss	lot	loud	love
lovely	low	loyal	loyalty	luck	lump
lunch	lung	machine	machinery	mad	madden
mail	main	make	male	man	manage
mankind	manner	manufacture	many	map	march
mark	market	marriage	marry	mass	master
mat	match	material	matter	may	maybe
meal	mean	meantime	meanwhile	measure	meat
mechanic	mechanism	medical	medicine	meet	melt
member	membership	memory	mend	mention	merchant
mercy	mere	merry	message	messenger	metal
middle	might	mild	mile	milk	mill
mind	mine	mineral	minister	minute	miserable
misery	miss	mistake	mix	mixture	model
moderate	moderation	modern	modest	modesty	moment
momentary	money	monkey	month	moon	moonlight
moral	more	moreover	morning	most	mother
motherhood	motherly	motion	motor	mountain	mouse
mouth	move	much	mud	multiplication	multiply
murder	music	musician	must	my	mystery
nail	name	narrow	nation	native	nature
near	neat	necessary	necessity	neck	need
needle	neglect	neighbor	neighborhood	neither	nephew
nest	net	network	never	new	news
newspaper	next	nice	niece	night	no
noble	nobody	noise	none	noon	nor
north	northern	nose	not	note	notebook
nothing	notice	noun	now	nowadays	nowhere
nuisance	number	numerous	nurse	nursery	nut
oar	obedience	obedient	obey	object	objection
observe	occasion	ocean	of	off	offend
offense	offer	office	officer	official	often
oil	old	old-fashioned	omission	omit	on
once	one	only	onto	open	operate
operation	operator	opinion	opportunity	oppose	opposite
opposition	or	orange	order	ordinary	organ
organize	origin	ornament	other	otherwise	ought
ounce	out	outline	outside	outward	over
overcome	overflow	owe	own	ownership	pack

package	pad	page	pain	paint	pair
pale	pan	paper	parcel	pardon	parent
park	part	particle	particular	partner	party
pass	passage	passenger	past	paste	pastry
path	patience	patient	patriotic	pattern	pause
paw	pay	peace	pearl	peculiar	pen
pencil	penny	people	per	perfect	perfection
perform	performance	perhaps	permanent	permission	permit
person	persuade	persuasion	pet	photograph	photography
pick	picture	piece	pig	pigeon	pile
pin	pinch	pink	pint	pipe	pity
place	plain	plan	plant	plaster	plate
play	pleasant	please	pleasure	plenty	plow
plural	pocket	poem	poet	point	poison
police	polish	polite	political	politician	politics
pool	poor	popular	population	position	possess
possession	possessor	possible	post	postpone	pot
pound	pour	poverty	powder	power	practical
practice	praise	pray	preach	precious	prefer
preference	prejudice	prepare	presence	present	preserve
president	press	pressure	pretend	pretense	pretty
prevent	prevention	price	pride	priest	print
prison	private	prize	probable	problem	procession
produce	product	production	profession	profit	program
progress	promise	prompt	pronounce	pronunciation	proof
proper	property	proposal	propose	protect	protection
proud	prove	provide	public	pull	pump
punctual	punish	pupil	pure	purple	purpose
push	put	puzzle	qualification	qualify	quality
quantity	quarrel	quart	quarter	queen	question
quick	quiet	quite	rabbit	race	radio
rail	railroad	rain	raise	rake	rank
rapid	rare	rate	rather	raw	ray
razor	reach	read	ready	real	realize
reason	reasonable	receipt	receive	recent	recognition
recognize	recommend	record	red	redden	reduce
reduction	refer	reference	reflect	reflection	refresh
refuse	regard	regret	regular	rejoice	relate
relation	relative	relief	relieve	religion	remain

remark	remedy	remember	remind	rent	repair
repeat	repetition	replace	reply	report	represent
representative	reproduce	reproduction	republic	reputation	request
rescue	reserve	resign	resist	resistance	respect
responsible	rest	restaurant	result	retire	return
revenge	review	reward	ribbon	rice	rich
rid	ride	right	ring	ripe	ripen
rise	risk	rival	rivalry	river	road
roar	roast	rob	robbery	rock	rod
roll	roof	room	root	rope	rot
rotten	rough	round	row	royal	royalty
rub	rubber	rubbish	rude	rug	ruin
rule	run	rush	rust	sacred	sacrifice
sad	sadden	saddle	safe	safety	sail
sailor	sake	salary	sale	salesman	salt
same	sample	sand	satisfaction	satisfactory	satisfy
sauce	saucer	save	saw	say	scale
scarce	scatter	scene	scenery	scent	school
science	scientific	scientist	scissors	scold	scorn
scrape	scratch	screen	screw	sea	search
season	seat	second	secrecy	secret	secretary
see	seed	seem	seize	seldom	self
selfish	sell	send	sense	sensitive	sentence
separate	separation	serious	servant	serve	service
set	settle	several	severe	sew	shade
shadow	shake	shall	shallow	shame	shape
share	sharp	sharpen	shave	she	sheep
sheet	shelf	shell	shelter	shield	shilling
shine	ship	shirt	shock	shoe	shoot
shop	shore	short	shorten	should	shoulder
shout	show	shower	shut	sick	side
sight	sign	signal	signature	silence	silent
silk	silver	simple	simplicity	since	sincere
sing	single	sink	sir	sister	sit
situation	size	skill	skin	skirt	sky
slave	slavery	sleep	slide	slight	slip
slippery	slope	slow	small	smell	smile
smoke	smooth	snake	snow	so	soap
social	society	sock	soft	soften	soil

soldier	solemn	solid	solution	solve	some
somebody	somehow	someone	something	sometime	sometimes
somewhere	son	song	soon	sore	sorrow
sorry	sort	soul	sound	soup	sour
south	sow	space	spade	spare	speak
special	speech	speed	spell	spend	spill
spin	spirit	spit	spite	splendid	split
spoil	spoon	sport	spot	spread	spring
square	staff	stage	stain	stair	stamp
stand	standard	star	start	state	station
stay	steady	steam	steel	steep	steer
stem	step	stick	stiff	stiffen	still
sting	stir	stock	stocking	stomach	stone
stop	store	storm	story	stove	straight
straighten	strange	strap	straw	stream	street
strength	strengthen	stretch	strict	strike	string
strip	stripe	stroke	strong	struggle	student
study	stuff	stupid	subject	substance	succeed
success	such	suck	sudden	suffer	sugar
suggest	suggestion	suit	summer	sun	supper
supply	support	suppose	sure	surface	surprise
surround	suspect	suspicion	suspicious	swallow	swear
sweat	sweep	sweet	sweeten	swell	swim
swing	sword	sympathetic	sympathy	system	table
tail	tailor	take	talk	tall	tame
tap	taste	tax	taxi	tea	teach
tear	telegraph	telephone	tell	temper	temperature
temple	tempt	tend	tender	tent	term
terrible	test	than	thank	that	the
theater	theatrical	their	then	there	therefore
these	they	thick	thicken	thief	thin
thing	think	thirst	this	thorn	thorough
those	though	thread	threat	threaten	throat
through	throw	thumb	thunder	thus	ticket
tide	tidy	tie	tight	tighten	till
time	tin	tip	tire	title	to
tobacco	today	toe	together	tomorrow	ton
tongue	tonight	too	tool	tooth	top
total	touch	tough	tour	toward	towel

tower	town	toy	track	trade	train
translate	translation	translator	trap	travel	tray
treasure	treasury	treat	tree	tremble	trial
tribe	trick	trip	trouble	trunk	trust
truth	try	tube	tune	turn	twist
type	ugly	umbrella	uncle	under	underneath
understand	union	unit	unite	unity	universal
universe	university	unless	until	up	upon
upper	uppermost	upright	upset	urge	urgent
use	usual	vain	valley	valuable	value
variety	various	veil	verb	verse	very
vessel	victory	view	village	violence	violent
virtue	visit	visitor	voice	vote	vowel
voyage	wage	waist	wait	waiter	wake
walk	wall	wander	want	war	warm
warmth	warn	was	wash	waste	watch
water	wave	wax	way	we	weak
weaken	wealth	weapon	wear	weather	weave
weed	week	weekday	weekend	weigh	weight
welcome	well	were	west	western	wet
what	whatever	wheat	wheel	when	whenever
where	wherever	whether	which	whichever	while
whip	whisper	whistle	white	whiten	who
whoever	whole	whom	whose	why	wicked
wide	widen	widow	widower	width	wife
wild	will	win	wind	window	wine
wing	winter	wipe	wire	wisdom	wise
wish	with	within	without	witness	woman
wonder	wood	wooden	wool	woolen	word
work	world	worm	worry	worse	worship
worth	would	wound	wrap	wreck	wrist
write	wrong	yard	year	yellow	yes
yesterday	yet	yield	you	young	your
youth	zero				

APPENDIX B  
ACADEMIC WORD LIST

### Academic Word List

abandon	abstract	academy	access	accommodate
accompany	accumulate	accurate	achieve	acknowledge
acquire	adapt	adequate	adjacent	adjust
administrate	adult	advocate	affect	aggregate
aid	albeit	allocate	alter	alternative
ambiguous	amend	analogy	analyze	annual
anticipate	apparent	append	appreciate	approach
appropriate	approximate	arbitrary	area	aspect
assemble	assess	assign	assist	assume
assure	attach	attain	attitude	attribute
author	authority	automate	available	aware
behalf	benefit	bias	bond	brief
bulk	capable	capacity	category	cease
challenge	channel	chapter	chart	chemical
circumstance	cite	civil	clarify	classic
clause	code	coherent	coincide	collapse
colleague	commence	comment	commission	commit
commodity	communicate	community	compatible	compensate
compile	complement	complex	component	compound
comprehensive	comprise	compute	conceive	concentrate
concept	conclude	concurrent	conduct	confer
confine	confirm	conflict	conform	consent
consequent	considerable	consist	constant	constitute
constrain	construct	consult	consume	contact
contemporary	context	contract	contradict	contrary
contrast	contribute	controversy	convene	converse
convert	convince	cooperate	coordinate	core
corporate	correspond	couple	create	credit
criteria	crucial	culture	currency	cycle
data	debate	decade	decline	deduce
define	definite	demonstrate	denote	deny
depress	derive	design	despite	detect
deviate	device	devote	differentiate	dimension
diminish	discrete	discriminate	displace	display
dispose	distinct	distort	distribute	diverse



document	domain	domestic	dominate	draft
drama	duration	dynamic	economy	edit
element	eliminate	emerge	emphasis	empirical
enable	encounter	energy	enforce	enhance
enormous	ensure	entity	environment	equate
equip	equivalent	erode	error	establish
estate	estimate	ethic	ethnic	evaluate
eventual	evident	evolve	exceed	exclude
exhibit	expand	expert	explicit	exploit
export	expose	external	extract	facilitate
factor	feature	federal	fee	file
final	finance	finite	flexible	fluctuate
focus	format	formula	forthcoming	found
foundation	framework	function	fund	fundamental
furthermore	gender	generate	generation	globe
goal	grade	grant	guarantee	guideline
hence	hierarchy	highlight	hypothesis	identical
identify	ideology	ignorance	illustrate	image
immigrate	impact	implement	implicate	implicit
imply	impose	incentive	incidence	incline
income	incorporate	index	indicate	individual
induce	inevitable	infer	infrastructure	inherent
inhibit	initial	initiate	injure	innovate
input	insert	insight	inspect	instance
institute	instruct	integral	integrate	integrity
intelligence	intense	interact	intermediate	internal
interpret	interval	intervene	intrinsic	invest
investigate	invoke	involve	isolate	issue
item	job	journal	justify	label
labor	layer	lecture	legal	legislate
levy	liberal	license	likewise	link
locate	logic	maintain	major	manipulate
manual	margin	mature	maximize	mechanism
media	mediate	medical	medium	mental
method	migrate	military	minimal	minimize
minimum	ministry	minor	mode	modify

monitor	motive	mutual	negate	network
neutral	nevertheless	nonetheless	norm	normal
notion	notwithstanding	nuclear	objective	obtain
obvious	occupy	occur	odd	offset
ongoing	option	orient	outcome	output
overall	overlap	overseas	panel	paradigm
paragraph	parallel	parameter	participate	partner
passive	perceive	percent	period	persist
perspective	phase	phenomenon	philosophy	physical
plus	policy	portion	pose	positive
potential	practitioner	precede	precise	predict
predominant	preliminary	presume	previous	primary
prime	principal	principle	prior	priority
proceed	process	professional	prohibit	project
promote	proportion	prospect	protocol	psychology
publication	publish	purchase	pursue	qualitative
quote	radical	random	range	ratio
rational	react	recover	refine	regime
region	register	regulate	reinforce	reject
relax	release	relevant	reluctance	rely
remove	require	research	reside	resolve
resource	respond	restore	restrain	restrict
retain	reveal	revenue	reverse	revise
revolution	rigid	role	route	scenario
schedule	scheme	scope	section	sector
secure	seek	select	sequence	series
sex	shift	significant	similar	simulate
site	so-called	sole	somewhat	source
specific	specify	sphere	stable	statistic
status	straightforward	strategy	stress	structure
style	submit	subordinate	subsequent	subsidy
substitute	successor	sufficient	sum	summary
supplement	survey	survive	suspend	sustain
symbol	tape	target	task	team
technical	technique	technology	temporary	tense
terminate	text	theme	theory	thereby

thesis	topic	trace	tradition	transfer
transform	transit	transmit	transport	trend
trigger	ultimate	undergo	underlie	undertake
uniform	unify	unique	utilize	valid
vary	vehicle	version	via	violate
virtual	visible	vision	visual	volume
voluntary	welfare	whereas	whereby	widespread

APPENDIX C

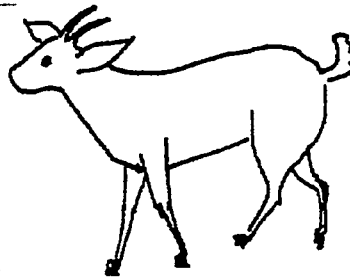
SAMPLE PAGES FROM ENGLISH CURRICULUM

## Read and Draw<sup>8</sup>

---

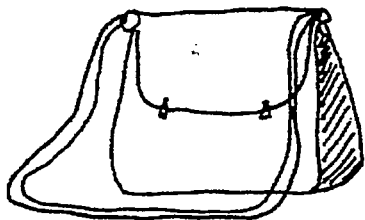
1. Draw two goats.

Colour the big goat brown.



2. Draw two bags.

Colour the small bag black.



3. Draw two snakes.



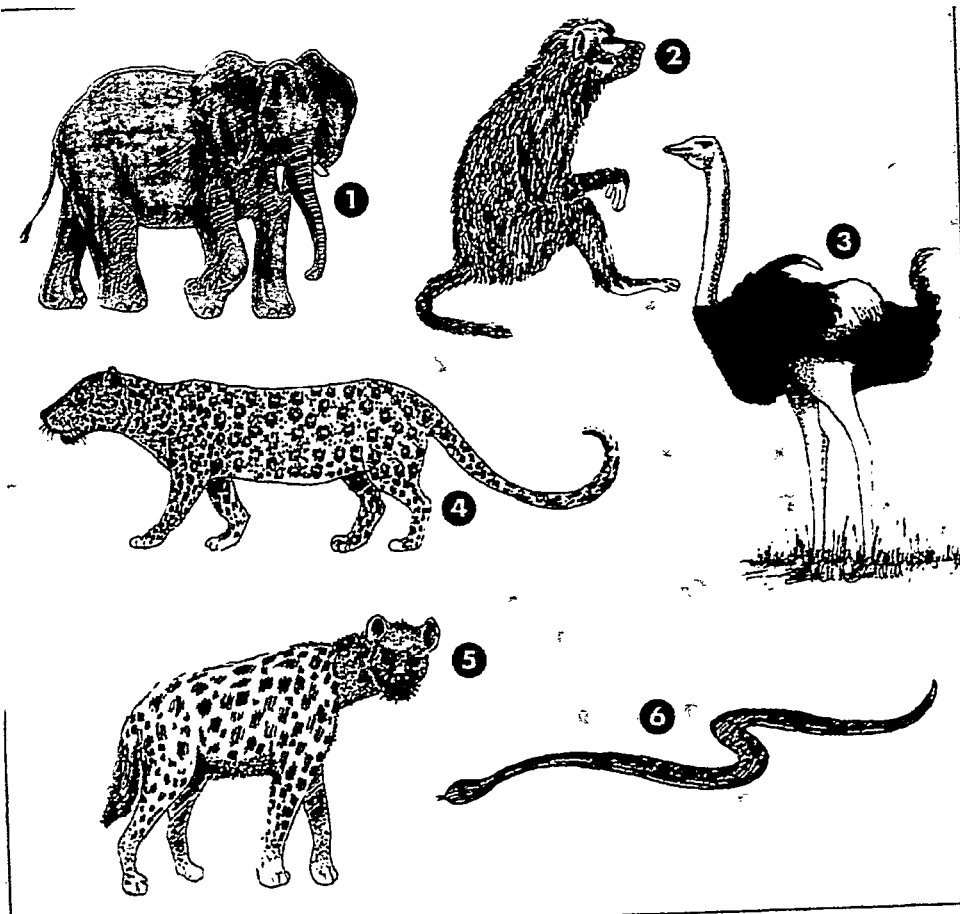
Colour the long snake green.

---

---

## 5. Eritrea's animals<sup>9</sup>

Look at these animals. They live in Eritrea. Do they live near your house? What are their names?



---

### Read, write and match

<sup>9</sup> monkey      snake      hyena  
elephant      leopard      ostrich

---

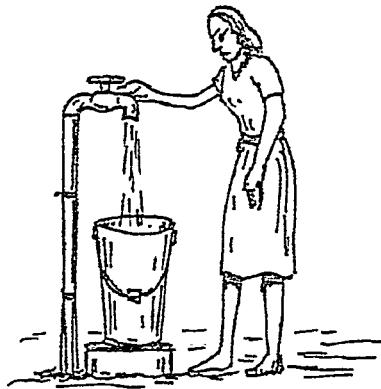
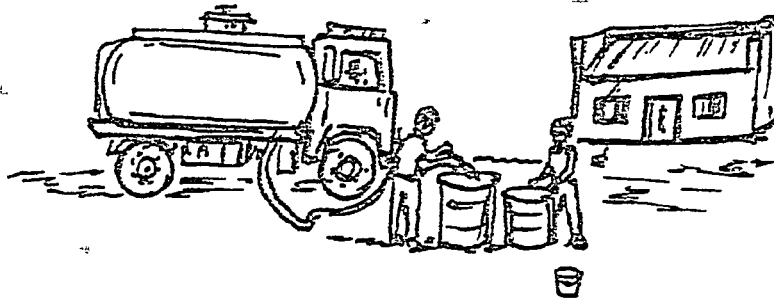
<sup>9</sup> Page from the Grade 3 English book.

---

## Where do you get your water from?<sup>10</sup>

1. These children live in five towns in Eritrea. Can you find the names of the towns quickly?
2. Now find the towns on the map on page 52.
3. Match the children and their picture.

1. We live in Tessenay. We get our water from a water seller. He gets the water from the river. Then he puts the water into big plastic bags and the donkey brings them to our house.



2. I live in a village near Agordat. I get my water from a water hole in the Barkha River. Then I carry the water in a plastic jerry can to my house. The water is very heavy.

---

<sup>10</sup> Page from the Grade 4 English book.

---

## A spelling rule<sup>11</sup>

Look at these words:

one church            two churches  
one bench            four benches  
a bunch of bananas    two bunches of bananas

7. Copy these sentences.

1. There are many mosques and \_\_\_\_\_ in Keren.
2. How many desks and \_\_\_\_\_ are in your classroom?
3. How many children sit on one \_\_\_\_\_?
4. We can see \_\_\_\_\_ of bananas growing on banana trees.

### How to write a letter

Look at this  
letter from  
Saba's brother  
Gere.

Mendefera Elementary School  
Mendefera  
27<sup>th</sup> February  
Dear Samsom,  
Thank you for my new shirt. It is very nice.  
Love  
Gere

1. What is his address?
2. When did he write the letter?
3. Who is the letter to?

---

<sup>11</sup> Page from the Grade 5 English book.



### The Late Stone Age<sup>12</sup>

The ice made life very difficult for Stone Age people. The ice also brought many changes to North Africa. The moisture brought ice to the north (i.e. Europe). This also brought lots of rain to the region now known as the Sahara Desert. This area, then, had plenty of water and was covered with grass. The Early Stone Age hunters followed the animals that moved south to the fertile region.

When the ice finally evaporated, the hunters began to leave the caves and build cooler homes in the open air. The decrease in rainfall caused the Sahara to dry up. Then the hunters had to leave the once fertile Sahara region. The Nile Valley was the only region with plenty of water. Here, the hunters were able to develop faster than those in Europe. They made permanent homes.

The Nile Valley also provided a place for the animals. The hunters were able to catch whole herds in the deep Nile Valley cliffs. Soon, they fenced the animals to get permanent food. People now kept their own flocks and herds so that were always sure of having meat and milk. Cattle raising was added to the work of hunting.

The Nile people soon found another good source of food. For thousands of years the women had gathered certain grass seeds for food. Now they found that if such grasses were planted (see Fig. 7) and watered they could produce more grain. So people settled down to become farmers and settled down in a community (group), living in permanent homes.

---

<sup>12</sup> Page from the Grade 6 History textbook.

When you learn science, you will understand your environment very well. The practical application of science is called **technology**. Most of the materials you use in your everyday life, for example, clothes, shoes, exercise books, pens, pencils, soaps, medicine, cars, radio, houses, etc., are products of technology. Science and technology are important in our every day life and for the development of our country.

### 1.2 The Scientific Method

#### Let us discuss

What do you do when you feel sick? Have you visited a Doctor? What does the Doctor do to give you a medicine? Do you think that the Doctor follows a scientific method or not.

All scientists follow a scientific method. The steps of a scientific method are:

1. **Identify the problem.** He or she has to identify the problem to be studied.
2. **Collect information through observation.** Observation means to see and think carefully. In making observation, we use our senses like seeing, hearing, tasting, smelling and feeling. Scientists write their observations carefully.
3. **Making scientific guess.** A scientific guess is called **hypothesis**. Scientists make a scientific guess based on their observations. A scientific guess (hypothesis) can be correct or wrong. Therefore, it must be proved.
4. **Making experiments.** In order to prove the hypothesis, scientists do experiments. In doing experiments, they make careful observations.
5. **Making conclusion.** Based on the results of their experiments, Scientists make conclusions. The conclusion of the experiment shows whether the hypothesis is correct or not.

Therefore, a scientific method is a method that people follow to solve their problems. To solve any problem, you must follow

---

<sup>13</sup> Page from the Grade 6 Science textbook.

#### 4.2. Factors of Soil Fertility<sup>14</sup>

**CLIMATE:** Climate affects the types of soils and soil fertility. In wet areas, water dissolves soluble minerals like salt. The dissolved minerals sink downwards. They are deposited in the lower part of the soil. The insoluble minerals (iron, aluminum) remain at the top surface of the soil. This makes the soil infertile.

In hot dry climates, evaporation and transpiration exceed rainfall (Transpiration is the loss of water from plants through leaves). The water in the soil moves upwards because of evaporation. Dissolved minerals like calcium move upwards with the water and are gathered in the top soil. This process is called **Capillary Action**. This makes the soil fertile. In extreme cases, evaporation is high; calcium or sodium salt may form hard rocks at the surface. This make the soil infertile.

##### **Biological Factors**

Microscopic bacteria, fungi, worms and plants in the soil die. Their bodies decay and are changed into humus. This increases the fertility of the soil.

#### 5. Soil Profiles

---

If we dig down into the soil, we observe different layers. These differ in texture, colour and chemical elements. These vertical layers are called a **soil profile**. Most soil profiles consist of three layers. These are

- I. top soil
- II. the sub-soil, and
- III. parent rock.;

**I. Top Soil**                      This is the upper soil. It is usually rich in humus. It is darker in colour than the lower soil because of the humus. Plants and crops grow here.

**II. Sub-Soil**                      This is the soil layer below the top soil. It contains soluble minerals washed from the top soil. It is brownish in colour. It contains less humus than the top soil but rich in minerals.

---

<sup>14</sup> Page from the Grade 6 Geography textbook.

**Section B 2 Read = Makes Notes<sup>15</sup>**

**Read these three texts about common insects.**

**The house fly**

The house fly is a common insect. It lives in houses, markets, on farms, in rubbish pits and it eats old food, dirt, and germs. Flies spread diarrhoea, typhoid fever, cholera, dysentery and worms. We can prevent these diseases if we

- use insecticide.
- use toilets and cover them.
- cover all food and wash the plates.
- wash every day
- clean our houses

**The mosquito**

The female mosquito feeds on human blood. The male mosquito feeds on plants and flowers. The female spreads malaria and yellow fever. Mosquitoes are found in both highland and lowland areas. But they do not carry malaria in the highland areas.

We can prevent diseases if we

- clear the bushes near our houses.
- use insecticide.
- put oil on standing water
- use smoke
- use mosquito nets

**The cockroach**

Cockroaches hide in boxes, cupboards, cracks in walls and toilets. They eat almost anything. They eat bits of food left behind. They eat vegetables, bananas, shoes and other things. They also eat sores and cuts and spread diseases.

We can control cockroaches if we

- always wash plates and dishes after every meal.
- clean the house regularly.
- do not leave food out at night.
- use insecticide.
- clean the toilet areas.

But once cockroaches live in a house, it is very difficult to kill all of them.

Copy and complete this table in note form with information from the texts above. Choose the two most important solutions in each case to complete the third column.

Insect	Damage caused	Solutions
house fly	spreads diarrhoea,	1.
		2.
mosquito		1. clear the brush
		2.
cockroach		1. clean the house
		2.

<sup>15</sup> Page from the Grade 6 English textbook.

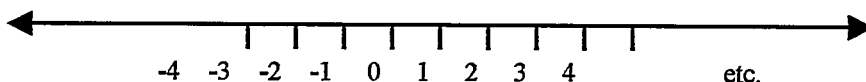
The top number of a fraction is called the numerator. The numerator gives the number of equal parts that are to be taken.

$$\frac{a}{b}$$

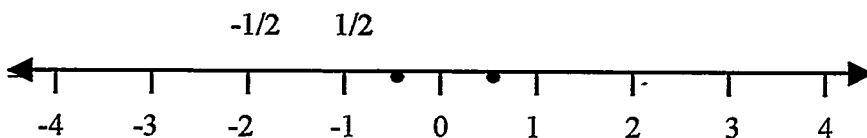
$a$  --- numerator  
 $b$  --- denominator

We can locate the rational numbers on the number line. First label the points corresponding to the set of integers.

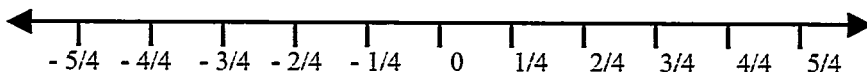
etc.



The positions corresponding to  $1/2$  and  $-1/2$  are equidistant from 0. One is to the right and other is to the left of 0, and each is a half unit distance.



Similarly you can locate other rational numbers as follows:



The rational numbers that correspond to the points to the right of 0 on the number line are called positive rational numbers.

Examples:  $1/4$ ,  $1/2$ ,  $3/4$ ,  $4/5$ ,  $3/2$ ,  $2/3$ ,  $7/3$ , 8, 12, etc. are positive rational numbers.

The rational numbers which correspond to the points to the left of 0 are called negative rational numbers.

Examples:  $-1/2$ ,  $-3/4$ ,  $-5/8$ ,  $-1/9$ ,  $-10/3$ , -3, -5,  $-3 \frac{1}{6}$ , etc. are negative rational numbers.

<sup>16</sup> Page from the Grade 6 Math textbook.

## REFERENCES

- Anderson, Neil. 1999. *Exploring Second Language Reading*. Canada: Heinle and Heinle Publishers.
- Anderson, Richard C. and Peter Freebody. 1981. Vocabulary knowledge. In J. Guthrie (Ed.), *Comprehension and teaching: Research reviews* 77-117. Newark, DE: International Reading Association.
- Anderson, Richard C. and Peter Freebody. 1981. Effects of different proportions and locations of difficult vocabulary on text comprehension. Technical Report Number 202. Bolt, Beranek and Newman, Inc., Illinois University, Urbana Illinois.
- Anderson, R., P. Wilson, and L. Fielding. 1988. Growth in reading and how children spend their time outside of school. *Reading Research Quarterly* 23: 285-303.
- Appel, R. and A. Vermeer. 1998. Speeding up second language acquisition of minority children. *Language and Education* 12:3.159-73.
- Arnaud, P.J.L. and S. J. Sauvignon. 1997. Rare words, complex lexical units and the advanced learner. In Coady, J. and T. Huckin (Eds.).
- Baker, S. K., D. C. Simmons, and E. J. Kameenui. 1995. *Vocabulary Acquisition: Curricular and Instructional Implications for Diverse Learners*. Eugene, OR: University of Oregon, National Center to Improve the Tools for Education, Technical Report No. 13.
- Baumann, John and Brent Culligan. 1995. About the General Service List. online at: [<http://jbauman.com/aboutgsl.html>].
- Bensoussan, M. and Batia Laufer. 1984. Lexical guessing in context in EFL reading comprehension. *Journal of Research in Reading* 7.15-32.
- Bloom, K.C. and T.J. Shuell. 1981. Effects of massed and distributed practice on the learning and retention of second-language vocabulary, *Journal of Educational Research* 74:245-48.

- Carlo, Maria, Diane August, Barry McLaughlin, Catherine E. Snow, Cheryl Dressler, David N. Lippman, Teresa J. Lively, Claire E. White. 2004. Closing the gap: Addressing the vocabulary needs of English-language learners in bilingual and mainstream classrooms. *Reading Research Quarterly* 39:2.188-215.
- Carr, Eileen and Karen Wixson. 1986. Guidelines for evaluating vocabulary instruction. *Journal of Reading* 29:7.588-95.
- Carroll, Davies and Richman. 1971. *The American Heritage Word Frequency Book*. New York: American Heritage Publishing Co., Inc.
- Cho, Kyung-Sook and Stephen D. Krashen. 1994. Acquisition of vocabulary from the Sweet Valley Kids series: adult ESL acquisition. *International Reading Association. Journal of Reading* 37:8.
- Coady, James and Thomas Huckin. 1997. *Second language vocabulary acquisition: a rationale for pedagogy*. United Kingdom: Cambridge University Press.
- Corson, D. J. 1995. *Using English Words*. Dordrecht: Kluwer Academic Publishers.
- Coxhead, A. 1998. *An academic word list*. Occasional Publication Number 18, LALS, Victoria University of Wellington, New Zealand.
- Coxhead, A. 2000. A new academic word list, *TESOL quarterly* 34:2.213-38.
- Cummins, J. 1979. Cognitive/academic language proficiency, linguistic interdependence, the optimum age question and some other matters. *Working Papers on Bilingualism* 19: 121-29.
- Cummins, J. 1999-2003. BICS and CALPS. online at:  
[<http://www.iteachilearn.com/cummins/bicscalp.html>]
- de Bot, K., T.S. Paribakht and M. Wesche. 1997. Toward a lexical processing model for the study of second language vocabulary acquisition: Evidence from ESL reading. *Studies in Second Language Acquisition* 19:309-29.
- Dempster, F.N. 1987. Effects of variable encoding and spaced presentation on vocabulary learning, *Journal of Educational Psychology* 79:162-70.
- Ellis, R. 1990. *Instructed second language acquisition*. Basil Blackwell: Oxford.
- Garcia, G. E. 2000, *Bilingual children's reading*. M.L. Kamil, P.B. Mosenthal, P.D. Pearson, & R. Barr (Eds.), *Handbook of reading and research* 3.813-34. NJ: Mahwah, Erlbaum.

- Goulden, R., I.S.P. Nation and J. Read. 1990. How large can a receptive vocabulary be? *Applied Linguistics* 11.4:341-63.
- Grabe, W. 1991. Current developments in second language reading research. *TESOL quarterly* 25:375-406.
- Horst, M., T. Cobb and P. Meara. 1998. Beyond a Clockwork Orange: acquiring second language vocabulary through reading', *Reading in a Foreign Language* 11:207-23.
- Hu, M and I.S.P. Nation 2000. Unknown vocabulary density and reading comprehension. *Reading in a Foreign Language* 13:1.403-30.
- Huckin, Thomas, Margot Haynes and James Coady. 1993. *Second language reading and vocabulary learning*. New Jersey: Ablex Publishing.
- Kameenui, Edward J., Douglas W. Carnine and Roger Freschi. 1982. *Reading Research Quarterly* 17:3.367-88.
- Laufer, Batia and D. Sim. 1985. Measuring and explaining the reading threshold needed for English for academic purposes text. *Foreign Language Annals*, 18:5.405-11.
- Laufer, Batia. 1989. What percentage of text-lexis is essential for comprehension? In *Special Language: From Human Thinking to Thinking Machines*. C. Lauren and M. Nordman (Eds.). Clevedon: Multilingual Matters.
- Laufer, Batia. 1992. How much lexis is necessary for reading comprehension? In H. Bejoint and P. Arnaud (Eds.), *Vocabulary and applied linguistics*. 126-32.
- Laufer, Batia. 1994. The lexical profile of second language writing: does it change over time? *RELC Journal* 25:2.
- Laufer, Batia. 1997. The lexical plight in second language reading: Words you don't know, words you think you know, and words you can't guess. In J. Coady and T. Huckin (Eds.), *Second language vocabulary acquisition*. 20-34. Cambridge: Cambridge University Press.
- Liu, Na and I.S.P. Nation. 1985. Factors affecting guessing vocabulary in context. *RELC Journal* 16.33-42.
- Marks, C. B., M. J. Doctorow and M.C. Wittrock. 1974. Word frequency and reading comprehension. *Journal of Educational Research* 67:6.259-62.



- Nagy William. 1988. *Teaching Vocabulary to Improve Reading Comprehension*. Delaware: IRA Publications.
- Nagy, William, and Anderson, R.C. 1984. How many words are there in printed school English? *Reading Research Quarterly* 19:304-30.
- Nagy, William, P. Herman, and R. Anderson. 1985. Learning words from context. *Reading Research Quarterly* 20:233-53.
- Nation, I.S.P. 1983a. *Learning and teaching vocabulary*. NZ: Wellington, Victoria University.
- Nation, I.S.P. 1983b. Testing and teaching vocabulary. *Guidelines*, 5 RELC Supplement. 12-24.
- Nation, I.S.P. and J. Coady. 1988. Vocabulary and reading. R. Carter and M. McCarthy (Eds.). *Vocabulary and Language Teaching*. London: Longman.
- Nation, I.S.P. 1990. *Teaching and learning vocabulary*. Boston: Heinle and Heinle.
- Nation, I.S.P. and R. Waring. 1997. Vocabulary size, text coverage, and word lists. N. Schmitt and M. McCarthy (Eds.). 1997. *Vocabulary: Description, Acquisition and Pedagogy*. Cambridge: Cambridge University Press.
- Nation, I.S.P. 2001. *Learning vocabulary in another language*. United Kingdom: Cambridge University Press.
- Nelson-Herber, Joan. 1986. Expanding and refining vocabulary in content areas. *Journal of Reading* 29:7.626-33.
- Paribakht, T.S. and M.B. Wesche. 1997. Vocabulary enhancement activities and reading for meaning in second language vocabulary acquisition. In Coady, J. and T. Huckin (Eds.).
- Pimsleur, P. 1967. A memory schedule. *Modern Language Journal* 51:73-5.
- Qian, David D. 1999. Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *The Canadian Modern Language Review* 56:2.
- Rapaport, William J. 2004. What is the "context" for contextual vocabulary acquisition?, online at: [<http://www.cse.buffalo.edu/~rapport/cva.html>].

- Richek, Margaret Ann. 2005. Words are wonderful: Interactive, time-efficient strategies to teach meaning vocabulary. *The Reading Teacher* 58:5.414-23.
- Saragi, T., I.S.P. Nation and G.F. Meister. 1978. Vocabulary learning and reading. *System* 6:72-8.
- Schmidt, R. 1990. The role of consciousness in second language learning. *Applied Linguistics* 11.129-58.
- Schmitt, Norbert. 2000. *Vocabulary in Language Teaching*. United Kingdom: Cambridge University Press. 122.
- Stahl, Steven A. 1986. Three principles of effective vocabulary instruction. *Journal of Reading* 29:662-68.
- Stahl, Steven A. and Marilyn M. Fairbanks. 1986. The effects of vocabulary instruction: a model-based meta-analysis. *Review of Educational Research* 56:72-110.
- Stahl, Steven. 1983. Differential word knowledge and reading comprehension. *Journal of Reading Behavior* 15.2:33-50.
- Sternberg, R. J. 1987. Most vocabulary is learned from context. M.G. McKeown and M. E. Curtis (Eds.) *The nature of vocabulary acquisition*. Hillsdale, NJ: Erlbaum.
- Sutarsyah, Cucu, Paul Nation and Graeme Kennedy. 1994. How useful is EAP vocabulary for ESP? A corpus based case study. *RELC Journal*. 25:2.
- Takala, S. 1984. Evaluation of students' knowledge of English vocabulary in Finnish comprehension school. *Jyvaeskylae, Finland: Institute of Educational Research*.
- Thomas, W.P. and V.P. Collier. 1997. *School effectiveness for language minority children*. Washington, D.C.: National Clearinghouse for Bilingual Education.
- Walter, Steve and Patricia Davis. 2002 (in press). *The Eritrea NRS*, Asmara, Eritrea.
- Waring, Rob and Misako Takaki. 2003. At what rate do learners learn and retain new vocabulary from reading a graded reader? *Reading in a Foreign Language*. 15:2.
- West, M. 1953. *A General Service List of English Words*. London: Longman, Green and Co.
- Xue Guoyi and Nation, I.S.P. 1984. A university word list, *Language Learning and Communication* 3:215-29.

## BIOGRAPHICAL INFORMATION

The author's first degree was a B.S. in landscape design and urban horticulture from the University of Arkansas at Fayetteville. Gardening is still her passion. There is nothing like getting her hands dirty. In the recent past (1995-2002), she has worked in Cameroon, Africa, with the Anyang people, helping them to produce pedagogical materials for teaching adults and young people to read and training teachers to use the materials. She and her husband presently serve with SIL International in Dallas, TX, and they look forward in the future to another overseas assignment where they can use their gifts to help people in the development of their language for education, as well as helping them with the transition to a language of wider communication.