Literacy acquisition in multilingual Eritrea

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LITERACY ACQUISITION IN MULTILINGUAL ERITREA

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LITERACY ACQUISITION IN MULTILINGUAL ERITREA

A COMPARATIVE STUDY OF READING ACROSS LANGUAGES AND SCRIPTS

PROEFSCHRIFT

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Preface

This literacy acquisition research came in the footsteps of a similar language and education study on Eritrea conducted at the Department of Language and Culture Studies, Tilburg University, by Dr. Chefena Hailemarim. My promoter Prof. Sjaak Kroon and co-promoter Dr. Jeanne Kurvers played an important role in keeping this research interest on Eritrean languages and education policy alive within the Department for the last ten years. Together with colleagues from the University of Asmara, Eritrea, they initiated in 2004 a successful research proposal, 'Literacy Acquisition in Different Writing Systems in Multilingual Eritrea: A comparative analysis', which was funded by WOTRO Science for Global Development, a division of NWO, the Netherlands Organization for Scientific Research, under file number W-39-307. I am grateful for the chance granted to me four years ago to serve as a Ph.D. researcher in this project and for the unreserved support and patient guidance I received from both my supervisors in conducting the research and compiling this final report.

The successful completion of the extensive field research work required by the project was made possible with the assistance provided to me from a number of people in Eritrea. I thank the language and education experts at the Unit of Basic Education in the Ministry of Education, in particular the head of the unit Saleh Idris, the Kunama language panel members John Abraha and Endrias Zenu, Saho language panel members Ibrahim Mohammed and Ramadan Abdella, Arabic language panel head Mohamed Osman Ali, and Mr. Musa Naib, Director General of the Department of General Education. I am also grateful for the assistance provided to me by colleagues from the University of Asmara, Dr. Zemenfes, Dr. Ogbagebriel, Dr. Ghirmai, Robel, Yonathan, Abraham, Woldu, Fish, Nazret, Hagos, Ghirmai and many others.

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My research trips to Eritrea were made much easier due to the excellent skills of management of my close friends Biniam Kahsu and Amanuel Dagnew. I am very grateful for their help. I am also grateful for the companionship of Brikiti Hagos, Daniel (Wedi Keshi), Jemal and others during the gruelling road trips to field sites in remote areas in Eritrea.

Finally, I would like to thank Biniam and Milen and their son Eben and daughter Lihem living in the Netherlands for giving me home away from home on countless weekends of rest from my office duties during the week. I was initiated to life in Tilburg by my friend Mewael, whose social circle at the University of Tilburg openly accepted me the day I set foot in the beautiful southern Dutch city. Thanks also to Daniel Tewolde and Giotom and his family.

Asmara, August 2009
Yonas Mesfun Asfaha

CHAPTER 1

Introduction

1.1 Background

This book is about literacy acquisition and instruction in Eritrea, a multilingual and multiscriptal developing country in the Horn of Africa. A number of comparative studies have been instrumental in illuminating the processes of early literacy acquisition. They have highlighted similarities as well as differences in early literacy acquisition in different languages and scripts and have also enabled researchers to postulate how differences in orthographic and language structures affect the development of reading acquisition (Seymour, Aro & Erskine, 2003; Ziegler & Goswami, 2005, 2006; Frith, Wimmer & Langerl, 1998).

Most of these cross-linguistic studies have been conducted in contrasting cultural and educational systems (as they were mainly done in different countries) and focused mainly on the alphabetic script. However, we know, from ethnographic and anthropological studies, that literacy acquisition and use can indeed be context and culture specific. Many researchers have shown that literacy can have different functions, uses, and modes of acquisition in different cultural milieus (Heath, 1983; Street, 1984; Barton, 2001; Prinsloo & Breier, 1996). Cross-language studies of literacy acquisition rarely compared languages or scripts that are taught in schools within the same or similar socio-cultural contexts (but see Bruck, Genesee & Caravolas, 1997, and Ellis & Hooper, 2001, for cross-language alphabetic literacy acquisition studies within a country). Therefore, there is a need for more cross-linguistic literacy acquisition studies in comparable cultural contexts.

The multilingual literacy instruction in Eritrea provides an ideal context for cross-linguistic and cross-scriptal comparisons of literacy acquisition within a single national curriculum. Eritrea is a new country in the Horn of Africa, which gained independence in 1991 from Ethiopia after a long armed struggle. Eritrea is home to at least nine ethnolinguistic groups (Afar, Bidhaawyeet, Bilen, Kunama, Nara, Rashaida, Saho, Tigre and Tigrinya). The names of the languages that these groups use are identical to the ethnic group names except

for the Rashaida whose language is Arabic. The language policy in Eritrea, which has its roots in the armed movement for independence, provides for instruction of children in their mother tongues at primary school level. This means that all the nine languages of the country are used as media of instruction in the first five years of education all over the country (Hailemariam, 2002). The languages are written in three different scripts or writing systems that have different language units as their basis: the syllable based Ge'ez (used for Tigrinya and Tigre) and the phoneme based scripts of full alphabetic Latin (Afar, Bidhaawyeet, Bilen, Kunama, Nara, and Saho) and consonantal-alphabetic Arabic (which does not indicate all vowels in writing) used for Arabic. Since Ge'ez also contains single consonant letters it is often referred to as 'alpha-syllabic' (Coulmas, 1996). Like in many African countries, English plays a major role in education in Eritrea. Children are first instructed in their respective mother tongues in primary school, having English as a subject starting as of grade 2, and then switch to English-only instruction starting in middle school. This multilingual educational system in Eritrea provides an ideal context for comparative literacy research.

Even when being conducted within a single national curriculum such as the one in Eritrea, comparative literacy studies have to acknowledge other factors that could affect literacy acquisition and instruction in the different languages and scripts under investigation. Researchers have to take into account the social, cultural, and political variables within the research context. The effect of these factors becomes particularly important when literacy acquisition takes place in multilingual contexts (Durgunoglu, 1998; Martin-Jones & Jones, 2000). In fact, it has been argued that the whole issue of multilingual literacy acquisition can only be understood through the use of multiple, i.e., psycholinguistic, anthropological, sociolinguistic and educational, perspectives (Verhoeven & Durgunoglu, 1998). There is no reason to believe that the endeavours of literacy acquisition in Eritrea would be different.

The current research project, acknowledging the possible effects of the different factors, therefore, integrates investigations and descriptions of language policy, social use and values of languages and scripts, and educational resources and teaching methods, in order to complement its central literacy acquisition question. In short, this is a multidisciplinary investigation of literacy at the psycholinguistic, sociolinguistic, and educational studies levels. The approach is also reflected in the diversity of the qualitative and quantitative data collection and analysis methods that were used throughout the investigation.

Before moving to the descriptions of the different studies in the investigation, we take a brief overview of literacy research in order to contextualize the study on literacy acquisition in Eritrea.

Most studies of literacy acquisition, instruction, and use, whether mono- or multidisciplinary and whether cross-cultural or context-based, could be categorized according to one of the two major settings of investigation: the school and the social setting outside school. As will be mentioned later, the settings partly coincide with a division in theoretical positions and approaches to literacy and the methodology of literacy research.

Literacy research in a school setting has mainly focused on the acquisition of reading and writing. Studies on reading range from the acquisition of early reading skills, the processes involved in skilled reading and comprehension, to reading disabilities. Research on writing includes studies of spelling, punctuation, spelling disorders, and writing systems and orthographies (Kamil, Mosenthal, Pearson & Barr, 2000). However, studies on these different facets of literacy or the different areas of inquiry within each facet are not always evenly distributed. For example, reading has received much more attention than has writing or spelling (Vernon & Ferreiro, 2001). On the other hand, there is a wealth of literature focusing on the relationship between phonological awareness (sensitivity to language units such as phonemes and syllables) and early acquisition of reading and spelling skills (Goswami, 2006). This focus has contributed to the production of a big amount of literature that positively connects progress in alphabetic reading with phonemic awareness (knowledge that letters represent phonemes and the ability to blend and manipulate phonemes).

Outside the school setting, literacy research has mostly concerned itself with the social context of literacy acquisition and use. Research in this area has included investigations into the functions of literacy in society, individual and social implications of acquiring literacy, social and cultural uses of literacy, adult literacy, and literacy and new technologies. Researchers here also differ in their positions to different issues and their methodological approaches. For example, one may see the divergent views on literacy, its effects, and how it can be acquired by following the literacy as technological skill and literacy as sociocultural phenomenon debate.

For many decades now it has been argued that literacy is a powerful instrument in the transformation of traditional oral societies into modern literate ones (Ong, 1982; Olson, 2006). One aspect of this transformation was perceived to be the change in thinking and societal organization inherent in the transitions of societies from orality to literacy. Literacy was described not only in terms of the changes it brings to social organization, but also in terms of its effect on thought as literacy's 'documentary' style of organizing routine affects how people think (Olson, 2006). This view of literacy is sometimes referred to as the Literacy Thesis.

Challenging the Literacy Thesis position, however, there are studies, commonly referred to as New Literacy Studies, that have described communities engaged in literacy activities explicitly defying the view of literacy as a neutral, technological skill with a singular and formal mode of acquisition (Barton, 2001; Heath, 1983; Prinsloo, 1999; Street, 2000). These ethnographers have redefined literacy as a social practice, deriving its meaning from the context as much as from the act of reading and writing itself. These studies have been very fruitful in highlighting the social embeddedness of literacy, both in highly literate and in developing countries (Barton, 2001; Prinsloo, 1999; Street, 1984). However, the New Literacy Studies in turn have been criticized as theories too much preoccupied by the local to the point of rejecting the global or external influence in any literacy event (Reder & Davila, 2005).

Studies of literacy in schools and social settings have employed various methods (i.e., the 'procedures and tools' of research) and methodologies (i.e., a broader term that also refers to 'beliefs about the nature of reality') (Baumann & Duffy-Hester, 2002). Some of the methods in both these settings include classroom observations, experiments, ethnography, discourse analysis, document analysis, surveys, (quantitative) meta-analysis, qualitative synthesis, and a mix of these and other methods of data gathering and analysis. Methodologies from different disciplines (anthropology, cultural studies, sociolinguistics, psychology, etc.) have enriched the study of literacy acquisition and use.

Aware of the existence of different approaches to study literacy in the school and outside school settings, this research attempted to examine literacy acquisition through different angles. The research aimed to analyse literacy acquisition in different languages and scripts by incorporating both school literacy acquisition and instruction studies and a survey of literacy values, uses, and attitudes. In this regard, this research on multilingual literacy acquisition, instruction and use in Eritrea can be considered to have acknowledged both sides of the literacy-as-skill and literacy-as-social-practice debate: literacy acquisition as a way of getting access to the written code (three different codes in Eritrea) and literacy as a social practice with different (linguistic, religious, historical, and cultural) factors embedded in and at the same time shaping this practice.

1.2 The current study

This study attempted to combine a comparative literacy acquisition research with educational investigations of literacy instruction in different languages and scripts and a description of literacy uses and values, and an assessment of attitudes towards the languages and scripts of the schools. This section briefly

describes the different component studies of the overall investigation: literacy acquisition, literacy instruction, and social uses, values and attitudes of literacy.

1.2.1 Literacy acquisition

The primary focus of this research is on the acquisition of literacy in different scripts. How do children learn to read and write in the different scripts in Eritrean primary education? A comparative study of children acquiring literacy in different scripts in Eritrea within the same educational context is of interest, mainly because of the difference in phonological status between the syllable (as in the Ge'ez script) and the phoneme (as in the Latin script). Getting access to the phoneme is a well-documented cognitive burden for many children learning to read an alphabetic script, and is considered the most important predictor of reading problems (Byrne, 1998; Goswami, 2000). For non-readers it is nearly impossible to tell how many sounds are heard in a word; the syllable on the contrary is much more easily accessible, even for young children (Wood & Terrel, 1998; Kurvers, 2002).

Compared to alphabetic scripts, the cognitive prerequisites of learning a syllabic script have been poorly investigated, although this might be important in testing the different theoretical positions that are taken in comparative literacy studies and in investigating reading problems (Geva, 1995). Also little is known about the transfer in learning to read from one script to another, especially when the first script is syllabic. Eritrea offers an excellent case to compare the acquisition of literacy in a syllabic script (Ge'ez) with the acquisition of literacy in two different alphabetic scripts (full Latin alphabet and consonantal-alphabetic Arabic), and to study the transition from acquiring a syllabic script to an alphabetic script.

The comparative literacy acquisition study that is reported in this book in chapters five and six investigated the following questions:

1 What are the results of learning to read a syllabic script (Ge'ez) as compared to two different alphabetic scripts (alphabetic Latin and consonantal-alphabetic Arabic)?
2 What learning processes take place in learning a syllabic script as compared to alphabetic scripts?
3 How does learning to read in the first languages relate to learning to read in English as a second language?
4 What is the influence of the first language scripts (Ge'ez, Latin, and Arabic) in English second language reading?

1.2.2 Literacy instruction

Apart from the specific script, literacy instruction could also be considered another factor that might influence literacy acquisition (Ziegler & Goswami, 2005). Little is known about instructional practices and traditions in contexts that are different from the Western-style educational systems. Do differences in scripts in cross-linguistic studies of literacy acquisition mean differences in instructional practices as well? In order to arrive at a more complete understanding of literacy acquisition, the literacy instruction in the different languages and scripts in Eritrea was studied. This investigation aimed at uncovering the literacy instruction approaches adopted, the textbook production principles used, the actual classroom delivery and other issues related to multilingual literacy instruction. Rich experiences of educators that were active during the period of the armed struggle with Ethiopia (Gottesman, 2000) and the availability of such traditional instruction methods as "chanting" after the teacher (Wright, 2001, 2002) make this area of inquiry very relevant in the Eritrean context. Like in many countries, opinions might differ in what would be the optimal method of teaching reading and writing.

Central to the literacy instruction research is the investigation into how children are taught to read and write in the different scripts and languages. A comparative look at the curriculum, the instruction methods used, and the reading materials available is accompanied by classroom observations and interviews with teachers.

The questions in this study are:

1 How are children instructed to read and write in Ge'ez, Latin and Arabic scripts?
2 What are the specific literacy activities and what is their role in introducing beginning readers (grade-1 children) to reading and writing?
3 What teaching methods and materials are recommended in the curriculum and used by the teachers?
4 How do teachers understand the curriculum and what do they think about their own classroom practices?
5 How do observed classroom practices relate to the provisions in the curriculum?

1.2.3 Social values and uses of literacy

The third focus of the research in this study is on how society uses and values the different scripts and languages that are in use as media of instruction in educating children. Although multilingual and multiscriptal literacy in Eritrea is acquired within one national curriculum in the context of the country's mother tongue education policy, this does not mean that literacy is homogeneously valued and used by the country's different ethnolinguistic groups. Not much is

known yet about the functions and uses of literacy, and the values attached to literacy or the different scripts in multiscriptal, multilingual countries, nor about the availability of reading materials or literacy needs of the different groups. Most existing literacy surveys are mainly designed to assess literacy levels (Elley, 1992; OECD, 1995; Murray, 1999).

In the multilingual education context in Eritrea, a survey of literacy use and literacy and script values and attitudes may prove vital not only in assessing the popularity and viability of the language policy but also in understanding the outcomes of the literacy acquisition and instruction studies described above.

The questions in this study include:

1 What are the uses of literacy, and the values attached to literacy in Eritrea's nine languages and three scripts by the country's ethnolinguistic groups?
2 What are the values and attitudes of the different ethnolinguistic groups in Eritrea regarding literacy in general and scripts in particular?
3 How are these values and attitudes influenced by different factors such as religion, educational level, and gender?

By incorporating the study of the social uses and values of literacy into the bigger literacy acquisition and instruction design, the study benefits from literacy research conducted in the school and the social settings. The socio-cultural knowledge from the social uses and values investigation can prove crucial in understanding the results from the literacy acquistion and instruction studies. This investigation into classroom acquisition and social uses and values of literacy partly answers calls for middle ground in the theoretical debate of literacy as social practice and literacy as a skill perspectives (Van Enk, Dagenais & Toohey, 2005).

1.3 Research design

The design of a multilingual and multiscriptal literacy study in a country with nine school languages and three scripts has turned out to be very challenging. The main goal of the multilingual research design was to strive for language and script diversity in the research as far as this was practically possible and empirically sound. This meant including the nine languages in the literacy uses and values study and in parts of the literacy instruction study and five of the nine languages in the literacy acquisition and instruction studies. Reading in English was also part of the literacy acquisition study.

The assessment of literacy values and attitudes in the social setting used a survey questionnaire to consult 670 adult speakers of the nine languages: the syllabic Ge'ez script languages of Tigrinya and Tigre, the Latin script languages

of Afar, Bidhaawyeet, Bilen, Kunama, Nara, and Saho, and consonantal-alphabetic Arabic.

In the instruction study, teachers, curriculum developers, and textbook writers from the nine languages were interviewed to complement a document and textbook analysis.

The classroom based literacy acquisition study, on the other hand, assessed literacy skills in five languages of children from grade 1. To help examine the transfer of literacy skills from the first languages to English as a second language, reading comprehension assessments in mother tongues and English were made in grade 4. The acquisition study covered 37 schools. In nine of these schools, literacy instruction was observed inside the classrooms.

Table 1 presents a general overview of the research design, together with the different research methods in each of the three studies described above. The languages and scripts covered, the number of subjects, and the instruments used in each investigation are separately presented for the three research domains.

Table 1.1: Overview of the different studies in the research project

Domain	Method	Language	Script	Instruments	Subjects
Attitudes and uses	Sociolinguistic survey	All nine	Ge'ez Latin Arabic	Questionnaire	670 adults (70-75 from each group)
Instruction	Interviews	All nine	Ge'ez Latin Arabic	Interview guidelines	30 teachers, education officers, curriculum experts, textbook developers
	Document analysis	All nine	Ge'ez Latin Arabic	Curriculum documents, textbooks, teacher guides	
	Case study	Tigrinya Saho Kunama Arabic	Ge'ez Latin Arabic	Observations, video recording	Sample of 9 classrooms in 9 schools
Acquisition	Reading assessment	Tigrinya Tigre Saho Kunama Arabic	Ge'ez Latin Arabic	Word reading, spelling, comprehension, letter knowledge	Sample of 480 grade-1 students from 37 schools
		English Tigrinya Tigre Saho Kunama Arabic	Ge'ez Latin Arabic	Comprehension	Sample of 254 grade-4 students from 21 schools

The specifics of the studies outlined in this table will be discussed in greater detail in the chapters of this book that deal with these topics.

1.4 Timing and execution of the study

Around the time this research project started in 2004, the Ministry of Education in Eritrea began introducing changes to the curriculum of primary education in the country, including substantial changes in the literacy-teaching curriculum. Starting with grade 1, the methodology, the teacher materials and the materials for the students underwent substantial changes. The textbooks, for example, started to phase out with a new primer introduced in September 2004. New grade-2 textbooks appeared in 2005. This meant there were two sets of curricula at the time of the project (2004-2008), one phasing out and another settling in. These changes have affected the conduct of our study, which created problems as well as challenges and opportunities. Primarily, original research plans had to be changed to accommodate new realities (e.g., changing the grade levels where literacy acquisition data were to be collected). Perhaps the most challenging aspect of the new curriculum was the new Kunama orthography with its new tone diacritics. The literacy acquisition study had to incorporate this aspect in the collection, analysis and interpretation of Kunama data gathered in both the new and old Kunama orthography.

The timing of the project had also its own positive influences on the level of assistance the researcher received. The project enjoyed a maximum level of co-operation from education officials and teachers due to many reasons, one of which was the widely publicized educational reforms initiated in 2003. The government had just declared that the educational system of the last decade was not that effective and acknowledged the need for substantial changes to be introduced. This made it very easy to talk about primary education in Eritrea in a critical way. Teachers, educators, and members of the public were talking openly about the advantages and problems of mother tongue education, the shortcomings of the programs and the changes that had to be made.

1.5 Organization of the book

Owing to the multidisciplinary and multi-method approach this research adopted, most of the chapters in this book can be considered independent reports of the different studies that made up the bigger comparative investigation.

After this introductory chapter, readers are directed to background information on Eritrea in Chapter 2 where brief historical accounts of education, the

language policy and the general language and literacy situation in the country are given. Following preliminary descriptions of the history, the people and the languages of Eritrea, the next section describes the provision of education during different periods in the history of the country. The final part roughly sketches the use of languages and literacy. Chapter 2 provides information on languages and their uses in education and society as a background to the literacy attitudes and use, literacy instruction, and literacy acquisition studies in the rest of the chapters.

The next chapter, Chapter 3, explores the literacy use and literacy and script attitudes of Eritreans from the nine ethnolinguistic groups. This chapter reports on a large-scale sociolinguistic survey that documented the uses of literacy, languages and scripts in their social context on the one hand and the literacy and script attitudes of the different ethnolinguistic groups on the other. The chapter fully describes the survey (subjects, instruments, and procedures) before results on literacy attitudes and values and literacy use are discussed. Understanding literacy attitudes and literacy and script uses will aid analysis of results from the studies on acquisition and instruction of literacy in different languages and scripts as reported upon in the rest of the chapters.

A glimpse of the classroom instruction of literacy in three scripts, is presented in Chapter 4. The first part of the chapter presents analyses of curriculum documents such as language textbooks and teacher guides. In the next section, results from teacher interviews and observations of teachers' delivery of reading instruction to young children in Kunama, Saho, Arabic, and Tigrinya languages and Latin, Arabic, and Ge'ez scripts are compared.

Chapter 5 presents the results of the different reading and writing assessments from the literacy acquisition study. Word reading, spelling and letter knowledge results in different languages and scripts are presented. Analysis is focused on the contrast between the two scripts, syllabic Ge'ez versus alphabetic Latin, and differences in teaching styles within the Latin script languages. The analysis excluded Arabic results due to concerns of comparability (Arabic was found to be the second language to most of the children in the Arabic sample which poorly compared to the samples in the other first languages, i.e., Tigrinya, Tigre, Kunama, and Saho).

In Chapter 6, the transfer of literacy skills from local languages to English literacy is discussed based on results from the literacy acquisition study in grade 4. Results of reading comprehension in Arabic, Kunama, Saho, Tigre, and Tigrinya are compared with results from the English reading comprehension tests. The analysis in this chapter incorporated an assessment of the effect of the poor comparability (i.e., second language aspect) of the Arabic sample.

The final chapter, Chapter 7, strives to build a connected picture of multilingual literacy acquisition by combining the results of the different studies on

literacy acquisition, literacy instruction, social uses and values of literacy, and literacy and script attitudes. In addition to highlighting some theoretical and practical implications of the research findings, this chapter also tries to draw attention to areas where further research may be needed.

The bases for the main four chapters in this book are articles already published or submitted for publication in academic journals. This means that most of the chapters provide the relevant literature, present the methodology and the results, and finally discuss the findings and pertinent conclusions. In order to avoid a restatement of the conclusions of the preceding chapters, the final chapter mainly attempts to develop a thread of connection in the previous chapters that can be used to elaborate theoretical and practical implications of the whole research.

CHAPTER 2

Language and literacy in Eritrea

2.1 Introduction

There are nine officially recognized languages in Eritrea (Tigrinya, Tigre, Afar, Saho, Bilen, Bidhaawyeet, Kunama, Nara and Arabic), which are written in three different scripts (Ge'ez, Latin and Arabic). In addition to their use as languages of instruction and school subjects in primary education, all these languages are also employed to produce daily radio programs by the state broadcast media. Newspapers and television programs in Tigrinya, Tigre and Arabic are also part of the state media efforts. One of the main factors contributing to the prevailing multilingualism and multiscriptalism in Eritrea is its multilingual language and education policy. The policy recognizes the equality of the languages and encourages their use in different institutions. This chapter provides descriptions of language policy, education, and language and literacy use in Eritrea after a brief historical background on the country.

2.2 Historical background

Eritrea is a country in the Horn of Africa, bordering with Sudan in the North and West, and Ethiopia and Djibouti in the South. The country, dry and semi-arid with wetter highlands, has a long coastline along the Red Sea. Eritrea is home to nine ethnolinguistic groups, nine officially recognized languages, three scripts and two major religions of Christianity and Islam. Although the coastal areas of the country experienced Ottoman Turkish and Egyptian rule from the 15th to mid-19th century, Eritrea was formally defined in 1889 when Italy colonized the territory. At the end of the Second World War, the British took over Eritrea replacing the Italians. After ten years of British protectorate, Eritrea was federated with Ethiopia. The federation fell apart in 1962, when Ethiopia declared Eritrea its 14th province. In 1961, an armed movement for independence of the country was started by the Eritrean Liberation Front (ELF). This movement was later dominated by a splinter group, the Eritrean

People's Liberation Front (EPLF). The 1980s saw the intensification of the conflict and in 1991, the war ended, with the EPLF forming a transitional government. In 1993, after a UN sponsored referendum where the majority of Eritreans chose independence from Ethiopia, the country was formally declared a sovereign state.

After few years of peace and relative economic development of seven percent growth in Gross Domestic Product (State of Eritrea, 2005), the country was once again embroiled in a bloody border war with Ethiopia. The war started in 1998 and ended with UN involvement in 2000. The root cause of the conflict, i.e., the border dispute, remains a reason for potential resumption of war since a final ruling from an international arbitration commission has not been fully implemented. This for Eritrea, which blames Ethiopia for the impasse, has been a preoccupation that dictated its economic, political and diplomatic efforts, as can be observed in an extract from a foreword by the Minister of National Development in Eritrea to a 2005 report on the country's performance in achieving the Millennium Development Goals (MDGs). The Minister outlined what the international community's help could be in his country's efforts to achieve the MDGs (State of Eritrea, 2005):

> Eritrea cannot overemphasize its belief that the international community would make a more effective contribution to the achievement of the MDGs in Eritrea through its effort to adjudicate the decision of the Boundary Commission than through the provision of financial resources no matter how large these resources might be. (p. iv)

Estimates (e.g., Alders & Abbink, 2005) put the Eritrean population at 3.5 million. The Tigrinya ethnolinguistic group, mainly Orthodox Christians, form 50 percent of the population. The next biggest group, the Tigre, mainly Muslims, share 30 percent of the population. The rest of the groups are Kunama, Saho, Afar, Nara, Bilen, Bidhaawyeet (formerly called Hidareb) and Rashaida. The languages of these groups are called by the same name except for the Rashaida ethnolinguistic group whose members speak Arabic. Arabic and the languages of the two biggest groups, Tigrinya and Tigre, are Semitic, while Afar, Saho, Bilen and Bidhaawyeet belong to the Cushitic language family. Kunama and Nara are categorized under the Nilo-Saharan language family. Researchers (e.g., Saleh Idris, Head of Basic Education Unit, Ministry of Education, personal communication, 2007; Simeone-Senelle, 2006) are studying Dahalik, a recently uncovered language spoken by a couple of thousands of speakers in the Red Sea island of Dahlak. The ancient language of Ge'ez serves as liturgical language in the Orthodox Church. In addition to these languages, English is used in the educational domains and Italian in limited social circles of

Italian community members in Eritrea. There is one Italian and one English medium international school in the capital, Asmara.

Figure 2.1 shows a map of Eritrea with a rough indication of the geographical spread of the ethnolinguistic groups.

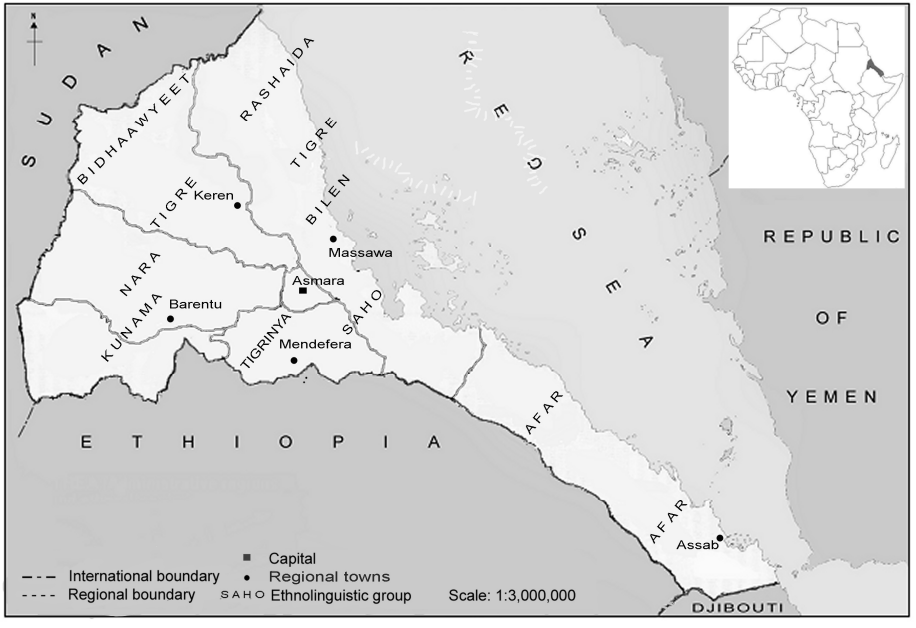


Figure 2.1: The different ethnolinguistic groups in Eritrea (source: Ministry of Education, 1996)

The nine Eritrean languages are written in three different scripts: the syllabic-based Ge'ez script (Tigrinya and Tigre), the full Latin alphabet (Bilen, Bidhaawyeet, Kunama, Saho, Nara and Afar) and the consonantal-alphabetic Arabic script (Arabic). The Dahalik language, which is still under study, has not yet been written. As can be seen from Table 2.1, the languages in the country differ in terms of their rather old (e.g., Tigrinya) versus rather recent (e.g., Nara) written tradition.

Around 80 percent of the population in Eritrea lives on subsistence farming in rural areas. The Tigrinya settlers are mainly sedentary agriculturalists in the highland plateaus of central Eritrea while the Tigre and the other ethnolinguistic groups are mostly herders occupying the western lowlands and eastern coastal areas. The Afar along the southern part of the Red Sea coast engage in fishing, and trade across the Red Sea. The capital Asmara and the sea ports of Assab and Massawa are the major urban centres. The country, with an area of 120,000 square kilometres, is divided into six administrative regions, commonly

referred to by their Tigrinya name *Zoba*. These are Central, Southern, Northern Red Sea, Southern Red Sea, Gash-Barka and Anseba regions or *Zobas*.

Table 2.1: The different ethnolinguistic groups, their share of the Eritrean population, languages, scripts and written histories (sources: Dutcher, 1998; Alders & Abbink, 2005)

Group	Population percentage	Language	Language family	Main religion	Script	Language first written
Afar	6%	Afar	Cushitic	Muslim	Latin	1840
Bidhaawyeet	3%	Bidhaawyeet	Cushitic	Muslim	Latin	2002
Bilen	2%	Bilen	Cushitic	Muslim/Chr.	Latin	Early 19th cent.
Kunama	3%	Kunama	Nilo-Saharan	Muslim/Chr.	Latin	Early 20th cent.
Nara	2%	Nara	Nilo-Saharan	Muslim	Latin	1988
Rashaida	1%	Arabic	Semitic	Muslim	Arabic	10th century
Saho	5%	Saho	Cushitic	Muslim	Latin	Early 20th cent.
Tigre	27%	Tigre	Semitic	Muslim	Ge'ez	1889
Tigrinya	50%	Tigrinya	Semitic	Orthodox-Chr.	Ge'ez	13th or 14th cent.

2.3 Education in Eritrea

The successive Italian, British and Ethiopian rules in Eritrea had their own educational (language) policy. During the Italian rule (1889-1941), education was conducted in Italian and was limited in access to only four years of basic education allowed to native Eritreans. The British rule of 1941-1952 was credited for introducing the major local languages, Tigrinya and Arabic, in basic education and mass media (newspapers). Tigrinya and Arabic were later proclaimed the official languages of the Eritrean government during the federation of Eritrea with Ethiopia (1952-1962). The 1950s were the only time in Eritrea's turbulent history of colonial rule that Eritrean languages were used in education and that Eritreans were in charge of the educational system in their country (Government of Eritrea, 2002). In fact, in the early 1950s, the debate on official languages was the most heated of all the debates at the Assembly in its deliberations of the 1952 Constitution of the Government of Eritrea in preparation for the federal union with Ethiopia (Tesfay, 2005). Different suggestions of official languages were forwarded: Arabic or Tigrinya; Arabic and Tigrinya; Arabic and Tigrinya plus Amharic or English or Italian (Tesfay, 2005). Finally, the two sections of article 38 of the constitution (Eritrean Constitution as cited by Tesfay, 2005) adopted Arabic and Tigrinya as official languages of the government but also stated roles for the rest of the languages:

(1) Tigrinya and Arabic are the languages of the Eritrean government.
(2) As it is the tradition in Eritrea, the languages spoken and written by various groups shall be used in public dealings with authorities; in addition the languages shall be permitted for use in religious or educational affairs and in all purposes of expressing ideas. (p. 172; translation from Tigrinya by the author)

The federal arrangement was formally abolished in 1962 by the Ethiopian emperor who declared Eritrea as the 14th province under the monarchy's administration. Tigrinya and Arabic were replaced by Amharic in education and other public offices. Gottesman (1998) described the situation after the dissolution of the federation as follows:

> Following annexation in 1962, all education decisions were made in Addis Ababa [capital of Ethiopia; author]. The policies of "Ethiopianization" and "Amharization" intensified, the latter becoming one of the factors which awakened national consciousness and united diverse ethnic groups against the imperial regime. In 1963 the Publications Committee [in the Department of Education in the Federal period; author] was abolished and Arabic and Tigrinya textbooks were burned. (p. 81)

During the war for independence, both the major movements (EPLF and ELF) adopted the federation era practice and used both Tigrinya and Arabic in their formal communication and publications (Woldemikael, 2003). The EPLF, the group that later dominated the independence struggle, had a language and education policy that embraced all the languages in Eritrea as equal and promoted their use in education and mass media. Depending on the military balance and the areas under the movements' control, the number of civilian and combatant students attending classes provided by the independence movements varied. Around mid 1970s the EPLF started the Zero School, "a boarding school for orphans, refugees, children of fighters and those who had run away to join the front but were too young to fight" (Gottesman, 1998: 88). The graduates of the Zero School, which started classes in Tigrinya and Tigre, were later to play a crucial role in the 1983-1987 literacy campaign and the national educational program after the liberation of the country. To help them deliver multilingual instruction, the EPLF fighters prepared textbooks in Tigrinya and Tigre; these were subsequently translated into textbooks in Afar, Arabic, Kunama, Nara and Saho (Dutcher, 1998). After the liberation of the country in 1991, textbook production efforts were continued in all languages. For example, between the years 1977 and 1996, the EPLF and later the Government of Eritrea produced about forty educational books in Tigre (Woldemikael, 2003). For some of the languages (e.g., Nara), the EPLF effort to write textbooks in the 1980s was the start of their written history.

After liberating the country in 1991, the EPLF (i.e., the Provisional Government of Eritrea) declared an educational policy based on its independence movement experiences. The authority with which the educational policies were declared by the provisional government was noted by David (2004):

> … the EPLF had been able to hone its educational policies in the liberated areas before 1991, and with the core of the organization forming the provisional government in that year, the government of Eritrea since 1993, an education policy was initiated with some degree of confidence and at some speed. (p. 438)

The 1991 policy document 'Declaration of Policies on Education in Eritrea', which acknowledged the cultural diversity in the country, declared "a new school plan with the specific aim of founding a united, solid and an on-ward looking society" (Department of Education, 1991: 1). The policy reaffirmed that "learning opportunities in the elementary will be given to all nationalities in their own languages." The document also promised further efforts in the commitment of hitherto unwritten Eritrean languages into Latin script and thus declared for "those nationalities, whose languages have no scripts, the EPLF has adopted the Latin alphabet as the medium of reading and writing" (Department of Education, 1991: 1).

The educational policy declaration in 1991 made calls for a redress of the historical inequity in the distribution of education in different parts of the country. In promising education to all ethnolinguistic groups, the document stated that "to eliminate the educational and developmental imbalances existing within the Eritrean society, the EPLF, away from the policies of the colonialists, is extending learning opportunities to these corners of the country hitherto unreached" (Department of Education, 1991: 1).

The 2005 Government of Eritrea report to the UN on the Millennium Development Goals acknowledged that Eritrea was falling behind in two of the eight MDGs (universal primary education and reduction of extreme poverty and hunger). The report was compiled by the Ministry of National Development based on data from the 2002 Demographic and Health Survey, the 2003 Poverty Assessment, and 2003 Food Security Strategy. According to the MDG report, the provision of universal education by 2015 is likely to remain unachievable for Eritrea unless an estimated 1.5 billion USD is spent on basic education in the coming decade (State of Eritrea, 2005).

School distribution and enrolment figures from the Ministry of Education bear similar concerns. According to the Basic Education Statistics of 2002/2003 (Ministry of Education, 2003), elementary education was provided to 359,423 children in 781 schools all over Eritrea in all the nine languages (see Table 2.2).

Table 2.2: Number of primary schools by language of instruction in the country (source: Ministry of Education, 2003)

Language	N schools
Afar	27
Arabic	101
Bilen	30
English	1
Bidhaawyeet (Hidareb)	1
Italian	1
Kunama	22
Nara	17
Saho	37
Tigre	129
Tigrinya	415
Total	781

Despite the small proportion of native Rashaida Arabic speakers, the number of Arabic medium schools is one of the highest in the table mainly due to the existence of Arabic medium schools that cater for Arabic second language speakers from other ethnolinguistic groups. The 2002/2003 statistics put the net enrolment rate, i.e., the enrolment of school age children in primary education expressed as a percentage of the official school age population (*mdgs.un.org*, accessed on 27.11.2008), in Eritrean primary schools at 50 percent. Although improvements in pre-school enrolment and adult literacy rates have been witnessed since then, the net enrolment rate in primary schools still stands at 52 percent, way below many African countries (*Shaebia.org*, accessed on 22.4.2008).

The school system in Eritrea consists of five years of primary education followed by two years in middle school and another four years of highschool. Post secondary education, at the level of certificate, diploma, bachelor's and master's degrees, is provided in technical and vocational schools, a number of newly established colleges and a single university based in the capital. According to the 2002-2003 academic year data, primary education, the focus of this research, is provided by about 781 schools all over the country. Pre-schooling is rare and unevenly distributed in rural and urban areas. However, traditional religious education in both the Christian and Muslim communities, provide informal preparation for regular schooling at the age of 6 or 7.

Teacher training is provided by the Asmara Teacher Training Institute. The certificate program, which runs for one year, covers courses in pedagogy, English language, and in general social and natural science. For potential teachers of recently written languages (all except Tigrinya and Arabic) there is additional language and orthography training in their respective languages. The majority of the elementary school teachers have gone through this training (see Table 2.3).

Table 2.3: Number, qualifications and gender of elementary school teachers (source: Ministry of Education, 2003)

Qualifications	Male	Female	Total
Some high school years (grades 9-12)	613	885	1,498
Teacher Training Institute	3,969	1,798	5,759
University (1-3 years of university)	111	22	133
University (B.A. or M.A. degree)	134	14	148
Total	4,936	2,756	7,692

Teachers are also targeted by regular intensive trainings and workshops on new textbooks, learner-centred teaching methods and orthographies. In 2006, a distance education program supported by UNESCO started to train elementary and middle school teachers on learner-centred interactive pedagogy. The program, through training of trainers, aims to reach around 8,000 teachers (*UNESCO.org*, accessed on 20.2.2006).

The design of the curriculum, the textbook writing and part of the teacher training is conducted by the Basic Education Unit within the Curriculum Department at the Ministry of Education in Eritrea. The Unit has nine language panels that bear the responsibility of curriculum and textbook development and teacher training in their respective languages. The language panels each have a minimum of two professionals that are trained and experienced in linguistics and education. The panel experts participate in the development and revision of the curriculum, textbook preparation, language description, and creation and refinement of orthographies for their respective languages. Some of these activities started during the independence movement.

In 2004, the Government of Eritrea introduced changes to the national curriculum that aimed to "offer a broad, balanced and relevant training provision to all students from kindergarten to secondary education" (Ministry of Education, 2004a: 1). In an interview with a local youth magazine (*Menesey*, 2004), the Minister of Education Osman Saleh provided the rational for the changes:

> The contents of the schooling, especially those of elementary and middle level, were based on the curriculum developed in 1983 in the struggle. From time to time minor changes were made. However, this curriculum has been used for a long time. Because of all these, it has lacked consistency in content. As it was not also student centred, the educational system has led to wide spread wastage and thus change became necessary. Several studies were conducted aimed at improving this. (p. 17; translation from Tigrinya by the author)

The language panels were tasked with preparing the new textbooks for the revised curriculum and the teacher guides that accompanied the books. The

new textbooks that started being produced and used with grade 1 in 2004 have been phasing in one grade level per year with the old ones phasing out of use in elementary schools. Studies and refinements of orthographies of Eritrean languages also coincided with the preparation of the new textbooks in at least the Kunama language program. With the introduction of the new curriculum in 2004, the old Kunama orthography was gradually replaced with a new orthography that has tone diacritics.

2.4 Research on language and education in Eritrea

The language policy of the EPLF and later the government of Eritrea encouraged the use of all languages in the country, some of which were not written or standardized, as they had never being used in schools or other public institutions. This meant that educators in the independence movement and later in the government had to study, codify, and produce textbooks for many of the languages (e.g., Nara in the 1980s and Bidhaawyeet in 2002) (Dutcher, 1998; Saleh Idris, personal communication, 2005). The staff in the language panels at the Ministry of Education have done a number of studies with help from expert consultants from the Summer Institute of Linguistics (at least during the decade between 1996 to 2006). These efforts have enabled the Ministry of Education to commit all the languages to writing and standardize them in a relatively short period of time (Hailemariam, 2002).

Although there are some studies on language and primary education in Eritrea (e.g., Dutcher, 1998; Habtai, 2001; UNESCO, 2000), the large-scale studies to evaluate the mother tongue program (Ministry of Education, 1996) and to assess the national reading levels (Walter & Davis, 2005) are perhaps the most important ones as they were (government sponsored) appraisals of the multilingual education system in the country. The 1996 study to evaluate the mother tongue program included 42 schools from eight languages (except Bidhaawyeet). In addition to interviews with school heads, teachers, parents and students, classroom observations were also conducted. The study revealed that the mother tongue education program has been gradually gaining acceptance with 60 percent of the schools visited choosing the local language as a medium of instruction (Ministry of Education, 1996).

The 2002 national reading survey assessed reading skills in all the local languages (except Bidhaawyeet) and English. The survey measured phonological, reading and comprehension skills of 2,400 students for the tests in the local languages and 1,200 students for the English language tests (Walter & Davis, 2005). Results showed that reading in the local languages progressed slowly in grade 1. Even in the subsequent grade levels the study covered, i.e., grades 3

and 5, reading skills remained poor. English language reading results were also low across all grade levels in the study. The report concluded that despite the success of establishing a national education system in a short period, primary education in Eritrea was not equipping children with the literacy skills needed for education beyond the primary schools. The report concluded that the grade 1 curriculum in particular was in need of urgent revision.

Outside these government sponsored assessments, there are studies (Gottesman, 1998, 2000; Wright, 2001, 2002; Hailemariam, 2002) that investigated different aspects of the multilingual education in Eritrea.

In a historical investigation of the EPLF's 1983-1987 literacy campaign through interviews with 38 ex-fighters, Gottesman (1998) reconstructed the 'inversions' in roles as teachers and students young fighters assumed in advancing "mass literacy, social change and national liberation" (p. 254). Gottesman showed how the fighter-teachers "developed a reflective praxis in which they became students of the communities as well as their teachers" and how this made the fighters "legitimate voices in educational, social, and political matters, so as to make their teaching ability most effective and their knowledge most useful" (p. 254). After liberation of the country in 1991, these teachers formed the core of the educational institutions and the literacy campaign they led can be considered as one of the formative experiences of the Eritrean multilingual educational system (Gottesman, 1998).

In another look at ideological and instructional aspects of language and education in Eritrea, Wright (2002) analysed, through an interpretive ethnography, the social, cultural and historical contexts of English language and literacy teaching and learning. The study showed that teachers practiced traditional teaching methods such as 'chanting after the teacher' despite the recommendations of the English curriculum and advices during their training to avoid local teaching practices. Although the findings indicated "incompatibilities between the recommendations of the English curriculum and teachers' beliefs about appropriate classroom methods", Wright (2002: 7) found out that teachers supported English language teaching in the country.

In a sociolinguistic study of language use and education, Hailemariam (2002) combined data on language use in communities and schools with a critical analysis of the language policy in Eritrea. The researcher analysed policy documents, surveyed language use and attitudes of school children (N=359) and their parents (N=84), and observed teachers deliver lessons in eight classrooms in different parts of the country. The study assessed the implementation of the language policy by analysing language use in and around schools by students, parents and teachers. One of the major findings was that language policy provisions and language use and values matched to different degrees with different ethnolinguistic groups. For example, the study revealed that the

classroom behaviour of teachers and the reported language values of the Kunama community matched more consistently with the visions of the language policy. Hailemariam (2002: 266) noted that in Kunama communities "language-related variables, like the home language, the dominant language, and the preferred language of instruction together with the language of support expressed in parental attitudes, all showed internal consistency" suggesting support for the language policy (see also Hailemariam, Kroon & Walters, 1999).

Although these and other published studies and unpublished reports have dealt with language and education in Eritrea, none of them were primarily concerned with the central multilingual and multiscriptal literacy acquisition theme of this book. However, as will be evident in subsequent chapters, these studies have informed the different studies being reported in the following chapters.

2.5 Language and literacy use

In one of the few studies on language use in Eritrea, Cooper & Carpenter (1976) found out that Arabic, Bilen, Tigre and Tigrinya 'compete' in the market place in Keren, a small town in north central Eritrea (as cited in Hailemariam, 2002). More recently, Hailemariam (2002) revealed that in all the research sites covered in his study (the multilingual towns of Keren, Ghindae, Senafe, Barentu, and the villages of Melebso, Sheab, Igila, Ogana) there was greater mismatch between school and home language use observed in towns than in villages. For example, many of the Tigre, Bilen, and Tigrinya students (N=47) attending Arabic medium school in the town of Keren reported using their first languages with family members and friends only occasionally. While most of the students (N=23) from the village of Melebso reported frequent use of their home language (Tigre) which was also the language of the school.

In earlier publications, we have shown that Tigrinya and Arabic are the working languages in the country, in spite of the fact that the language policy does not recognize official languages (Asfaha, Kurvers & Kroon, 2006). Therefore, Tigrinya and Arabic, as the working languages, and Tigre, as the language of the second largest group in the population, dominate the language landscape in the country. The majority of public, commercial and inter-group communication is done in Tigrinya. The more formal functions in public offices are also mainly done in the Tigrinya language. In some places, an Islamic court ruling has to be translated from Arabic into Tigrinya before being submitted to public offices. Despite its popularity among Eritreans, the frequent use of standard Arabic is only limited to Eritrea's political, business and religious elite. The common use of Arabic in the general public is restricted

to the more colloquial use of the language in the market places and other less formal contexts.

The multilingual scenario in Eritrea also includes wider regional languages. Many educated adults in today's Eritrea have attended Amharic (Ge'ez script) medium schools during the Ethiopian rule, when regular education was only in the official Ethiopian language. The mass literacy campaigns conducted during the last communist regime in Ethiopia also covered Eritrea and used the local languages of Tigre and Tigrinya (McNab, 1990). Arabic is also a regional language spoken by repatriated refugees, who have lived in neighbouring Arab countries, mainly Sudan, where they acquired Arabic as a second language. English enjoys the status of a working language of institutions of higher education and commerce, such as banks and corporations.

The use of written language reflects the diversity in languages and scripts in the country. Although the larger rural parts of Eritrea are not visibly rich in written language, the major urban centres share a better public print atmosphere with street signs, names of businesses and public offices written in three languages (Tigrinya, Arabic and English) and three scripts (Ge'ez, Arabic and Latin). A similar mix of languages and scripts is usually applied to produce handwritten signs, announcements and graffiti on notice boards and walls. For example, the ubiquitous 'smoking is not allowed' sign commonly appears in the three languages (Tigrinya, Arabic and English) and three scripts (Ge'ez, Arabic and Latin). A computer print out has even become a standard item available at stationary shops for sale. More detailed data on literacy and script use were sought through a survey of literacy use and values discussed in greater depth in the following chapter.

CHAPTER 3

Literacy and script attitudes and uses[1]

3.1 Introduction

With respect to literacy acquisition in multilingual contexts, since Unesco's (1953) plea for the use of vernacular languages in education, there seems to be widespread scholarly and societal agreement that becoming literate can best be achieved in the mother tongue (see however Blommaert, 2001). In quite some multilingual countries, this position has led to the establishment of language policies that introduce the learners' mother tongues as a medium of instruction in primary education – with or without the country's offical or working language(s) playing a role. In opting for a mother tongue approach in education it goes without saying that it is not only the spoken but also, and especially, the written language that is introduced. Acquiring literacy is by definition connected with acquiring a certain script. In some cases, for instance when introducing hitherto unwritten languages in education, this might include the selection or development of a script (Cooper, 1989). In all cases, it means the introduction of the chosen script in education. The selection of the language(s) to be included in a mother tongue education policy should therefore not only be based on empirical sociolinguistic data regarding language use and language attitudes but also on empirical data regarding the uses and attitudes connected to literacy and scripts. Compared to the wealth of sociolinguistic language use surveys (see e.g., Extra & Yagmur, 2004) and ethnographic investigations regarding literacy practices in multilingual communities (see e.g., Street, 2001), studies that address attitudes regarding literacy and scripts are still rare. This is despite the fact that in many countries of Africa (e.g., Morocco with three scripts) and Asia (e.g., India with a dozen scripts), multiscriptalism next to multilingualism is a constitutive feature of the linguistic landscape (Coulmas, 1996). It can be said that, for language policies in multilingual and multiscriptal countries to be

[1] This chapter is an adapted version of Y.M. Asfaha, J. Kurvers & S. Kroon (2008), Literacy and script atttitudes in multilingual Eritrea. *Journal of Sociolinguistics*, 12 (2), p. 223-240.

successful, a thorough understanding of uses, attitudes and preferences with respect to literacy and scripts is a conditio sine qua non.

In this chapter, we mainly focus on assessing attitudes and preferences with respect to literacy and scripts in multilingual and multiscriptal Eritrea, put in the context of the country's language policy. Colonial, missionary and modern language and education policies in Eritrea have created legacies of multilingual and multiscriptal literacy use in different domains of life. Therefore, the study also examines uses of literacy by different ethnolinguistic groups. After briefly describing the language policy in Eritrea (see Chapter 2 for details), the research questions and the methodology, the rest of the chapter presents results on literacy and script attitudes and literacy uses.

3.2 Language policy in Eritrea

The essence of Eritrea's language policy, according to Hailemariam (2002: 87), is "its recognition of multilingualism and its decision to deal with the complexities thereof". The country's language policy awards equal status to all nine languages although there is dominance of Tigrinya and Arabic in many contexts of use (see Hailemariam, 2002). This language policy can be traced back to the period of the armed struggle for independence from Ethiopia when freedom fighters used multilingual education "to advance … mass literacy, social change and national liberation" (Gottesman, 2000: 254). The language policy taking shape in the 1980s in the armed resistance was in sharp contrast to the Amharic-only language policy of the Ethiopian government. According to Abbay (2004), the dominance of Amharic became a source of resistance in Eritrea and Ethiopia. The origins of the language policy in Eritrea are not only related to ideology and resistance but also to cultural arguments for uniting diverse cultural and linguistic groups in the country through the use of every group's language in mass media and education (Musa Naib, Director General, Department of General Education, Ministry of Education, personal communication, 2005). The use of Eritrean languages in primary education is also bound up with the pedagogical advantages of teaching children in their own languages as the mother tongue education policy allows members of each ethnolinguistic group to send their children to primary schools with their own language.

Education in the mother tongue, however, has also run into a number of problems. Some of the smaller language communities objected to mother tongue education on the basis of the perceived socio-economic disadvantage that might arise from learning in one's minority language in a globalising world (Hailemariam, 2002). In the early years of the mother tongue education policy, there were also a few examples where communities wanted their schools to

teach the dominant languages (Tigrinya and Arabic) in addition to the mother tongue and compulsory English. This meant that many hours of school time had to be dedicated to language teaching, amounting to a "demanding cognitive load" for students (Dutcher, 1998: 268).

Although the effectiveness of the Eritrean language policy in terms of the reading and writing levels obtained by the students in the different languages has been, for example, assessed by Unesco (2000), empirical data on this matter are scarce. A study on reading and writing abilities in Eritrean languages and English sponsored by the Ministry of Education showed disappointing results (Walter & Davis, 2005). Partly in reaction to these findings, the Eritrean primary education system is being revised as of 2004. Especially the curricula and the teaching methods for beginning readers are undergoing change. There are plans for introducing Arabic as a compulsory subject in Eritrean schools (Musa Naib, personal communication, 2005). The position of Arabic as a second language and its introduction as a subject in the schools appears to be acknowledged also in a recent advertisement of the Ministry of Education (shabait.org, accessed on 28.6.2008) for an Arabic Language Consultant with "10 years experience in preparation of second language materials" and "5 years experience in teaching Arabic Language as a second language or as a foreign language".

The language and education policies of Eritrea have created literacy traditions in multiple languages and scripts. The status and use of the languages and the scripts, however, remains different. The literacy and script attitudes and uses survey was carried out in this multiple language and script reality in Eritrea.

The survey deals with the following questions:

1 What are the attitudes of the different ethnolinguistic groups in Eritrea with respect to literacy?
2 What are the attitudes of the different ethnolinguistic groups in Eritrea with respect to scripts?
3 How are these attitudes influenced by religious affiliation, educational level, and gender?
4 What are the uses of literacy in different languages and scripts by the country's ethnolinguistic groups?

3.3 Method

In answering the research questions, a stepwise procedure was developed, based on a limited number of oral interviews first that were followed by a structured survey questionnaire dealing with participants from all nine ethnolinguistic groups. This section discusses the pre-survey interviews and then

moves on to the subsequent development and administration of the survey questionnaire.

3.3.1 Interviews

At the start of the inquiry, structured interviews were conducted with 25 participants from Asmara, the capital of Eritrea (Asfaha, Kurvers & Kroon, 2006; 2007). The eighteen literates and seven illiterates (mean age 38.72) were mainly from the Tigrinya ethnic group but also included two Tigre and one Afar. Nine of the interviewees were multilingual. The participants differed in age (fifteen were between 18 and 30; eight between 40 and 60; two above 70), gender (fifteen males and ten females), and educational level (five had more than six years of schooling; thirteen had one to six years of schooling; seven were illiterate). Most of the participants were Orthodox Christians; only three of them were Muslims. The respondents interviewed were housewives, business people, students, civil servants and daily labourers. The interviews consisted of a list of open-ended questions. These were asked to trigger different possible answers regarding literacy and script attitudes and uses. We asked questions such as: Is becoming literate important to you? Why, or why not? What would someone benefit from being able to read and write? Could you think of other reasons why people might value literacy? Which script would you prefer to read or write? Which script would you prefer for your language? Why? How often do you read and write? Which languages and script do you use when engaging in writing and reading?

The interviews, which lasted for about 40 minutes each, were conducted in Tigrinya and the research assistants conducting the interviews wrote down the responses.

3.3.2 Sociolinguistic survey

Instrument

The answers given in the pre-survey interviews were used to prepare a questionnaire with sections containing, among others, statements about literacy and scripts that the participants could agree or disagree with and that could be easily administered on a large scale. For example, the literacy attitudes section had the following topics: the importance of literacy, benefits of literacy, reasons for acquiring literacy, and ideas on who should learn to read and write. Each section started with an open-ended question. Participants were allowed to respond spontaneously before the pre-prepared response items were read to them. In doing so we were later on able to compare the reactions to the pre-prepared statements with the spontaneous answers the participants had given. The open-ended questions at the head of each section asked the participants,

for example, to assess the value they attach to literacy (e.g., Why do you think literacy is important?) followed by a number of statements (e.g., Literacy means more success in business). Most of the statements that were listed under the open-ended questions originated from the analysis of the interview data. The first part covered the frequency of uses of literacy in five different domains: work, family, leisure time, religion and citizenship. After one open question for each of the domains (Do you read at your workplace? How often?) a number of possible literacy events in this domain (reading instructions, filling out order forms, etc.) were presented and participants were asked to determine the frequency of use on a five-point scale (not at all, about once a year, about once a month, about once a week, every day). The questions were posed separately for reading and writing. For example: Do you read instructions at your workplace? Illiterate participants were asked to indicate which uses of literacy they made with the help of others (e.g., family members, neighbours, writing shops). The uses part of the questionnaire consisted of 90 items. The second part of the questionnaire was concerned with values of literacy and script preferences. After a first open question the participants had to indicate their agreement with the statements on the literacy attitudes section (e.g., importance of literacy) on a five-point scale (1 = not at all important, 2 = not that important, 3 = somewhat important, 4 = important, 5 = extremely important) and on the literacy uses section (e.g., frequency of literacy use) on a similar five-point scale (1 = never, 2 = once a year, 3 = monthly, 4 = weekly, 5 = daily).

In similar ways, questions on script preference were included in the questionnaire. Before asking questions about the several scripts in use, we checked if the participants knew the three scripts by providing sample texts. Research assistants then asked them what they thought to be the most useful script, how they felt about changing the script of their own language and if it was changed, which script they would prefer.

The questionnaire concluded with a section on the participants' background information such as age, sex, religion, ethnolinguistic group membership, first language, first learned script, number of languages spoken or understood, years of schooling, and self assessed literacy level. Reliability tests of the different parts of the questionnaire all showed a Cronbach's alpha value of above 0.90.

Participants

The survey was conducted with a sample of 670 participants consisting of 60 to 80 individuals randomly selected from each of the nine ethnolinguistic groups. It was possible to identify and list geographical areas (such as districts) predominantly inhabited by one or the other ethnolinguistic group. We then selected towns and nearby villages (to minimize travelling expenses) inhabited by a language group. Inside towns and villages, assistants randomly selected streets

or neighbourhoods and then households to fill a predetermined sample size of speakers of a language. We tried to balance demographic features such as sex, education and religion, which was difficult sometimes. For example, it was hard to find women respondents from the nomadic Bidhaawyeet. Since the survey was meant to get comparable data from all ethnolinguistic groups, some groups are overrepresented in relation to their population share. The percentage of literates (60%) in the sample is also higher than the national literacy rate of 50 percent. An overview of the participants and some of their main characteristics is given in Table 3.1.

Table 3.1: Number of participants, number of literates, mean age, years of schooling and average number of languages spoken

Group	Total	Literates	Age		Schooling		Languages	
	N	N	M	SD	M	SD	M	SD
Afar	61	40	30.49	15.35	6.08	5.15	2.31	1.42
Bidhaawyeet	69	32	41.20	14.69	3.52	4.62	2.41	1.14
Bilen	82	45	40.35	16.45	5.02	5.29	2.63	1.11
Kunama	66	43	35.42	17.01	4.89	4.79	2.06	1.18
Nara	73	39	40.68	14.56	3.70	4.66	2.55	1.48
Rashaida	42	11	44.55	19.87	1.19	2.44	1.10	.30
Saho	80	44	36.81	16.17	4.63	5.37	2.09	1.10
Tigre	95	60	43.15	17.63	5.25	5.16	1.63	.90
Tigrinya	102	81	43.01	16.21	7.77	5.17	1.60	.85
Total	670	395	39.73	16.76	4.97	5.17	2.06	1.19

The mean age of the respondents is 40 with 75 percent of them in the 18-45 age range. This puts many in the era of Ethiopian Amharic medium education, well before Eritrean independence and the wide application of the current mother tongue primary education policy. About 40 percent of the participants never attended school, 20 percent had no more than primary education and the rest had some years of secondary education. These schooling figures correlate highly (Spearman's rho=0.91, p=0.00) with the self-assessed literacy levels that were reported by the participants: illiterates (41%), beginning readers (11.5%) and fluent readers (47.5%). Most of the respondents are multilingual (71%). The bigger language groups, Tigrinya and Tigre, tend to be less multilingual while the rest of the groups have speakers who use more than two languages on average, with the exception of the predominantly monolingual Arabic speaking Rashaida. The majority of the respondents in the sample are Muslims (72%) and about a third (28%) are Christians. Most of the groups are religiously homogeneous, while the Bilen and the Kunama have both Christian (mainly Protestant and Catholic) and Muslim followers (see also background section in Chapter 2). About 60 percent of the respondents are males.

Procedure

The questionnaire was prepared in Tigrinya and administered by trained bilingual and trilingual research assistants who orally translated its content in the mother tongues of the participants. Interpreters were used in limited instances. The research assistants, with demonstrated fluency in both Tigrinya and the target language(s), went through a three-day training that included studying the questionnaire and the interview method, completing sample questionnaires and conducting trial interviews in a village twelve kilometres north of Asmara. The college-educated assistants were mostly from one of the many multilingual towns in Eritrea (Barentu, Keren, Ghindae, etc.), where they acquired their second (Tigrinya) and third (English) languages in and outside classrooms. The interviews started with a brief introduction to the study and a short explanation of the distinction between script and language. Informants were also shown samples of three texts in the scripts of Ge'ez, Latin and Arabic. Each section started with an open-ended question (e.g., What is the importance of literacy?). After each question the assistants waited for a while to allow for spontaneous answers and then read the pre-prepared statements (e.g., Literacy broadens the mind). For each of these statements, participants indicated their response on a five-point scale (see above). Since the five-point scale was not always immediately understood, particularly by older participants, it was explained as often as necessary.

3.4 Results

3.4.1 Literacy attitudes

To get an insight into the underlying patterns of the 32 pre-prepared statements related to literacy in the questionnaire, we used an explorative factor analysis (Principal Component Analysis, with Promax rotation). The screeplot-criterium of the eigenvalues revealed two clearly distinct factors. After leaving out items with factor scores below 0.50, the first factor was left with eleven items, the second with seven (Cronbach's alpha respectively 0.92 and 0.89).

The first factor represents what we called the Intrinsic value of literacy*:* the items highlight the importance of literacy in gaining knowledge and personal enrichment, enabling rational behaviour, and becoming independent. Someone 'who has counted the letters' finds it easier to access knowledge and information and also to distinguish what is good and useful from 'what is harmful' (quotations from respondents in the pre-survey interviews are used with the results from the survey). Factor 2 can be described as the Economic value of literacy: the items loading high on this factor mainly express the value of literacy in acquiring a better job and earning a better income. People expect

literacy to help them move upward in society. Literacy is a gateway to better jobs and thus to better incomes. This may even lead to higher self-esteem ('literates have a better life because they have confidence'). The factor Intrinsic value explains about 36 percent of the variance, the factor Economic value another 11 percent (total explained variance 47%).

As mentioned earlier, we used the spontaneous responses to the open-ended questions as an additional check of our interpretation of this pattern in attitudes. Not all participants used the opportunity to freely respond to the open-ended questions; about 220 answers were recorded. The arguments most frequently given – in various wordings – were the following: becoming a better person (mentioned 62 times), reference to knowledge and information (44), keeping secrets (31), better income (21), better life (12), better job (10). These spontaneously given arguments also reflect the two different values (Intrinsic and Economic) that the factor-analysis revealed.

To compare ethnolinguistic groups, religious groups, males and females and groups with different literacy levels we used the mean scores of the items in the two factors. In the analysis, we used ANOVA and t-tests. The interpretation of a score on a five-point scale as a ratio/ interval variable is widely used in social science research (see Oskamp, 1991). Table 3.2 presents the means and standard deviations of the factors for each of the ethnolinguistic groups. Overall, literacy is highly valued by the different ethnolinguistic groups in Eritrea, both for Intrinsic (mean scores ranging from 4.54 to 4.84 on a five-point scale) and for Economic reasons (mean scores from 3.87 to 4.61).

Table 3.2: Mean values attached to literacy by ethnolinguistic groups

Group	N	Intrinsic value		Economic value	
		M	SD	M	SD
Afar	61	4.60	.42	4.29	.58
Bidhaawyeet	69	4.84	.32	4.61	.58
Bilen	82	4.55	.48	3.87	.86
Kunama	66	4.62	.49	4.21	.73
Nara	72	4.69	.42	4.23	.71
Rashaida	42	4.82	.36	4.53	.61
Saho	78	4.79	.37	4.37	.77
Tigre	95	4.79	.30	4.38	.63
Tigrinya	102	4.55	.38	3.87	.84
Total	667	4.69	.41	4.23	.76

Notwithstanding these overall high scores, the ethnolinguistic groups differ significantly in weighing the Intrinsic ($F_{8,661}$=6.59, p=.000) and Economic ($F_{8,658}$=9.99, p=0.000) values of literacy. Relatively speaking, the Tigrinya and

Bilen showed the lowest scores on both the Intrinsic and Economic values, while the Bidhaawyeet, Rashaida, Saho and Tigre showed the highest scores.

There was no significant difference (t=0.53, p=0.59) between how men and women weigh the Economic value of literacy, but they did differ significantly (t=2.62, p=0.009) on the Intrinsic scale with men producing higher scores. Analysis based on literacy level (illiterates, beginning and fluent readers) revealed significant differences ($F_{2,667}$=11.30, p=.00) on the Economic value of literacy. Illiterates and beginning readers on average attach significantly higher importance to the Economic literacy value than the fluent readers do. There was no difference among the three reading level groups on the Intrinsic scale.

Both groups of Christians (Orthodox and Protestants/Catholics) value literacy lower than Muslims do, but the differences are small and not significant (mean scores on the Intrinsic scale 4.55, 4.63 and 4.73 respectively for Orthodox Christians, Protestants/Catholics and Muslims; on the Economic scale 3.94, 3.92 and 4.35 respectively).

In order to see how literacy attitudes were related to certain aspects of the oral tradition in the communities, we also asked how the respondents felt about oral and written media for a list of activities, domains and institutions. Almost all respondents (98%) said they would like to have the laws of the country in the written code, about 80-90 percent favoured the written mode for customary laws, marriage contracts and inheritance documents. For about a quarter to one third of the respondents, agreements between friends (24%) and folk tales (31%) should remain in the oral mode. In short, many people wanted to use literacy for 'high' applications such as writing the laws of the country but less so for writing, for example, oral folk stories.

3.4.2 Script attitudes

This section first presents the preferences expressed and then looks for patterns in the reasons behind the preferences through factor analysis. In all ethnolinguistic groups, respondents (N=670) differed in their choice of the most preferred script, as can be observed in Table 3.3. More than half of the Afar (50.6%), Bidhaawyeet (59.4%), Nara (60.3%), Rashaida (61.9%), Saho (55%) and Tigre (51.8%) prefer the Arabic script, about half of the Tigrinya (46.1%) and a quarter of the Bilen (25.6%) prefer the Ge'ez script and the Latin script is mainly supported by the Bilen (47.6%) and the Kunama (40.9%). Despite the coinciding character of religious affiliation and ethnic identity in the country (see Table 2.1), a comparison of script and religion reveals a strong bond between the two. The majority of the Orthodox Christians prefer the Ge'ez script, and the Muslims the Arabic script. The Roman Catholics (mainly Bilen with a history of Ge'ez script use before the current Latin) are more divided with respect to the preferences for the Ge'ez or the Latin script.

Table 3.3: Most beneficial script by ethnolinguistic group (percentages, N=670)

Preferred script	Group (actual script)								
	Afar (Latin)	Bidhaa. (Latin)	Bilen (Latin)	Kunama (Latin)	Nara (Latin)	Rashaida (Arabic)	Saho (Latin)	Tigre (Ge'ez)	Tigrinya (Ge'ez)
Ge'ez	6.6	7.2	25.6	19.7	19.2	9.5	18.8	14.7	46.1
Latin	32.8	23.2	47.6	40.9	8.2	19.0	16.3	28.4	30.4
Arabic	50.8	59.4	25.6	25.8	60.3	61.9	55.0	51.6	20.6
Combination	9.8	10.0	1.2	13.6	12.3	9.5	10.1	5.4	2.9

Note: Percentages may not add up to exactly 100% due to rounding

As part of the script attitude investigation, we asked respondents if they would like to replace the current script used by their language by another one. On average, about 75 percent of the participants are not inclined to change their script. The reasons given are different. Some feel that changing script amounts to changing cultural identity. Many see the current scripts as better serving their languages with their easier-to-read and learn or smaller lists of letters. However, about a quarter (23.3%) of the respondents do want to change the scripts currently in use by their respective languages. They are mainly from the Muslim groups whose languages use either the Latin or the Ge'ez script. Half of the Bidhaawyeet (50.7%) and more than a quarter of the Bilen (25.6%), Nara (27.4%) and Tigre (28.4%) participants would like to change the script used by their languages.

Table 3.4 presents the alternative scripts that were proposed by those favouring script change (N=156). Overall, of the 156 participants who prefer script change, 65 percent chose Arabic, about 20 percent Ge'ez and 12 percent Latin. For the Bidhaawyeet, Nara and Tigre groups, the clear choice is replacing the existing script with Arabic. For the religiously mixed Bilen, the choice is between Ge'ez and Arabic.

Table 3.4: Proposed alternative scripts by ethnolinguistic groups (percentages)

Group	Current script	Proposed script change				N
		Arabic	Latin	Ge'ez	No answer	
Afar	Latin	45.5	–	45.5	9.1	11
Bilen	Latin	42.9	4.8	52.4	–	21
Bidhaawyeet	Latin	85.7	11.4	2.9	–	35
Kunama	Latin	46.2	–	53.8	–	13
Nara	Latin	85.0	5.0	5.0	5.0	20
Rashaida	Arabic	–	50.0	50.0	–	4
Saho	Latin	60.0	–	26.7	13.3	15
Tigre	Ge'ez	85.2	14.8	–	–	27
Tigrinya	Ge'ez	30.0	70.0	–	–	10
Mean		65.4	12.2	19.9	2.5	156

Note: Percentages may not add up to exactly 100% due to rounding

Looking for a pattern in the reasons behind script preferences, we analysed the reactions using explorative factor analysis in the same way as we did with the literacy attitude variables. The analysis revealed three major reasons behind script preference: Ease, Wider Use and Familiarity. Leaving out items with factor scores below 0.50, the first factor consisted of seven items, and the second and third factors of four items each. Cronbach's alphas were 0.83, 0.71 and 0.72 respectively, and the total explained variance was 43.8 percent. Participants prefer a script because it is easy to learn or remember ('it has few letters', 'the letters are clear' or 'it is easy to learn'), because it is widely used in the region or because it is familiar ('it is the script of my language' or 'I am used to it'). This interpretation of the main reasons behind script preference is again corroborated by the frequencies of the answers to the open-ended questions. The most frequently given arguments (on a total of 207 spontaneous reactions) mention the fact that the preferred script is widely used (mentioned 76 times), is familiar (44), or is easy to learn or remember (31). Some of the respondents also refer to religious reasons for script preference: 'It is the script of the holy scriptures'.

3.4.3 Literacy use

Of the 670 respondents in our survey 60% (395) were literates although the national literacy rate is estimated at 50%. The results of the analysis of literacy use by literates will be presented in this section excluding the mediated (e.g., parents asking children to read for them) use of literacy by illiterate respondents. The factor analysis (Principal Component Analysis with Promax rotation) with the 90 pre-prepared statements revealed five factors, three of which coincided with the pre-set domains of work, religion and citizenship, while the items in the domains family and free-time together revealed two other factors that could be interpreted as functional and entertainment use of literacy. A cut off point of 0.50 on item loadings was used in deciding which items to keep and which ones to drop from a factor. The reliability of these five categories of uses of literacy was high: work (Cronbach's alpha = 0.87), entertainment (0.93), functional (0.92), religious (0.80) and citizenship (0.84) related literacy.

Workplace literacy entailed routine activities of reading instructions and salary statements, reading and filling in forms, writing notes and performance reports, and signing in for work. Entertainment literacy included reading about sports, working on crossword puzzles, and reading cinema announcements or video subtitling. Functional literacy mainly meant reading public notice boards, street names, bus numbers, advertisements, and writing invitations or memo's to family members. Reading and writing events that have to do with local administrations, elections, tax offices, water and land authorities came under citizenship related literacy. Religious literacy involved mainly reading related to

administration of services and religious classes while reading of religious texts (Bible or Qu'ran) also feature in the list of items in the religious scale.

Table 3.5: Frequency of uses of work, entertainment, functional, religious, and citizenship literacy by ethnolinguistic groups

Group	N	Work		Entertain.		Functional		Religious		Citizenship		Total	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Afar	40	2.30	.89	2.38	.91	2.32	.80	1.99	.68	1.50	.41	2.08	.62
Bidhaa.	32	2.22	.67	1.99	.61	1.83	.50	2.01	.87	1.46	.40	1.86	.47
Bilen	45	1.81	.82	1.99	.86	2.05	.57	1.91	.68	1.43	.36	1.84	.52
Kunama	43	2.03	.90	1.62	.63	1.92	.62	1.94	.64	1.46	.39	1.76	.53
Nara	39	2.31	1.00	1.92	.93	1.84	.69	1.69	.48	1.37	.37	1.74	.58
Rashaida	11	2.15	1.62	1.65	.32	1.76	.53	1.66	.32	1.47	.77	1.64	.42
Saho	44	2.40	.64	1.67	.40	1.82	.34	1.67	.69	1.39	.27	1.71	.34
Tigre	60	1.73	.82	1.84	.76	1.97	.55	1.82	.58	1.42	.30	1.76	.46
Tigrinya	81	2.24	.92	2.07	.77	2.53	.65	1.95	.86	1.56	.38	2.06	.51
Total	395	2.08	.88	1.93	.77	2.08	.66	1.87	.70	1.46	.38	1.86	.52

The overall mean frequency of literacy activity on a scale of 1 (never) to 5 (daily) in all the domains is 1.86. The highest frequency (2.08) is observed in the work and functional literacy domains. In many public institutions, people sign in attendance sheets every morning they come to the workplace. The majority of Eritreans are engaged in agriculture and petty trading or commerce where little writing and reading is going on. However, urban informal sector employees (street vendors of fruits, handcrafts, food, etc.) sometimes use their literacy skills to record their daily sales. The least frequently occurring literacy events are categorized under the citizenship scale (1.46). The frequency of religious literacy is lower than the three other literacy activities but bigger than citizenship related reading and writing. The differences in uses of literacy among the domains are significant ($F_{4,276}$=68.68, p=0.000).

Differences among ethnolinguistic groups in frequency of use of literacy are significant in the domains of work ($F_{8,271}$=2.78, p=0.006), functional ($F_{8,386}$=9.96, p=0.000) and entertainment ($F_{8,386}$=4.11, p=0.000) literacy while those differences among groups in the citizenship and religious reading and writing are not significant. The overall contrast is between the Afar and Tigrinya on the one side and the rest of the groups on the other. The Afar and Tigrinya groups show consistently higher frequencies of literacy activity in the domains of work, entertainment and functional literacy. Tigrinya speakers form around 50 percent of the population in the country. The language group with the next highest number of speakers, Tigre, has among the lowest frequency of use of literacy. In the workplace literacy, Bilen and Tigre have the lowest frequency. In the other two domains (functional and entertainment), where

group differences are significant, the Bilen show a slightly higher mean frequency, while the Tigre ethnolinguistic group has low frequency of literacy use.

As the groups differ significantly in educational level, and because there is a significant correlation between the frequency of literacy use and educational level ($r=0.57$, $p=0.000$), an analysis of variance was carried out with ethnolinguistic group as a factor and educational level as a covariate. The outcomes revealed, as expected, a significant main effect of educational level ($F_{1,373}=123.89$, $p=0.000$), but the effect of ethnolinguistic group also proved significant ($F_{8,373}=3.76$, $p=0.000$). A closer look at the different domains reveals significant differences between the groups ($p<0.001$) in workplace, entertainment and functional literacy activity, not in the other two domains. Analysis of variance with religion as an additional factor was not carried out in view of the intricate relationship between religion and ethnolinguistic identity.

3.5 Discussion

3.5.1 Literacy and script attitudes

Literacy is valued highly by nearly all adults in Eritrea that participated in our study. These positive attitudes apply to intrinsic as well as economic values of literacy. The results show that the material promises of literacy are on average slightly less appealing to participants than the intrinsic benefits of literacy. The relative weights and perceptions of these literacy values are confirmed by the spontaneous arguments the participants put forward in explaining why literacy was important to them. These include, for example, the value of literacy as a basic skill in an age of technology and information, the positive influence of literacy in communicating with people nearby and far away, and the material benefits of literacy.

The perception behind these expressions of values and benefits of literacy corresponds to the view of literacy as a powerful tool that brings positive effects to all who acquire it in whatever socio-cultural context. According to this view, literacy is said to provide independence, rationality, balance, and many similar effects (Ong, 1982; Olson, 2006). The official discourse on literacy in Eritrea, expressed in language and education policy documents, reveals similar perceptions.

Although on average literacy is valued highly, there are some significant differences in the way the different ethnolinguistic groups value literacy. The study revealed a general pattern that relates to the length of the literacy traditions of the groups. Language groups with a relatively longer written history, such as the Tigrinya and Bilen, tend to value literacy less than those with a more recent literacy tradition, such as the Bidhaawyeet and the Nara. The values of literacy

seem to diminish with communities that have enjoyed literacy education for some time and perhaps have not been able to meaningfully reap the promised benefits of literacy. The Tigre, with their relatively long written history and established education, seem to form an exception to this general pattern, but this is probably caused by the lower popularity of Tigre mother tongue education in the Ge'ez script. A number of speakers of Tigre showed reluctance to accept Tigre mother tongue education mainly because the Tigre language, whose speakers are predominantly Muslims, uses the Ge'ez script that is associated with the Orthodox Church in the region.

The above observations seem to be in line with the finding that illiterates and beginning readers value literacy higher (especially its economic rewards) than fluent readers. With more years of literacy education and probably more frequent literacy use, the fluent readers are attracted less by the economic potentials of literacy. Therefore, the social groups with less education and cultural groups with shorter educational histories rate the material values of literacy more generously than their dominant counterparts. The latter might have already experienced what some studies have revealed, i.e., that literacy does not always translate into the better income or the upward mobility in society that many associate it with (Verhoeven, 1994).

Although nearly all participants express positive attitudes towards literacy in general, not all of them are positive about literacy in the specific scripts of their languages. Not all ethnolinguistic groups equally preferred the script that is in use for their language; a quarter of the respondents would even like to change the script used to write their languages. The predominantly Muslim groups, for example, might have religious reasons to prefer Arabic over Latin (the Bidhaawyeet) or over Ge'ez (the Tigre). This finding might confirm Hailemariam's (2002) conclusion that the Eritrean language policy matched least with the values and attitudes of the Tigre.

Currently, all ethnolinguistic groups have primary education conducted in their mother tongues and scripts officially recognised by the country's mother tongue education policy, and all these groups, as we have seen, value literacy highly. A substantial minority (23.3%), however, still opt for script change. For those who would rather have another script for their language and who at the same time value literacy highly, it could well be the case that their expressions of literacy values were in fact referring to literacy in a language (and script) other than their own. This interpretation might be confirmed by the fact that in urban centres where there are choices of different language medium schools, many parents already chose to send their children to the schools with one of the main languages of the country as a medium of instruction (Hailemariam, 2002). In rural areas where the school diversity is limited, some parents may

refuse to send their children to the only available school because it uses a language and/or script they disapprove.

The negative attitudes of some groups towards their own scripts may not be essentially related to the nature of these scripts. The Latin script, which so many Bidhaawyeet in our sample wanted to be replaced by another script, is still popular among other language groups in the country (e.g., the Kunama) and in the region (e.g., the Oromo in Ethiopia) (see Abbay, 2004).

3.5.2 Frequency of literacy use

Compared to many developed countries, the use of literacy in Eritrea is limited. In many cases, the majority of the respondents in Eritrea engage in literacy activity only 'now and then' and a small part, especially the higher educated in urban regions, report 'frequent' use of literacy. The use of literacy is evident in different domains of life categorized here as work, entertainment, functional, religious and citizenship related literacy. Literacy activities in the domains of work, entertainment and functional literacy are higher than those in the religious and citizenship related activities. The fact that citizenship literacy events occur less frequently than the others may signify that civic institutions are less developed compared to other institutions. Religious literacy, which mostly involves reading related to administration of services and religious classes, is also low in frequency although higher than citizenship literacy. Religious texts are in the classical languages of Ge'ez and Arabic and rarely in local vernacular languages. Proficiency in these classical languages is limited to religious leaders and is rare among the general public. This partly explains the low frequency of religious literacy, which barely covers reading religious texts.

Ethnolinguistic groups differ on how frequently they used literacy and on how they viewed its value. Group differences were significant in uses of literacy for workplace, entertainment and functional purposes. The Tigrinya, and to a lesser extent, the Afar, with higher mean frequency of use of literacy, have a comparatively long literary history. Longer written traditions could translate into higher percentages of schools in the language communities or even a larger body of written material in the group's language. A simple observation of the print atmosphere in the country reveals that there is greater availability of written materials in Tigrinya, spoken by half of the population, which is widely used in public offices, commerce and inter-group communication. Those literacy activities, classified as workplace, functional and entertainment would usually be conducted in Tigrinya language and Ge'ez script as most of the limited print material is only available in Tigrinya using Ge'ez script. Not all the ethnolinguistic groups with a comparatively long literary history show more frequent use of literacy. Tigre, and to a certain degree Bilen, with written histories comparable to that of Tigrinya and Afar, have lower frequencies of

literacy use in most of the domains. One of the reasons for this, especially in the case of Tigre, could be the lower sociolinguistic acceptance of the script used for the language, exemplified by the substantial percentage of people (28.4%) wanting script change.

Results of questions on reported use of scripts show the prevalence of Ge'ez and the lack of any meaningful application of the Latin script in the different domains of life. Until now, except for English in some domains, the Latin script is barely used outside the schools in Eritrea. Despite this and its lower popularity among at least some ethnolinguistic groups, current policy promotes Latin-based orthographies for use in education for many of the languages in Eritrea. According to education officials it might be possible that with time and more resources spent on developing the orthographies, the Latin script in the country would gain more visibility and eventually greater acceptance (Musa Naib, personal communication, 2005).

3.5.3 Implications

This study was carried out against the background of the current Eritrean language policy. The participants' literacy and script attitudes can be considered an implicit evaluation of this policy. We found general approval of the policy: more than 75 percent of the participants approved the languages and scripts that the policy prescribes in education. Only a minority of the participants (less than 25%) seemed to disapprove the policy. Within this minority mainly Muslim groups whose languages happen to be written in the Latin alphabet showed limited approval of schooling in their own languages and scripts. Some of these participants even choose to send their children, as far as it is possible, to dominant language medium schools. As we have seen, the reasons for this choice may vary, including religiously, culturally and economically motivated preferences for a certain language or script.

The outcomes of our study could be of use to policy makers and educators who are concerned with raising public acceptance of the languages and scripts in primary education and society at large since they not only indicate where the least support for certain scripts comes from but also highlight the reasons for some of the poor acceptance rates.

Our findings may prove helpful in understanding and improving lower classroom achievements in many of the schools within the multilingual education system in Eritrea. They could help in designing interventions directed at increasing public support for multilingual primary education or even finding ways of improving rural school enrolment and success. A central aspect in this context is the need to cater for the visibility and availability of minority languages and their scripts in governmental institutions and the public sphere at large. Becoming literate in a language, as the Eritrean mother tongue education

policy aims at, only leads to a solid and permanent use of literacy if this very language is publicly available, i.e., if there is something to read in it (Kumar, 2004: 720). Our research shows that this especially applies to the Eritrean languages that use the Latin alphabet, i.e., Afar, Bidhaawyeet, Bilen, Kunama, Nara, and Saho.

In general our study shows that in multilingual and multiscriptal contexts the selection of a script for hitherto unwritten languages should assess the prevailing script and literacy attitudes of its users. Sociolinguistic investigations that (should) commonly precede the selection of languages for introduction in education, therefore, apart from language use and language proficiency data (Hailemariam, 2002), also have to include empirical data on attitudes to literacy and scripts.

Although the outcomes of the survey should not be read as representative of and generalisable for the whole of Eritrea, we think that an understanding of the different literacy and script attitudes, values and uses that we were able to show in the different ethnolinguistic groups could contribute to an improved formulation and implementation of Eritrean language policies in education, ultimately leading to improvement of literacy levels in the Eritrean population at large.

CHAPTER 4

Literacy instruction in three scripts: Curricula, materials and classroom practices

4.1 Introduction

One of the main objectives of the research is a comparison of literacy instruction in the different languages and scripts in Eritrea. In a country with multilingual and multiscriptal basic education, it is important to ask what are the similarities and differences in introducing beginner readers to literacy teaching in different languages and scripts. This chapter deals with the comparisons of classroom delivery of literacy instruction to first graders in Latin, Arabic and Ge'ez scripts of Kunama, Saho, Arabic and Tigrinya. The choice of these languages to represent the three scripts was dictated by a number of reasons. The Kunama and Saho languages were chosen to represent Latin script as the instruction programs in these languages are relatively well established compared to the rest of the Latin script languages. Similar reasons apply to the choice of Tigrinya over Tigre, both using Ge'ez script. Arabic is the only language that uses the consonantal Arabic script. Additional data from Saho instruction (on top of those from Kunama instruction) were sought as a new tone orthography was being introduced in Kunama schools at the time of the field work.

A study on current literacy instruction in Eritrea has to acknowledge a convergence of at least three traditions or influences. Primarily, the influences of traditional instruction, exemplified by the ubiquitous presence of teaching methods such as "chanting after the teacher" need to be fully understood (Wright, 2001). Secondly, we have to acknowledge that the current education system is based on the educational programs stemming from the independence movement whose main actors after the country became independent were responsible for the design and running of the curriculum (Gottesman, 1998). These same former fighter-educators, who are running most of the basic education system in Eritrea, are now also entrusted with transforming or modernizing the curriculum. This third line of influence, i.e., the new changes to the curriculum introduced in 2004, has resulted in revisions of the old textbooks and teaching methods. Before focusing on the results from the classroom ob-

servations conducted in 2006, the curriculum, together with a brief introduction of the literature and methodology, are presented.

The two most important aspects of literacy teaching are the content of the instruction and the methods used to teach the content (Hurry, 2004). Trying to explore these two interrelated facets of teaching reading leads one into the heated debates of phonics versus whole language approaches, which are mainly taking place in the English speaking world. The phonics approach tries to impress on the child the sound-letter correspondences that would enable the beginner reader to decode words and eventually texts. On the other hand, the whole language approach allows children to "read" (or get exposed to) texts or words repeatedly that they eventually learn to read. As Froese (1990: 2) argued, the latter is a "literature-based approach to language and teaching that immerses students in real communication situations" (as cited in Evans, Fox, Cremaso, & McKinnon, 2004).

The differences between the whole language and phonics approaches are attributed to the perceptions of the process of reading as top-down ('deriving meaning from print') and bottom-up ('recoding of print into phonological code to process meaning') (Evans *et al.*, 2004). Behind each of these approaches are also assumptions about the learning processes and the role of the teacher. Hurry (2004) explained these assumptions as follows:

> Those who teach phonics consider that children can learn and benefit from adult taught rules. Those who promote the whole language experience argue that the teacher's role is to expose children to a good learning environment. They consider that the abstract learning of decontextualised skills is of very limited value as they are difficult for children to apply in the practical settings of their own work. These two models of learning map onto the classic dichotomy of adult-led versus child-centred teaching. (p. 558)

Choosing one or the other approach means deciding on the content of the curriculum. While a phonics based curriculum might include teaching letter-sound correspondences, recoding words and non-words, and blending of sounds or syllables, a whole language teaching approach on the other hand might be centred around 'reading' meaningful texts, i.e., content materials such as stories that a child or a group of children could 'produce' on the blackboard.

Although it may be hard to find a consensus on the debate, there is growing evidence that suggests a fair amount of phonics teaching combined with whole language methods might be the most effective. It is no longer viable for the proponents of a whole language approach to argue that letter-sound correspondences are not important; supporters of phonics have also to see the benefits of "contextualization and a certain amount of 'metalevel' teaching" in phonics decoding (Hurry, 2004: 570).

This debate on phonics or whole language approach in teaching was part of the discussions at the Ministry of Education in Eritrea during the curriculum revisions in 2004. The phonics traditions of teaching reading in Eritrea were challenged by the new whole language input from the language panels and expatriate experts from the Summer Institute of Linguistics International and other consultants. For example, Kjertmann (2003: 60) suggested "a shift from the present skills approach with emphasis on a technical-alphabetic entrance to the written language, to the whole language approach, the early use of reading and writing linked to children's real life situations." On the other hand, Wright (2002) cautioned against overlooking traditional instruction methods such as "chanting", which in a literacy instruction context might be leaning towards skill based drills.

Within the context of the revised curriculum in Eritrea, this chapter examined the literacy instruction curriculum and its implementation in classrooms. The focus was on the curriculum, its delivery in classrooms, and teachers' views on the teaching materials and the methods adopted. The goal of this investigation was to compare similarities and differences among classroom practices in the Ge'ez, Latin and Arabic scripts. The study aimed to describe how beginner readers in grade 1 are introduced to the written languages and are taught the basic letters or syllable symbols in the different scripts.

The main questions in the study are:

1 How are children instructed to read and write in Ge'ez, Latin and Arabic scripts?
2 What are the specific literacy activities and what is their role in introducing beginning readers (grade 1 children) to reading and writing?
3 What teaching methods and materials are recommended in the curriculum and used by the teachers?
4 How do teachers understand the curriculum and what do they think about their own classroom practices?
5 How do observed classroom practices relate to the provisions in the curriculum?

4.2 Method

In exploring these research questions, the study used the methods of document analysis, classroom observations and teacher interviews.

4.2.1 Document analysis

The document analysis included examining the grade 1 literacy instruction materials (primer), the teacher guides, the syllabus, and interviewing those responsible for preparing these documents, mainly the textbook writers. The textbook analysis covered the materials in Ge'ez, Latin, and Arabic scripts and Kunama, Saho, Tigrinya and Arabic languages that primary schools used. The teacher guides in each of the languages were translated back to English to form a single document with sections explaining what is unqiue in the guides of each of the languages.

4.2.2 Observations

Classroom observations were used to examine how children are first introduced to the written language in different languages and scripts. The classroom observation study documented the methods, teaching materials and teaching styles teachers use in their effort to teach beginner readers in grade 1 the basic literacy skills of letter, short word and sentence reading and writing. Observations focused on prominent literacy events (Street, 2000) like the introduction of new letters, teaching and learning the script principle, writing letters, syllables and words, and other related instructional interactions. Ethnographic data gathering tools such as video recordings and observation notes of reading or writing lessons were used to document what was going on in the classrooms. The observations went on for one week in each classroom and covered the 40 minutes contact session every school allots daily to a language class.

The observations, conducted from November to December 2006 in nine schools with four different languages as media of instruction, covered three classrooms for every script (three Arabic, three Tigrinya, two Kunama and one Saho). The schools, public or state-owned and private, were located mainly in urban and semi-urban areas with only two of the schools (one Saho and one Tigrinya) located in rural villages. In some aspects, the observations were simultaneous, taking advantage of the morning and afternoon shift system, where, due to shortage of classroom space, different groups of children utilize the same school facilities during different shifts. Fore example, the two Tigrinya and one Arabic classroom observations in Asmara were conducted in mid November in the same week by appearing in one school in the morning and in the other school in the afternoon of the same day. The two Arabic schools in Ghindae and the Saho school in a village nearby were visited two weeks after the observations in the schools in Asmara. A week after that, the two Kunama schools in Barentu were visited for a final week of observations in December 2006.

After informing the school administration about the study and submitting to them the letter of support from the Ministry of Education central office in the

capital, we randomly selected a classroom in one of the sections of grade 1 for observation in each of the nine schools. The school director provided us with the necessary information about the class we were about to observe. This included the number of students, the ratio of male and female students, ethnic identity of the children, the distances students travel to reach school, etc. After a brief introduction with the classroom teacher, the principal researcher and one or two of the assistants entered the classroom. They introduced themselves to the students and informed the class that they will be using the video recorder. In briefing the teachers about the purpose of the study, it was stressed that the study was independent and that teachers should as much as possible try to carry on with their activity as they would normally do. At the start of the week-long observations, all the classes were six to eight weeks into the first semester of the academic year. Most of them had only covered the first few letters in the alphabet or the syllabary.

By the end of the week-long observations, a large amount of ethnographic data was collected. This included video films, field notes, and a 'transcription' of classroom literacy instruction events (in research assistants' notes). The research assistants, who were university graduates and fluent in the languages of the classrooms being observed, were encouraged to note the details of any literacy instruction event and were able, in most cases, to get nearly complete transcriptions of the classroom discourse that was limited in interactions between teacher and students. These notes from the assistants were always compared with those from the principal researcher in discussions after each classroom observation. These discussions led to many questions that were directed at the teachers observed or a member of the Curriculum Department from the Ministry of Education. For the purpose of preparing this chapter, analysis of the video tapes was limited to occasional viewing to fill any gaps from the field notes.

The data analysis looked for insights at the meeting point, i.e., the classroom, of the curriculum, its content (e.g., textbooks) and the teachers, as the implementers of the curriculum with their own views and their own practices, along with the children making an effort to learn for the first time a new code, i.e., the written language. Crucial moments or events in teachers' instructions, explanations of reading and writing tasks, children's reactions to the tasks, observed difficulties, mistakes, and other events during instruction were analysed by using key incident analysis (Kroon & Sturm, 2000).

4.2.3 Teacher interviews

Teacher interviews were conducted to find out how teachers understood the curriculum and its methods. An interview guide was prepared that included questions regarding the teacher's background (e.g., Do you have any teacher training?), instructional practice (e.g., How do you teach a new letter or *fidel* symbol of the Ge'ez script?), learning processes (e.g., What kind of mistakes do children make?) and teaching materials (e.g., Is the new teacher guide clear to you?). Questions also covered multilingualism in the classroom and the teacher's use of literacy and scripts outside the school.

About 30 teachers from the nine languages of instruction were interviewed. In this chapter, only the views of ten teachers from Kunama, Saho, Tigrinya and Arabic schools in the observation study are used. Eight of these teachers interviewed took part in the classroom observations. Two teachers from the observation study schools were interviewed although their classes were not observed. Two of the ten teachers observed were not available for teacher interviews. In addition to the questions from the interview guide, teachers participating in the classroom observations were also asked questions arising from their observed classroom activities. Teachers also commented on their students' progress in reading and writing. Members of the curriculum team at the Ministry of Education in Asmara, who are responsible for preparing the textbooks and teacher guides, were also consulted after the classroom observations were concluded. The curriculum officials were also asked about specific questions that arose from the classroom observations.

4.2.4 Limitations

Although we have explained the purpose of the study of classroom observation of literacy instruction to the teachers and urged them to behave naturally, we acknowledge that in some cases teachers' behaviour might have been affected by our presence. For example, at the end of the week-long classroom observations, a couple of teachers asked the research assistants how they and their classrooms faired in the observations. One of these was a Saho teacher who asked in Saho: "*Carha Micino* (did we look good)?" In a few other schools, there were instances where students shouted at the teacher "we've already done this" suggesting the teachers repeated lessons to perhaps impress the observers or avoid potential embarrassment with weak student performance. As the observations were done for one week, the effects of observations or repeated lessons, however, might be minimal.

4.3 The literacy curriculum in Eritrea

4.3.1 Curriculum revision

The primary education curriculum in use at the time of Eritrean independence in 1991 was heavily dependent on the independence movement curriculum for children of the fighters and young members of the movement at the Zero School and lessons drawn from the 1983-1987 literacy campaign (Gottesman, 1998). After some changes since 1991, the Ministry of Education announced a major revision in 2004. The reasons behind the changes were mainly the 'inconsistency in the content' of the old curriculum and the 'wide spread wastage' of the educational system (*Menesey*, 2004). However, the subject of this investigation is the revised curriculum as the old one has started to phase out during the 2004-2005 academic year.

The curriculum revisions introduced in Eritrea in 2004 came in the footsteps of a number of findings from different studies into the achievement levels, instruction methods, teacher training, and other areas of instruction (e.g., Dutcher, 1998; Habtai, 2001; UNESCO, 2000). Like many of these studies, the Eritrean Reading Survey in 2002, sponsored by the Ministry of Education, revealed poor learning results among primary school children (Walter & Davis, 2005). The results, for example, showed that the reading skills (in the local languages and English) of students were lagging two to three years behind grade-level national standards. The study recommended changes to the curriculum, in particular to the grade 1 curriculum.

The task of revising the primary education curriculum rested with the Unit of Basic Education at the Ministry of Education. The unit's nine language panels were instructed to produce the primary schools teaching materials in their respective languages. The debate on phonics or whole language approach mentioned at the start of this chapter was one of the challenges that had to be faced by the Unit of Basic Education. The suggestions for adopting the whole language approach were coming from some of the language panels and expatriate experts from the United States and Europe. The tradition in Eritrea until that time was mainly a phonics-learning practice of drilling and chanting of letters and words. There were heated discussions during consultation workshops with teachers on the whole language approach before the Unit decided in favour of combining the more traditional drill oriented phonics teaching method with the whole language approach. According to the Head of the Unit (Saleh Idris, personal communication, 2005), the reason why the Unit chose this combined approach of phonics and whole language was because teachers and some language panel members showed resistance to an exclusive whole language approach replacing the traditional phonics approaches. Educators criticized the whole language method's emphasis on language (a skill 'that

children already know") and they felt that children would progress only slowly in memorizing and reciting the letters in the alphabets and the syllable symbols.

4.3.2 Expected outcomes

According to the Ministry of Education (2004b), the new curriculum attempts to go beyond the old one's emphasis on memorization and decoding of simple words. The new curriculum views reading not only as a technical skill that students have to be drilled in but also as a way of further developing their language skills and independent appreciations of literary and informational texts. Elementary school students are expected to develop skills in "speaking, listening, reading, writing and other language skills" beyond memorization of "letter sound correspondence and decoding single words". Even as early as grade 1, students are expected "to develop their oral language and communication skills and move to becoming independent readers and writers" (Ministry of Education, 2004b: 2).

Within these broader reading outcomes outlined, the Ministry of Education (2004b) expected the following specific results with students at the end of grade 1:

- Phonological awareness
  - Understand the connection between print and spoken language;
  - Understand the letter sound relationship;
  - Name the letters in the right alphabetical order;
  - Decode written words.
- Reading and comprehension
  - Read texts fluently;
  - Understand texts;
  - (As a result of comprehension) ask questions, retell stories, infer and predict.
- Writing
  - Differentiate between words, sentences, and paragraphs;
  - Master the left-right (or right-left) and top-down directions in writing;
  - Write complete sentences;
  - Produce connected and meaningful writing.
- General
  - Relate experiences with ideas from texts;
  - Differentiate stories, poems and information texts.

4.3.3 Literacy instruction materials

The revision of the primary education curriculum in 2004 meant the design of new teaching materials to replace the existing textbooks that date back to the time of literacy instruction programs in the independence movement. The new

curriculum incorporated extended content materials and new teaching approaches and styles. In place of the single student textbook that dominated instruction until 2004, students now have three books (an alphabet book, a work book and a reading or story book) to help them begin reading in grade 1. The Ministry of Education insists that a mix of skills and whole language approaches guide the preparation of the books compared to skills oriented traditions that dominated textbooks in the past. Teachers are encouraged to use learner centred activities outlined in the teacher guide, which was not available in the past.

According to the Ministry of Education (2004b: 2), the alphabet book "is designed to teach children how to read and write by combining both phonics and whole language approaches". The book introduces children to the letters or syllable symbols. Students are introduced to the most frequent letter first (and then the rest of the letters) through an association of the letter with the name of an animal or object in a picture. The pages present repeated examples of simple words containing the letter in focus, with very short (two or three simple word) sentences appearing at the end of the lesson before the next letter is introduced.

The work book "assists the child to muster different language skills using learner centred approaches" (Ministry of Education 2004b: 2). The book is meant to help students practice handling a pencil by drawing curves, circles, horizontal and vertical lines, and by colouring drawings in the first few pages. There are exercises on letter writing, syllable blending and language skill exercises of identifying odd pictures out from a group. As mentioned earlier the approach in practicing the different language and reading skills is learner centred.

The reading book "is designed to help with reading and writing readiness using whole language approach" (Ministry of Education, 2004b: 2). The book contains many stories intended as reading and writing readiness exercises. Teachers are advised to read the stories from the reading book on a daily basis at least initially during the first weeks. The teacher is expected, among other things, to show where the title of the story is, where the story begins and ends, and where question marks, quotation marks, etc. are placed. After the teacher has read the stories at least twice, students are allowed to 'read' the stories by themselves.

The teacher guide, a book of about 130 pages and different sections, is where the teacher gets 'professional support'. The introduction outlines the curriculum policy, the reading approaches adopted, the reading outcomes expected, and gives an overview of the teaching methods. The second part deals with classroom management, specifically with maintaining discipline and using time efficiently. The next section enumerates ideas for reading games such as flash card reading, matching letters, alphabet songs, etc. It also provides humming practices as exercises in tone readiness in the section on Kunama. In

the next section, specific advices pertaining to the particular language (medium) of instruction are given to the teacher. An outline of teaching gives the specific lessons that have to be covered in the 36 weeks of the academic year. Detailed instructions are given for, particularly, the first five weeks with contents or names of exercises, their aims, and the time allotted for them clearly spelled out. The last and substantial section (two third of the pages) provides a list of activities in reading/writing readiness, listening, speaking, and reading/writing exercises, including story listening and songs.

4.4 Classroom observations

This section presents data from the observations of classrooms in Kunama, Saho, Arabic and Tigrinya schools, and results of interviews with teachers from these schools. After highlighting the most relevant findings in each language, the section closes with general concluding remarks.

4.4.1 Kunama

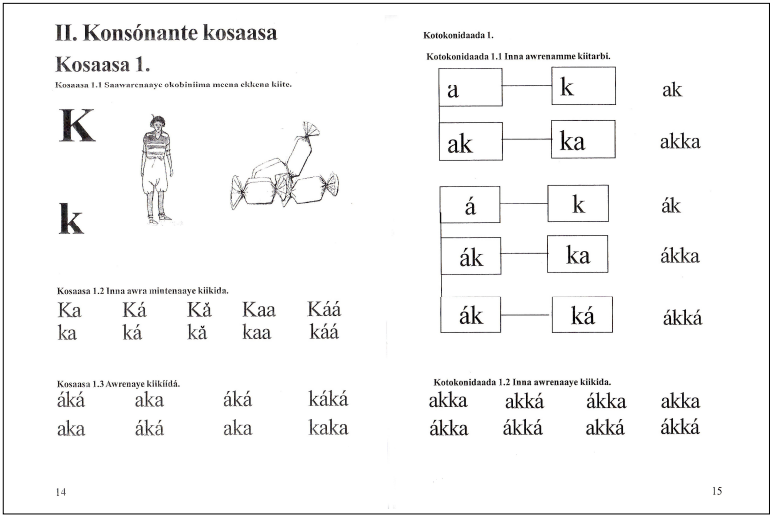
Introduction

Throughout its written history, the Kunama language had at least three orthographies, each with its specific way of teaching the alphabets. In the first church-based instruction, the Italian names of the letters were learned (e.g., 'che' for C) and the children were expected to figure out the sounds later on their own. During the period from 1983 to 1991 and up until the curriculum revisions in 2004, a teaching style identical with literacy education in the liberation movement was followed. The consonants (called then in Tigrinya 'soundless' or 'voiceless' letters) would have to be learned combined with the vowels ('voicing aides') as *ka*, *ku*, *ki*, *ke* and *ko* (e.g., *Sellasi sesa kitakko*, 'buy a goat tomorrow'). In the current revised curriculum sounds are represented by a single letter (one to one sound letter correspondence) and children learn the sounds of the letters and not their names. This coincided with the introduction of (high and rising) tone diacritics and long and short vowel markers in the orthography (e.g., *Selláasĭ sésa kitákkó*, 'buy a goat tomorrow'; *Selláasĭ séésa kitákkó*, 'buy clothes tomorrow') (Endrias Zenu, a member of the Kunama language panel, personal communication, 09/12/2006).

First lessons

The first lessons in Kunama grade 1 classes are dedicated to teaching children how to handle a pencil and a book, and start with exercises on drawing lines and circles in the students' exercise books or work books. The teacher guide gives a detailed list of activities. After a few weeks of introduction to raise the children's print awareness and pencil handling, the next block of lessons introduces the vowels followed by the most frequent consonants. With the two tone diacritics included, the teachers have now fifteen vowels to teach (the basic *a*, *i*, *e*, *o*, *u*, and the same vowels with high and rising tones). Vowel length, represented by doubling the letters, is also explicitly taught. In teaching the consonants, there is more emphasis now on the phoneme level instruction rather than on a syllable style teaching of consonants. In the revised curriculum, the emphasis is on sounds; students, for example, are urged to sound *k* and not *ka*.

Each consonant letter forms a unit in the alphabet book, which is sub-divided into lessons. For example, the first unit after introduction of the vowels covers the consonant *k*. Each of the five lessons in the unit starts with a reading of the consonant (*k*) and proceeds with combinations of the consonant with one of the five vowels (*a*, *i*, *e*, *o*, *u*). The lessons are built up from reading a letter to reading a consonant-vowel combination, then short words, and finally short sentences (see Figure 4.1). Attention to tone and vowel length continues throughout the lessons in the book. The teacher guide encourages humming practices as tone readiness and the association of a particular tone with one common word to aid memory.


II. Konsónante kosaasa

Kosaasa 1.

Kosaasa 1.1 Saawarenaaye okobiniima meena ekkena kiite.

K

k

Kosaasa 1.2 Inna awra mintenaaye kiikida.

Ka	Ká	Kǎ	Kaa	Káá
ka	ká	kǎ	kaa	káá

Kosaasa 1.3 Awrenaye kiikiidá.

áká	aka	áká	káká
aka	áká	aka	kaka

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Kotokonidaada 1.

Kotokonidaada 1.1 Inna awrenamme kiitarbi.

a	k	ak
ak	ka	akka
á	k	ák
ák	ka	ákka
ák	ká	ákká

Kotokonidaada 1.2 Inna awrenaaye kiikida.

akka	akká	ákka	akka
ákka	ákká	akká	ákká

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Figure 4.1: Sample pages from the Kunama language primer

Schools observed

We observed two Kunama classrooms in the town of Barentu in the Gash-Barka regional administration (see Table 4.1). One of the schools, Asiti Elementary School, is a government run public school and the other, Nugus Baazen Elementary School, is owned and run by a (Catholic) religious organization. Both follow the Ministry of Education's curriculum and its guidelines. Although they are located in the same town, there are some differences between the two. The public school has a class size of 78 students, which is among the highest in all the schools in the study. In the religious school, the number was usually around 33. According to one of the teachers at the school, the class size of 42 was reduced to 33 because of a "serious problem of student absenteeism" (Teacher Emma, personal communication, 2006). While students in Asiti, the public school, had both their alphabet and work books, the grade 1 children at Nugus Baazen, the religious school, only had the alphabet books. At the time of the study in 2006, there were around 480 students in the public school in ten classrooms served by nine teachers, while there were around 320 students in the religious school with seven classrooms and nine teachers. All the nine teachers in the public school had been to a year-long teacher-training course while seven out of the nine teachers in the religious school had taken the same course.

Table 4.1: Schools observed and teachers interviewed in the Kunama classroom observations

School	Name teacher	Gender	Observed	Interviewed
Asiti (Barentu)	Araya	Male	Not observed	28/04/2006
	Hawa	Female	04-08/12/2006	08/12/2006
Nugus Baazen (Barentu)	Emma	Female	Not observed	02/05/2006
	Elsa	Female	04-08/12/2006	08/12/2006

Literacy instruction in Asiti Elementary School

We will describe the week-long observations of one Kunama grade 1 classroom in Asiti Elementary School. The language teachers' name is Hawa. Although the class size in Asiti Elementary School was higher than in the other Kunama schools, the classes in this school were progressing more regularly than in Nugus Baazen Elementary School. The classrooms were constructed with brick and cement with windows and corrugated iron roofs. Three to four students were seated in each wooden desk that formed four rows of five to six desks. The blackboard at the front was big, running almost the whole length of one side of the classroom walls.

Observations

The lessons planned for the week of 4 to 8 December 2006 were the introduction of the letter *k* from the alphabet book and different listening and writing activities aided by the work book and teacher's guide. Additional activities outlined in the teacher's guide such as reading and oral development exercises were not accommodated as the students had no reading books. The lessons observed in the week (five sessions of 40 minutes) were mainly dedicated to teaching the letter and its combinations with different short and long vowels and with high and rising tones. Words and syllables with consonant geminations also featured prominently. Around the end of the week, short sentences of two to three words were practiced. The teacher combined listening, reading and writing exercises using the alphabet book that every student had and the blackboard. In addition, each student (as elsewhere in Eritrea) had a notebook, a 40 to 60 page writing pad that parents have to buy for their children at the start of each year. Commonly known as exercise book, this is different from the work book which the Ministry of Education supplies to schools.

The unit in the alphabet book the teacher had to cover in the week (i.e., the introduction of the consonant *k*) contained syllable, phoneme, and tone combinations. Each of the five lessons in the unit started with a reading of the consonant (*k*) and proceeded with combinations of the consonant with one of the five vowels (*ka*), long vowels (*kaa*), tone (*kâ*) and consonant geminations (*akka*, 'my son'; *ákká*, 'our son'). The same drilling of these combinations with the rest of the vowels (*i*, *e*, *o*, *u*) formed the remaining lessons. The lessons were built up from reading a letter to reading a CV combination, then short words, and finally short sentences.

The first lesson of the week was dedicated to introducing the letter using flash cards of pictures that begin with the same letter, *k* in this case. The sound was repeated with flash cards depicting pictures of animals or objects (e.g., a drum) and the name of the object that starts with the same sound (*k* in *kabaroo*, 'drum'). In the next step, writing the letter representing the sound, students practiced air and sand writing (outside the classroom) before they attempted to write on their exercise books. As children practiced writing the letter in their exercise books, the teacher moved around the class and supervised the students by pointing out mistakes, holding children's hands as they traced the shapes of the letters, etc.

Subsequent exercises made use of short words such as *aaki* (take us), *akka*, and *ikki* (take him). Students were asked to write a short word on the blackboard. Most of the time, a dozen or more of the 78 students took turns and tried to write or read the specific word on the blackboard. All the time the

teacher said the word loudly and students repeated it in unison. The teacher let other students correct those who made mistakes in writing or reading.

Some of these points are illustrated in the following extract (TR(s) = teacher(s); ST(s) = student(s); … = no answer; [text] = comment by author).

Extract 1 (04/12/2006)

TR: what did we learn last time?
ST: *aak*
ST: *aaka*
ST: *aka*
TR: *aaka*
STS: *aaka*
TR: who can write *akka*?
ST: *kaa*
ST: *akka*
TR: good, who can write *ákka*

In her effort to highlight differences of vowel length, tone, and gemination, the teacher repeatedly used the following words: *akka*, *aaka*, *aka*, *ákka*. Teacher Hawa read and the students chanted in whole after her. After some time, the teacher introduced another word, i.e., using another vowel (i). The teacher sounded and wrote it (e.g., *ikka*, 'his son'). Around the final quarter of the class, writing exercises would be introduced with the same words that were in the reading exercise. Students were instructed to open their exercise books and write *akka* and *ikka* (the students filled the empty lines by writing row after row of the same three to four words written in a column produced, sometimes, with the help of the teacher). The teacher moved around and observed students' writing. As not all students wrote correctly or properly, the teacher was constantly engaged in helping or showing students the proper way of writing between the lines. Some wrote across the vertical lines in a diagonal way. Others failed to finish the writing assignment. Then the teacher asked students what they had written. Students were one by one going to the blackboard and writing what they had already attempted in their exercise books. Some made mistakes and the teacher let the class correct them verbally. Each student wrote on the board and read it. At the end of the lesson, the teacher asked students to read the next lesson dealing with *ákká* from their alphabet book for the next day.

The effect of class size was evident in many of the methods the teacher was forced to adopt. When writing words on the blackboard herself, the teacher asked students to read them even before she moved to the next word to keep the discipline in control. In the following extract the teacher was trying to

involve as many students as possible in reading from the blackboard. She did not explain why there were hyphens between the word parts they were practicing in reading.

Extract 2 (06/12/2006)

TR:	pay attention, since I am going to ask one by one				
	[teacher writes on the blackboard]				
	ek-ka, *ék-ka*, *ek-kă*, *ék-ká*				
ST1:	*ek-ka*	*ék-ka*	*ek-kă*	*ék-ká*	[students read one by one]
ST2:	*ek-ka*	*ék-ka*	*ek-kă*	*ék-ká*	
ST3:	…	*ék-ka*	*ek-kă*	…	
	[routine is continued in the same manner]				
ST16:	…	…	…	…	
ST17:	…	*ék-ka*	*ek-kă*	*ék-ká*	
ST18:	…	*ék-ka*	…	…	
TR:	keep quiet. I will tell you a story. [as students grow restless, the teacher tells a story about a clever and well-disciplined student who earned a prize] Now, you are also like him				
ST19:	*ék-ka*	…	*ék-ká*	…	

Teacher Hawa also formed groups and allowed the groups to compete with each other in reading the words from the board. From time to time, she intervened and read the words. The best group was praised by the teacher. The teacher concluded by giving a home assignment ("At home read your books. What we learned today is in your book, so read it").

The group or whole class reading of words in chanting style is usually the preferred option even when initially the lesson started with other activities, like writing. For example, in the middle of the week, as part of a writing exercise, the teacher wrote on the blackboard four short sentences: *Akkă ika* (take my son); *Ákká ika* (take our son); *Akkĕ iika* (take my sons); *Ákké iika* (take our sons). The teacher instructed the children to write these sentences in their exercise books. "When writing, please look carefully at the marks for the tone and write them properly," she said. Then, as if to warm students up for the writing, the teacher started to read each sentence and the whole class repeated after her. Eventually, the reading moved to the individual level with each student coming out to the front of the class and reading the sentences on the blackboard. Some students continued writing the sentences in their exercise books. Around twelve children came out and read the four sentences with most students reading them correctly.

Teacher interviews

Incorporating the tone marks in the textbooks was one of the major challenges in the new curriculum. However, there is an overwhelming support for representing tone in the orthography among teachers, who perhaps, in their classroom instruction earlier before the introduction of the tone diacritics, were exasperated by differences in meaning with each shade of the seven tones in the Kunama language. Only the high and the rising tones are marked in the new orthography and textbooks. Teacher Araya from Asiti Elementary School, has devised ways of relating the tone markers with something the students are familiar with: tail for the high tone (á) and horn for the rising tone (ǎ).

Teachers find help in teaching tone diacritic marks from the teacher guide, which Teacher Emma found "particularly helpful in week one and two". Teacher Araya said, "The teacher guide is clear and when I have questions about the tones in the new curriculum, I always ask people." In this case, Araya asked the school director who was one of the teachers and school administrators who attended a workshop given by the Kunama language panel at the Ministry of Education. Due to limited resources and time outside the teaching obligation, many teachers were not able to participate in these workshops. "The biggest problem with the new textbooks is that teachers have little exposure to the ways of marking the tones" (Teacher Araya).

The primer dedicates many of its pages to teaching vowels, vowel length, and tone diacritics. After spending many weeks on vowels, tone and length of vowels, teachers are pressed for time in the school year to finish all the lessons. Teachers attributed this to the extensive coverage of tone in the textbooks and some teachers argued that they should have been involved in the design of the books. Although four of the teachers interviewed in the Kunama schools agreed that the idea of tone diacritics in the new orthography and textbooks is important, they said the material in the books is extensive and should be reduced.

Conclusions

Despite the large class size, the teacher used almost all the reading and language skills activities of reading, listening, writing and, to a limited extent, speaking (by asking students questions from the story she told). She also made use of songs and short tales to control the discipline of her large number of students. Her effort to involve, albeit in limited activities, as many students as possible in the lessons was also noticeable. However, the lessons seemed to move slowly. As can be seen from Extract 2, some of the individual reading activities went on until nineteen students took turns to read the words from the blackboard. The other students were limited to chanting after each student reading from the

blackboard. Some of the students, however, were chanting without looking at the words being read, and looking away outside the window or at the floor.

In addition to the big class size, the attention given to teaching the variations of vowel length, tone and consonant geminations was probably contributing to a slow progress in the lessons. These difficulties coupled to produce lessons where some of the students became bored and as a result created disciplinary problems. This in turn led the teacher to resorting to familiar chanting exercises where the teacher or a student said a word written on the blackboard with the whole class following after. According to Endrias Zenu, a member of the Kunama language panel, spending an undue amount of time on a few letters and words was not always necessary. He said that the teacher, since the children will encounter the letters and words in subsequent chapters, should have moved on when the majority of the class had understood the lesson (Endrias Zenu, personal communication, 09/12/2006).

Students were often asked to chant after the teacher and were rarely asked other types of questions that invoked existing knowledge. In a situation that required more than repeating what was said or learned the other day and specifically demanded students to apply what they had learned in other contexts, the students seemed to struggle (see Extract 3). As a result, the teacher did not use the latter type of question that often.

Extract 3 (07/12/2006)

TR: what did we learn yesterday?
ST1: *ikka*
…
TR: who can tell me words that start with '*ke*'
ST1: *keema*
ST2: *teera*
TR: words that start with '*ke*'

The students were always sounding the long vowels with exaggerated length. The teacher (and others interviewed) said students were instructed not to put extra length in their vowels but most of the time students failed to do so. According to Endrias Zenu (personal communication, 09/12/2006), it is not necessary to explicitly teach students long vowels ("In due time, through hearing the correct pronunciation repeatedly, students will eventually learn it").

The same concerns, although to a somewhat lesser extent, could be expressed about the undue attention on tone and consonant geminations. In the teaching of tone diacritics, repeated drilling of a few similar words (differing only in tone) and without much meaningful contexts might also be holding up valuable classroom time.

As constantly mentioned by the teacher, in a big class like this, it might be necessary to give some of the reading assignments to be done at home. This may at the same time be unrealistic as the students are not yet readers and may not have literate parents to help them at home. Some of the students had a problem with writing as we observed some of them writing diagonally across the pages of their exercises books. As a result, the teacher had to move around and closely inspect the writing assignments she occasionally gave to the students. What was more frequent was the writing exercises on the blackboard by individual students in front of the class where the teacher had complete control over the activity.

4.4.2 Saho

Introduction

Compared to the teaching of Kunama and its orthography, the Saho orthography and teaching has shown relative stability for the last two to three decades it has been in existence. Although missionaries first put Saho into Latin writing in the early twentieth century, Saho language instruction only started in the 1980s in the movement for independence. Styled after the liberation era teaching of letters as combinations of consonants ('sound- or voiceless letters') and vowels ('voicing aides'), the teaching and the orthography have remained the same with minimum changes even after the recent curriculum changes.

First lessons

The first lessons in the Saho grade 1 classes are dedicated to teaching children how to handle a pencil and a book, and start with exercises on drawing lines and circles in the students' exercise books or workbooks. After few weeks of introduction to raise the children's print awareness (and pencil handling), the next block of lessons introduces the vowels followed by the most frequent consonants. The teaching of consonants is always embedded in the teaching of consonant-vowel combinations (e.g., *ca* instead of *c*). The whole row of consonant vowel combinations (*ca*, *cu*, *ci*, *ce*, *co*) forms a lesson that usually is treated in three to four pages in the primer, which is covered in about a week. A daily lesson usually consisted of one of the five consonant-vowel combinations (e.g., *ca*). The lessons started with reading a CV combination, then short words, and finally short sentences (see Figure 4.2). Occasionally, a dieresis (ä) is used to mark final pitch accent to distinguish feminine nouns from their masculine counterparts (Banti & Vergari, 2005).

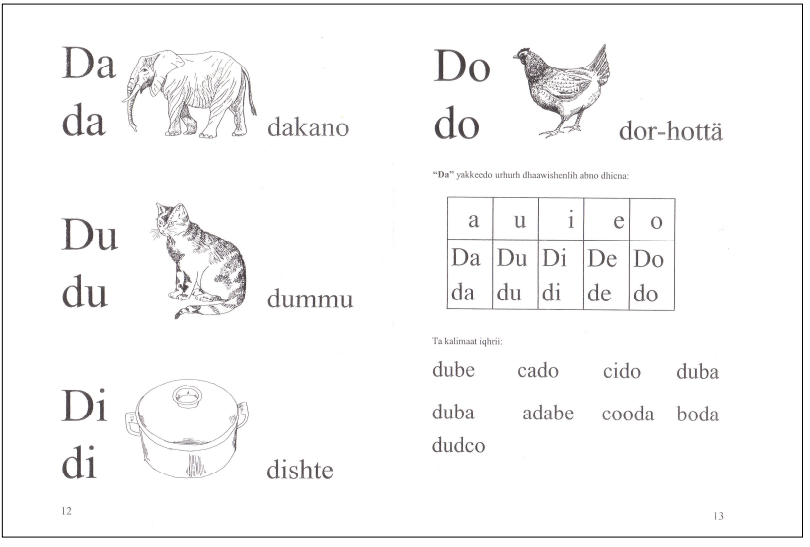

Figure 4.2: Sample pages from the Saho language primer

School observed

The school we visited for the Saho literacy instruction was a rural public school located in a village in the sparsely populated eastern escarpments of the country. Although only few kilometres from the town of Ghindae, the village of Hutsit looked inaccessible due to its seat in the middle of the steep slope of the rise to Eritrea's highlands from the Red Sea coast. The Hutsit Elementary School, established in 2003 by the Ministry of Education, served five villages in the surrounding valleys and mountains. Some of the children had to walk for two hours from the farthest village to reach the school. The school had five classrooms, two of which were built with brick and cement and the rest were merely shades of corrugated iron. The corrugated iron rooms were particularly small and the floors of these rooms were dusty. The classroom we observed was one of these dusty, corrugated iron rooms. It housed 17 students in three rows of low, long, and narrow writing tables with wooden stools and stones as seats. There was a small blackboard hanging on one of the wooden bars holding the corrugated iron. The room was bright from light coming through the door that remained open and looked over the valley surrounding the school.

According to the head master of the school, the number of students (17) was lower than the year before (around 50) because of drought in the region and the discontinuation of a supplementary feeding program at the school. Hutsit Elementary School had 210 students attending classes in grades 1 to 3.

All the seven teachers (that included one female teacher) have undergone a one year teacher training.

The observations in this school were designed to complement those from the Kunama language schools.

Table 4.2: School observed and teacher interviewed in the Saho classroom observations

School	Name teacher	Gender	Observed	Interviewed
Hutsit (Hutsit)	Teacher Abdella	Male	20-24/11/2006	24/11/2006

Literacy instruction in Hutsit Elementary School

In the classroom at Hutsit Elementary School, each student had the two student books (the alphabet book and the work book). The teacher said the reading book was to be distributed in the second semester when students had progressed in their reading skills, although the teacher guide instructs teachers to read stories from the reading book as a reading readiness exercise. The teacher prepared teaching aids such as flash cards from materials and resources available in the school and its surrounding.

Observations

The lesson planned for the week of our visit to the school dealt with the first consonant *ba* (the consonant *b* which is taught as *ba*). Teacher Abdella used flash cards to revise the reading of the five vowels, *a*, *u*, *i*, *e*, and *o*. He asked five students to step in front of the class and carry the vowel cards. He then asked them to line up in the right ordering of the vowels. He did the same technique of lining up students with flash cards of consonant vowel combinations (*ba*, *bu*, *bi*, *be* and *bo*). The teacher also wrote single syllables on the blackboard and asked the whole class and sometimes individual students to chant after him. When left to read the letters from the blackboard, children often struggled (see Extract 4).

Extract 4 (21/11/2006)

TR: [writes on the blackboard *ba* and asks students to read]
ST1: *a*
ST2: *abo*
ST3: *a - abo*
ST4: *ab* …
ST5: *ba*
TR : *ba* *ba* *ba* *ba*
STS: *ba* *ba* *ba* *ba*
TR: *bu* *bu* *bu* *bu*
STS: *bu* *bu* *bu* *bu*

Students made little progress in identifying the letters and the teacher resorted to the familiar chanting strategy, as can be seen from Extract 4. This chanting is usually followed by another familiar activity: lining up the flash cards of the CV letters according to vowel order (*ba*, *bu*, *bi*, *be*, *bo*).

The next common exercises after the introduction of the CV letters were practices on syllable blending and vowel length. Extract 5 demonstrates the teacher's effort to teach students syllable blending.

Extract 5

TR: *a* and *bo* together
ST1: *abo abo abo*
TR: *a* and *be*
ST1: *abe abe abe*
TR: *a* and *ba*
ST: *ba*
TR: *a* and *ba* put them together
ST1: *aba* [meaning: does]
ST2: *abba* [meaning: father]
TR: *i* and *ba*
ST: *iba iba iba*
TR: *a* and *ba* [teacher reads *b* as *ba*]
ST1: *ba ba aboo*
ST2: *b* and *o* [writing them separately on the blackboard]
ST1: *ab oobe*
ST: *ob ob*
TR: in *ob* what happens if *o* comes after *b*?
ST: *bo*
TR: *bo bo bo*
STS: *bo bo bo*

After this mainly syllable blending exercise, the teacher prepared writing exercises. He first wrote the five CV combinations (*ba*, *bu*, *bi*, *be*, *bo*) on the blackboard. Then, he asked some students to read the row aloud. Finally, students were asked to write the row of CV letters in their exercise books. The teacher moved around and guided (e.g., corrected mistakes, showed how to handle a pencil, etc.) and encouraged students. Often the teacher wrote the first line or row in individual students' exercise books and allowed them to put the same letters in lines after lines of a whole page in their exercise book. Some students failed to leave enough space between the CV combinations; others separated the consonant and the vowel letter in the CV combinations. On many occasions, students were observed writing across lines diagonally and in

some cases writing from right to left. Not all student deficiencies the teacher tried to correct were related with the task of writing letters. In one instance, the teacher advised a left-handed student to use his right hand in writing ("Try to write with your right hand … it is 'taboo' to use the left hand").

At the end of the writing exercises, Teacher Abdella marked the writing of some of the students who finished. He ordered a student to bring the exercise books of the rest of the students to the staff office after they had finished writing.

On introducing a new letter, *ca*, Teacher Abdella read a story with names that started with some of the CV combination of *ca*, such as personal and animal names as *Cali* (Ali) and *Cummar* (Ummar) and *ciidotta* (sheep). The teacher asked content related questions such as 'who are the characters in the story', and 'what happened to their sheep'. About four students were then asked to retell the story in their own words. Teacher Abdella then moved on to asking for words that started with *ca*. He showed pictures of animals and things with names that started with the rest of the CV letters, *cullutta* (donkey), *ciidotta* (sheep), and *ceela* (well, spring). The questions moved back to the story and students were asked to find words that started with *ca*, *cii*, etc. on each line of the story reproduced on the blackboard. Many students easily located the letter in the lines of the story. Students then started chanting the vowel combinations of the letter/syllable *ca*.

For the writing exercise on the new letter/syllable (*ca*), the class was asked to move outside and sit on the sand in a circle to practice sand writing. The teacher held a flash card, sounded the syllable and wrote it on the sand. Students were expected to write each of the cards the teacher showed. Students scribbled on the sand and mostly wrote the letters correctly although there were occasional mistakes (e.g., *ca* with the *a* inside the curve for *c*, a reversed *c*, a double *c*, and a right-left direction when writing *ci*). The teacher tried to correct the mistakes and went as far as holding their hand and moving it for them in the sand to form the curves of the letters. The sand writing of each letter ended with reading the card together in chorus. The chanting continued once the students and the teacher went back to the classroom.

Teacher Interview

According to Teacher Abdella, the new textbooks were a great improvement over the old ones. However, he said he believed that there was too much material in the new textbook: "Too many words to learn and read". Although he used many of the suggestions from the teacher's guide on classroom activities, he deviated from prescribed norms in his use of the teaching materials. He asked students to do the exercises in their work books at home and bring them to school every Saturday, while the exercise book was always

used in the class. He postponed the use of the reading book to the next semester when he said students will have progressed in their reading. That was slightly in contradiction with the function stated in the teacher guide for the reading book, which was to help children with reading and writing readiness.

Teacher Abdella did not want to involve children in whole class chanting of letters, syllables or words that often. He said chanting encouraged memorization, which he did not believe was helpful in reading as students usually easily forget what they memorized. One example of the harmful result of memorization, according to Teacher Abdella, was the difficulty students had reading a reversed ordering of the CV letters (e.g., starting with *bo* and going backwards with the normal ordering, i.e., *be*, *bu*, *bi*, *be*, *bo*). "Students fail to read if the order of the letters is changed," he said.

Teacher Abdella said that the new approach of student-centred teaching encouraged in the revised curriculum was beneficial to the students. He said the new teaching materials were a vast improvement to the old ones. But he also said the materials were too much. He said he thought the teacher guide is clear.

Conclusions

Teacher Abdella in this Saho classroom appeared to use a variety of student-centred teaching methods such as bingo games, sand writing outside the classroom and flash card ordering. He also used teaching aids such as charts, cards, and bingo boards. These student-centred approaches are encouraged in the new curriculum. The teacher was able to use them due to the small class size that year at his school. Still these new methods were using up a significant amount of the class time and as a consequence he did not have time for other methods to be used. For example, he rarely used songs and only read one short story during the week.

In spite of the diverse teaching activities and the small class size, students were still making frequent mistakes reading the syllables and short words in the lessons. They were stumbling with the syllable and phoneme blending and word reading exercises during most of the week. The teacher said he believed it was because it was their first time to try to read words. With time, they will improve. He said that he believed ten out of the fifteen students present in his class were grasping the lessons.

The teaching of the consonants as syllables (e.g., *c* as *ca*) might have an influence when students read single consonants at the end of a syllable or a word (e.g., children may read *bab* (door) as *baba*). Teacher Abedella said this was a problem, however, with time, repetition, and exposure to English lessons starting in second grade, the students might recognize the single consonants and read them as such.

The ordering of CV combinations along vowel variations was one of the central activities in Teacher Abdella's classroom. Teaching the whole row of CV combinations was questioned by Ramadan Abdella, a member of the Saho panel at the Ministry of Education, who said that after introducing the first CV combination initially, teachers should leave the rest of the combinations for the students to figure out (Ramadan Abdella, personal communication, 25/11/2006).

4.4.3 Arabic

Introduction

One of the important aspects of Arabic in Eritrea is that it is a second language to almost all students in the country (the only exception are members of the Rashaida ethnolinguistic group, accounting for one percent of the whole population). The second language teaching aspect of the instruction was reflected not only in the composition of the classrooms but also in the design of the textbooks. The new alphabet books in other languages all started with an attempt to introduce students to the most frequent letter or syllable symbol, whereas the first nine pages of the Arabic alphabet book are filled with pictures and names of objects and animals. This was intended to build the students' vocabulary.

First lessons

The first few lessons in the Arabic grade 1 classes teach children how to handle a pencil and a book. Students start with exercises on drawing lines and circles in their exercise books or work books. After these lessons on print awareness and pencil handling, the lessons concentrate on building the children's vocabulary by providing nine pages of sketches of animals and objects, the names of which the teacher provides. In the alphabet book, it is only at page ten and after the introduction of about 90 words that the list of Arabic letters starts to appear. In the next five pages, the list of 28 Arabic letters is presented, again accompanied with sketches of animals and objects (see Figure 4.3). After these lists of words and the basic letters, a typical lesson in the Arabic classroom usually constitutes the introduction of one letter accompanied with words that contain that particular letter at the beginning, in the middle, and at the end of a word, as the shape of the letter differs according to its position in the word.

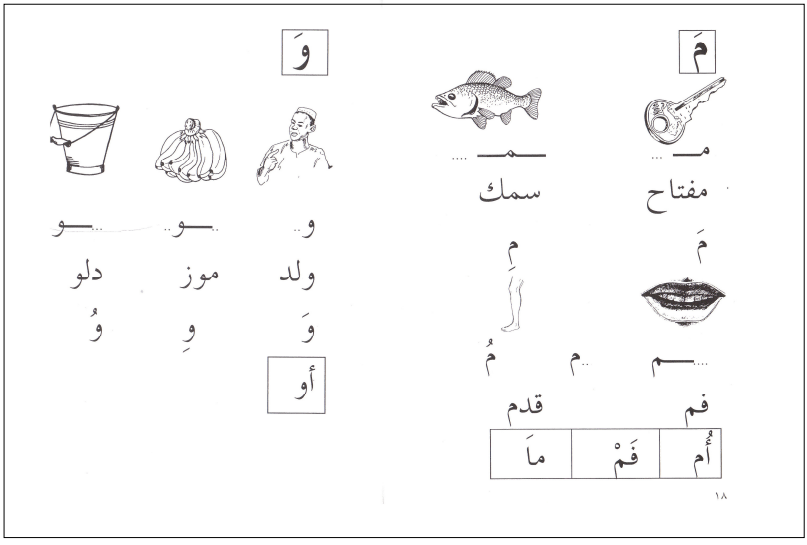

Figure 4.3: Sample pages from the Arabic language primer

Schools observed

Three schools from Asmara and Ghindae were included in this study. Established in 1942, Al-Amel Elementary School in Asmara is one of the oldest schools in Eritrea. In two shifts of morning and afternoon classes, around 460 students are served with twelve teachers. All the teachers had a one-year teacher training. The classroom observed had 36 students sitting in the second floor of a three story modern building with electricity and restroom facilities. Students were from middle and high-income families in the capital of the country. They were mostly six to seven years old.

The two other schools in the Arabic instruction observations were from Ghindae, a town in eastern Eritrea, mid-way between the capital Asmara and the port city of Massawa. These were: Maahad or Ghindae Islamic Institute, which was established in 1969 and Al-Auda Elementary School, which was established in 1994 to serve mainly recent returnees from refugee camps in Sudan. Maahad had more than 1,300 students and Al-Auda had 900 students in morning and evening shifts at the time of our visit. From the twenty-one teachers at Maahad, fourteen had a one-year teacher training while the rest had some college training. In Al-Auda, out of the twenty teachers, sixteen had a one-year teacher training and the rest some years of college training. The grade one classrooms observed had more than fifty students.

In the observation study, we followed three teachers from these three Arabic medium schools. The first two teachers (from Al-Amel and Maahad)

were older in age. The third teacher, much younger than the two, was from Al-Auda Elementary School, where he handled a bigger class size. Due to their contrasting features, the classroom observations from Al-Amel Elementary School in Asmara and Al-Auda Elementary School in Ghindae are presented here.

Table 4.3: Schools observed and teachers interviewed in the Arabic classroom observations

School	Name teacher	Gender	Observed	Interviewed
Al-Amel (Asmara)	Teacher Ali	Male	14-17/11/2006	17/11/2006
Maahad (Ghindae)	Teacher M	Male	20-24/11/2006	Not available
Al-Auda (Ghindae)	Teacher Bashir	Male	20-24/11/2006	24/11/2006

Literacy instruction in Al-Amel Elementary School

Observations

The lessons in this classroom were revolving around the introduction of the Arabic letters. Teacher Ali emphasized repetition (chanting) of the names of Arabic letters instead of sounds ("*alif* is what they can learn, it is better than teaching *a*" he said in the interview) and explained to the students the names and positions of vowel diacritics, and the changes to the graphic forms of the letters when they appear at the beginning, middle, and end of a word. Some of these points can be revealed in the following extract (a transliteration of the reading and writing activities done in Arabic language and Arabic script are used in the text and extracts throughout this section). The teacher was urging students to say words that started with certain letters.

Extract 6 (15/11/2006)

TR: who can say a word that starts with *jim*? [as students say the words, the teacher writes them on the blackboard]
ST: …
ST: *jemal*
TR: who can say a word with *jim* in the middle
ST: *jerema*
ST: *mejela*
TR: *jim* in a final position
ST: *dejaj*
TR: *ja ji ju*
STS: *ja ji ju*
TR: now, say words with *ra*
ST: *rajuul*
TR: in the middle

ST:	*fares*			
TR:	final position			
ST:	*shaar*			
TR:	*rajuul*	*fares*	*shaar*	[writes on blackboard and reads]
STS:	*rajuul*	*fares*	*shaar*	[repeated many times]

Sometimes the teacher had to fill in the answers when students could not come up with words that start with given letters. Seconds after the teacher said the word the whole class repeated after him. Even when his questions were answered by a student, usually an automatic whole class chant followed every student's response. The teacher used picture, word and letter combinations, and a lot of chanting and constantly encouraged the children to memorize.

When the teacher asked for words he can write on the blackboard, students usually gave a combination of a letter and word, such as '*a -assad* (lion)'. The teacher urged the students to leave out the vowel prompt. This prompt was used when letters were first introduced to children. A card with the picture of an animal or object was flashed and students repeated the name after the teacher. At the same time students' attention was drawn to the first letter of the word. The teacher also tried to teach the correct pronunciation of the words and their meaning as Arabic was not the mother tongue for most of the students.

Sometimes the teacher involved the students in word reading activities. Lists of familiar words were written on the blackboard and students came out and read them while the class repeated each word read. In the reading exercises from the blackboard, struggling students quickly remembered words when the teacher gave them a cue such as the first letter of the word. He also constantly urged students to memorize what they were being taught ('*ahfuzu*, memorize this').

Some of the classroom time was spent on exercises of identifying letters from a table of a mixed list of letters or even rows of words. For example, in a list of the letters *alif*, *zal*, *shin*, *ba*, *waw*, *jim* and *mim* written on the blackboard, students came out and circled *shin* or *jim*. A similar exercise included words in a table of four rows by four columns. The teacher asked students to circle all instances and realizations (initial, middle and word end) of a specific letter.

Literacy instruction in Al-Auda Elementary School

Observations

The teacher in Al-Auda Elementary School, named Bashir, was a young man in his twenties. The class he taught contained more than 50 students. Teacher Bashir used the sounds and not letter names when teaching the Arabic letters.

He used simple words and names of animals to introduce the letters. In first teaching *da*, for example, he used the word *dabo-e* (hyena). His delivery was animated and lively, at times humorous. In leading the students to say *dabo-e* he asked, 'who hunts for goats in the night and barks *engoooy*?' As he made the noise some students started laughing. He held up a flash card with a drawing of a hyena on one side and the letter in focus on the other side. He also used songs to introduce letters and maintain class discipline.

Similar cheerful language and body expressions were used to attract the students' attention to the graphic form of the letters and the position and number of the dots in the Arabic alphabet writing. The number of 'teeth' and diacritics in the alphabets of *sin* and *shin*, the distance of the 'head' from the single 'tooth' in the letter *sad* and similar points about the graphic form of the letters were repeatedly highlighted by Teacher Bashir. The teacher asked some students to come out and write the letters they had learned on the blackboard. Those who correctly wrote the letters are applauded by the whole class and returned to their seats. Those who made mistakes waited and looked at other students who corrected their mistakes, which were mostly in the graphic form of the letters. The teacher once asked the class to give students who made mistakes a "small applause" by bringing the outside part of their thumb fingers together and clapping. This brought the class into roars of laughter.

In addition to emphasizing on teaching the sounds of letters, Teacher Bashir engaged students in exercises of syllable blending (Extract 7). The teacher called upon different students to come out and write down the letters he said on the blackboard.

Extract 7 (23/11/2006)

TR: write *ba – baqera*
ST1: *ba* [student writes ba correctly]
TR: *ha*
ST2: *ha*
TR: *ra – rajul*
ST3: *ra*
TR: now read it together
ST4: *ba we ha we ra* [*ba* and *ha* and *ra*]
ST5: *ba – baqera* …
TR: *bahar* [meaning: the sea]
STS: *bahar*
TR: we are only practicing the letters we learned

Students struggled in the syllable blending exercises. Students read the letters separately and most of the time with the familiar word prompt used earlier to

introduce the letter. At this stage the vowel diacritics were not introduced yet and thus were not used in this exercise. The teacher said it is difficult for the students to understand the syllable blending and word reading exercises yet, but as the lessons progressed slowly they will start to read the words.

The teacher tried to supervise student writing by going around the class and looking at the exercise books. In many cases, he wrote an Arabic letter repeatedly in a single row spacing the letters adequately in the exercise books of the students. He then asked students to write in exactly the same way under the line of letters he prepared for them. In few other cases, the teacher scolded students when he found out that they had not finished earlier writing assignments or had not done the assignments neatly.

A letter writing game was sometimes used as an extension of the blackboard writing exercises. The teacher wrote down around twelve letters in a three column by four rows table. He gave the students some minutes to look at them. He then asked them "to sleep", i.e., close their eyes and rest their heads on their arms as if they were sleeping. The teacher erased half of the letters from the words on the table. Students were then urged to open their eyes, sit straight, and attempt remembering the missing letters. He then asked students to come out and write down the missing letters on the blackboard. Similar emphasis on writing could be found in the exercise where the teacher drew a picture of an animal and left a space for students to write the first letter in the name of the animal.

Teacher interviews

Teacher Ali admitted that teaching Arabic literacy is difficult and takes time: "I teach three things, the picture (object), its name and how to write it. If they don't know the meaning it is difficult for them." According to Teacher Ali the language of the home and the playground in his school (Al-Amel Elementary School in Asmara) is Tigrinya; about 90-95 percent speak Tigrinya. He said there were only a few students from families from Arab countries in the region residing in Asmara.

According to Teacher Ali "chanting helps remember because children forget easily, pictures also help in memorization". At the start of the school year, the teacher himself wrote the 28 letters of Arabic in each student's exercise book and every week taught three letters. He said the main goal was "how we and the parents could teach students the 28 letters".

A lot of time was spent on disciplining, according to Teacher Ali, and this affected the classroom activities ("Time is too short. Forty minutes is not enough to tell one student to keep quiet and the other to write, it takes too much time in a class of 38 students"). Textbooks were not that much used by Teacher Ali "because grade 1 children are not attentive and do not remain still".

However, Teacher Ali and Teacher Bashir agreed the new textbooks were better prepared.

Conclusion

The exercise on identifying letters or words written in tables on a blackboard, together with the repetitive chanting and the use of pictures to introduce letters, seemed to stand out in the observation from Al-Amel Elementary School in Asmara. Teacher Ali's instruction methods gravitated towards the teacher-centred teaching style. Chanting was sometimes done so excessively that students lost attention. Some of the students were shouting after the teacher while looking away from the blackboard where the letters and words in focus were written. Students were rarely engaged in writing practices in their exercises books. Little use was made of the alphabet book. The teacher wanted attention drawn to the activities he directed and one or two instances of disciplinary problems that seemed to interfere with the activity were severely dealt with.

Teacher Ali's instruction was based on memorization by continuous repetition of letters and words. He gave students clues (e.g., the first letter) when they were unable to read the words written on the blackboard. Students might not have been decoding words at all and were probably relying on memorization to read the words in the blackboard.

The home language for most of the students in Teacher Ali's class was Tigrinya. However, the teacher rarely switched to Tigrinya because "by speaking Arabic all the time in the classroom students may catch something in the end." But students found it hard to speak Arabic. Teacher Ali said "let alone the grade 1 students, even grade 5 students speak mainly in Tigrinya". Except for the school, there was no help for the students learning to read in Arabic ("home, neighbourhood, parents, all except the school could not help the students learning Arabic literacy").

As with students in the Arabic school in Al-Amel in Asmara, the majority of the students in Al-Auda Elementary School in Ghindae did not speak Arabic as their home or first language. There were many instances of student-to-student talk and even student talk directed at the teacher inside the classroom that was done in Tigre in Al-Auda Elementary School. Teacher Bashir mostly spoke in Arabic. In rare cases the teacher did use Tigre (the language of most of the students) and Saho (the teacher's mother tongue) as can be seen from Extract 8, where a student was not writing down the class assignment and the teacher wondered why.

Extract 8 (24/11/2006)

ST1: *Qalem alebye* [Tigre: don't have a pen]
ST2: *Ana e'ndaa* [Arabic: I can spare one]
TR: *Taale yane* [Saho: here it is]

Many of the students in Teacher Bashir's classroom found syllable blending and word reading difficult, as it was probably too early for any child to start reading at this stage. Teacher Bashir said with time students will start blending and reading. Another reason why students failed in syllable blending and word reading might be because of the limited knowledge they have in the Arabic language, which for the majority, as already has been pointed out, was a second language.

There were many similarities as well as differences in the classroom teaching methods between Teacher Bashir (Al-Auda, Ghindae) and Teacher Ali (Al-Amel, Asmara). One big difference between the teachers was their use of letter names and sounds. Whereas Teacher Ali in Asmara used the letter names and said he believed sounds were not helpful, Teacher Bashir in Ghindae used the sounds of the letters of the Arabic alphabet. Teacher Bashir had diverse activities that students seemed to enjoy more. Although Teacher Bashir also used chanting, he was the one from the two teachers who was more concerned with the sounds of the letters (instead of names), writing practices and attempts at blending phonemes. While Teacher Bashir seemed to embrace many of the prescriptions in the new curriculum, Teacher Ali's teaching looked less influenced by the new curriculum and its approaches and was close to the traditional instruction. Traditional Arabic teaching in Eritrea introduces the Arabic letters starting with *a* and then moves to *ba*, *ta*, *sa*, etc. using the name of the letter or the consonant sound with the vowel *a*. After the 28 letters are introduced, the rest of the vowels are taught by using initially introduced CV (e.g., *ba*) and creating the rest of the CV combinations (*ba*, *bi*, *bu* and *b*, with silent *e*).

The use of words as prompts sometimes affected both teachers' efforts to teach beyond the letters. Every student said the word along the letter each time a question or task required the reading of the letter. In other words, long after the introduction of the letters, students still said the word along with the letter, *da – dabo-e*. Both teachers also used this style when asking students to come out and write letters on the blackboard. Once Teacher Bashir prepared a list of letters accompanied with their word prompts and engaged the whole class in chanting, i.e., reading the words after him.

Common to all the Arabic classes was that the teachers concentrated on one letter per day or two days and drilled the lesson through repeated chanting, writing on the blackboard and relating letters to drawings in an effort to help students memorize and recite the letters and words. Chanting, emphasis on

graphic forms, and word and letter memorization were the most frequently used activities or exercises.

4.4.4 Tigrinya

Introduction

Out of the four observations being described in this study, the Tigrinya literacy instruction is among the oldest practices that developed its own local teaching materials and methods. Tigrinya and Arabic were first introduced in schools during the British rule in Eritrea. While locals produced textbooks for Tigrinya, education officials imported teaching materials from Egypt and Sudan for Arabic. Tigrinya teaching has been influenced by the traditional teachings of Ge'ez religious texts, which emphasize chanting, recitation and memorization. The main goal of teachers in the classrooms of beginning readers has long been to help students recite the whole table of *fidel*, or Ge'ez syllabary. The table (see Appendix) has the CV *fidel* symbols ordered along seven columns of vowels. The vowel changes are indicated with a vowel diacritic or vowel marker (i.e., showing changes or additions to the basic CV *fidel*) to the 35 consonant entries (Tigrinya).

First lessons

The recent curriculum review has produced textbooks that have departed from the practice of teaching all the seven varieties of a *fidel* by concentrating only on the first order, which is commonly known as the *ge'ez* order. The lessons slowly move to the other varieties with additional emphasis on the most common sixth order, the *sadis*, which at syllable ending becomes a single consonant or a consonant with a weak vowel. The practice of introducing the most frequent and easy to write *fidel* symbol (e.g., *be*) in teaching also deviates from the traditional style of beginning at the top of the row of the *fidel* table (a transliteration of the reading and writing activities done in Tigrinya language and Ge'ez script are used in the text and extracts throughout this section).

The use of the first order *fidel* symbol (like the *be*, *se*, *te*, etc.) in formulating short words sometimes might appear difficult for students to understand. Although these basic letters are generally easier to write, the vowel that forms them is not that frequent. Therefore, words such as *selebe* (instead of the more frequent *seliba* 'she captured' or *selibu* 'he captured'), formed by strictly using first order se, le and be, may sound unfamiliar to first readers.

The first few lessons in the Tigrinya grade 1 classrooms teach children how to handle a pencil and a book. Students start with exercises on drawing lines and circles in their exercise books or work books. After these few lessons on print awareness and pencil handling, the following lessons introduce the first

order or basic form of the most frequent *fidel* symbols in groups of two or three. The *fidel* symbols are introduced accompanied by sketches of animals and objects with their names, which start with the same sounds, written at the side. More words containing the *fidel* symbol are then given in the next few pages. A typical lesson in the Tigrinya classroom usually constitutes the introduction of one *fidel* symbol accompanied with words that contain that particular *fidel* symbol (see Figure 4.4).

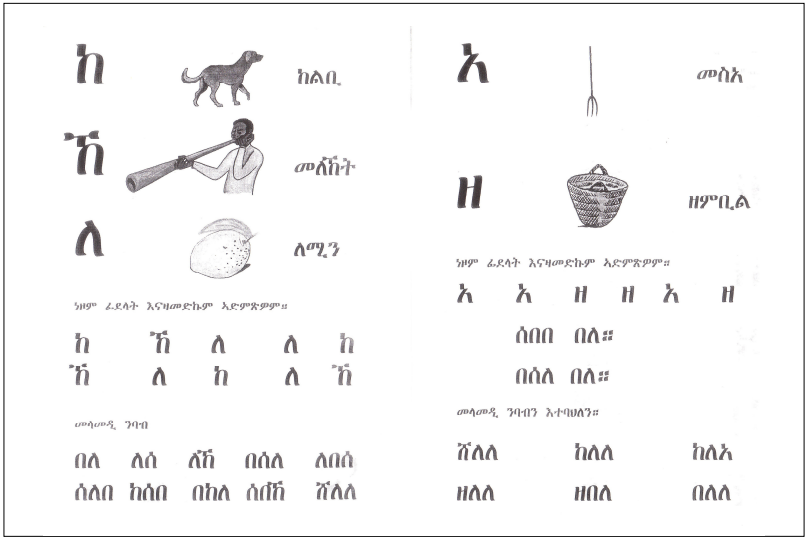

Figure 4.4: Sample pages from the Tigrinya language primer

Schools observed

We observed three classrooms in three different schools in and around Asmara. The first one was the Finnish Mission Elementary School, a private school that was established by Finish missionaries in 1977. Its high entrance requirements make the school atypical and we therefore leave this school out of the observation analysis and concentrate here on the two other schools. The focus of the description will be the instruction of Teacher Dahab in Tseada Christian Elementary School in Tseada Christian, a village ten kilometres west of Asmara. The third school in the study was Godayif Elementary School, in the city of Asmara. The classroom observation in this school (Teacher Mulu) is only used to provide additional illustrations.

Tseada Christian Elementary School was established in 1951 during the British rule in Eritrea. At the time of our visit, it had around 1,100 students and 25 teachers in morning and afternoon shifts. A majority of the teachers in the

school have gone through a one-year teacher training. The school in Asmara, Godayif Elementary School, was established in 1946. The number of students on both the evening and morning shifts at the time of the study was more than 1,200. Around 28 teachers served at the school, with all of them having a one-year teacher training. The grade 1 classrooms in both schools have between 40 and 50 students each.

Table 4.4: Schools observed and teachers interviewed in the Tigrinya classroom observations

School	Name teacher	Gender	Observed	Interviewed
Finnish Mission (Asmara)	Teacher Saba	Female	08-10/11/2006	10/11/2006
Godayif (Asmara)	Teacher Mulu	Female	13-17/11/2006	Not available
Tseada Christian (Tseada Christian)	Teacher Dahab	Female	13-17/11/2006	17/11/2006

Literacy instruction in Tseada Christian Elementary School

Observations

In her classroom of 47 students, Teacher Dahab had already covered seven or eight of the *fidel* symbols in the last six weeks. Students were practicing reading simple words of first order letters formed from the *fidel* symbols they have so far covered.

Teacher Dahab's instructions usually started with a short tale recited by a student in front of the class and moved to writing exercises where students came out and tried to write a letter and later on words they had learned in previous weeks. The teacher let other students correct mistakes done by those at the blackboard. Typically, this writing on the blackboard exercise was followed by chanting after a student's reading from the blackboard of items written by the teacher (usually the same or similar items the students had been attempting to write on the blackboard).

Teacher Dahab's lessons usually included folk tales (told by a volunteer student standing in front of the class), revision of earlier lessons and delivery of the day's lesson. Some of these activities were observed as the reading and writing practices for the day unfold in Extract 9.

Extract 9 (14/11/2006)

TR: we will read from what we learned, first two-letter words, what is this? [showing a flashcard with *lekhe*]
ST: *leqe*
TR: *lekhe*
STS: *lekhe*
TR: *bele* [showing a flashcard with *bele*]

STS: *bele*
[teacher hangs these two flashcards on the blackboard and takes some more out]
TR: what is this? [shows *selebe*]
ST: *lelebe*
ST: *selebe*
STS: *selebe*
TR: *besele* [shows *besele*]
ST: *behhale*
ST: *selele*
ST: *selebe*
TR: *besele*
STS: *besele*
TR: *bekele* [shows *bekele*]
STS: *belele*
TR: *bekele*
STS: *bekele*
[students spend some minutes chanting after the teacher]

Introducing a new letter to the class followed similar techniques of picture and letter associations common in the rest of the classes observed. After briefly revising earlier lessons by way of asking students to read short words from cards, the teacher put up a string across the blackboard and started (see Extract 10) to show a picture of a bull's head with a *qerni* (horn).

Extract 10 (14/11/2006)
TR: what is this?
STS: *qerni*
TR: *qe* [holding a flashcard with *qe*]
STS: *qe*
TR: take out your exercise books [while writing on the blackboard] first we put a vertical line and then you do a curved line here and another curved line here

The use of pictures of animals and objects and their names was sometimes interfering when children were trying to read words. Teacher Dahab tried to tell children to drop the words usually associated with the letters when trying to read or write the letter (see Extract 11).

Extract 11 (15/11/2006)

TR: what letter did we learn yesterday?
STS: *qe – qerni*
TR: who can write it?
ST: *qe* [writes it on blackboard correctly; students congratulate him]
TR: what is this letter?
STS: *qe – qerni*
TR: we don't need *qerni* , say *qe*
STS: *qe*
TR: now, take out your Tigrinya exercise books, the one with the red mark on it

This practice of association between names of animals and objects and letters sometimes became useful in helping weak students struggling to read. Teacher Mulu, from the Godayif Elementary School in Asmara, employed this association when a student wrongly wrote *gezete* as *gezene*: "This is *ne-nebri* (tiger), what you need to put after *geze-* uses *te – temen* (snake)."

Some of the students read the words on the blackboard twice; first slowly reading the letters of the words individually (*se…le…be*) before they said the whole word (*selebe*). Some of the teachers interviewed thought the slow counting was not a problem for such beginner readers. However, weaker students often needed the mention of names of animals or objects that were associated with the letters before they tried to read.

Teacher Dahab from Tseada Christian Elementary School moved around and corrected students writing mistakes. In writing exercises, she put the letter of the day in the exercise books of many of the students. Then she ordered them to repeat the letter she wrote in the first line. She asked the good students to show the poor ones how to write. Sometimes, about four to five students were attracted to the activity and closely watched the good student help the weak. Some commented, others helped by erasing the 'wrong letters' (i.e., poor attempts at writing by weak student) and still others watched silently. In one case, the teacher scolded one good student who was doing all the writing for a weaker one.

In Godayif Elementary School in Asmara, Teacher Mulu usually prepared games of writing and reading. In one of these, Teacher Mulu gave a group of four to five students a card each with one word written on it. After the students helped each other reading it, the teacher collected the cards. Students from each group were then asked to write on the blackboard the word their particular group had studied.

Another letter recognition game required students to jump into squares with letters written on them and say the letters as they landed on the square. There were about six to eight squares marked on the floor inside the classroom with

nine letters written on them. All the *fidel* symbols had already been introduced to the students earlier. About 14 students attempted the reading game with most of the students doing well (four of them read all the *fidel* symbols correctly). About four poor students were struggling to read any of the letters. The teacher made these students stay behind and watch the rest of the students reading the letters in the game. Teacher Mulu dismissed the weak students at the end of the game.

Teacher interviews

Teacher Dahab used chanting frequently, because, according to her, "it specially helps the weak students realize how and what the *fidel* symbols are from listening others saying and by chanting with them". When asked why she allowed students tell stories instead of using the reading book, Teacher Dahab, said: "Children like the stories in the story book. But the stories are long and take up much time. I don't use it that often because of that. There is shortage of time. Otherwise, it is good. I also have another folk story book that I use."

The use of infrequent words as a starting point in the primers (e.g., *selebe*, instead of *selibu* or *seliba*), according to Teacher Dahab, was not a problem as it was meant to teach students only reading. Teacher Dahab said she thinks "priority is placed on reading and not on understanding meaning. So, when students write 'reversed *ne*' mirroring *ne*, you can not overlook that". Teacher Dahab said she believed Ge'ez "*fidel* symbols are not so much numerous as their shapes are varied. The shape of the letters is the most difficult thing".

Conclusions

The Tigrinya writing lessons were dominated by efforts to inculcate the proper graphic forms of the letters. The teachers talked of putting a horizontal bar at the top of a letter or a ring on the right or left side of the leg, etc. Taking the similarity of especially the first few symbols in the Ge'ez syllabary (*se* and *le*, *ke* and *khe*, *ne* and *ge*, etc.) into account, this concern on the form on the part of the teachers was probably understandable. In every writing exercise, which seemed to happen more often and with bigger units such as words in the Tigrinya classrooms than in the other languages, this emphasis and explanation of the forms of the letters was easily recognized. Some students still struggled with the forms (sometimes writing 'non-letters' and 'non-words' mirroring the shape). One or two students were observed starting to write from right to left (one of these students was a boy who just transferred from an Arabic medium school in Tessenai, in the west of the country).

In both classrooms students were asked to cooperate with each other. We observed weak students getting help from their classmates. There was also group reading of a word written on a flashcard that was placed among a group

of students. This cooperation in learning was extended further when the teacher at the end of one lesson instructed students to ask help in one assignment from their elder brothers or sisters at home. This may not be easy to do for children with illiterate parents and siblings.

4.5 General conclusions

This study aimed at exploring the methods of introducing grade 1 children to literacy in different languages and scripts. The classroom cases and additional information from teacher interviews have painted a picture of the first encounter of beginning readers in their efforts to understand the spoken and written language correspondence, to study the specific letters of the script and the eventual move to reading words and short sentences.

In all the instructions in the four languages, there is a concentrated effort on teaching the child how to learn, i.e., memorize mostly, the letters of the specific script. The use of chanting, memorization games, recitations of letter - animal or letter - object name associations, and repeated exercises of letter writing that emphasized graphic forms are all aimed at teaching the letters and word reading. Rarely do these instructions involve explicit explanations of the written language and print awareness or reading readiness or other similar whole language experiences. The focus, as we have seen in all the classrooms, was the drilling of skills of memorizing the letters or words in the written language.

This emphasis on the phonics in practice is different from the mixed phonics and whole language approach advocated in the teaching materials – the textbooks and the teacher guide developed in the context of the 2004 revisions to the curriculum. Many teachers said they are following the prescriptions outlined in the teacher guide that clearly stated that the teaching of literacy in Eritrea is going to be mixed in approach and student-centred in style. The main reason behind the poor adherence to the mixed phonics and whole language approach was the availability of the grade 1 teaching materials (the alphabet, work and reading books and the teacher guide). The reading book and partly the work book, designed to manifest the whole language approach, were expected to complement the alphabet book, which was primarily concerned with teaching the letters and syllable symbols. Rarely were all the materials made available in time for a complete implementation of the curriculum. Most of the time, schools were provided only the alphabet book. In the absence of the other materials and inadequate training on how to use the available materials, teachers fall back to what they already know (e.g., drill exercises, chanting, etc.) to teach the contents of the alphabet book. Although all the teachers attended a minimum of few days workshop on the new teaching

materials and most of them said the teacher guide was clear, many complained about the big volume of the guide. Many of the teachers also said they thought there was too much teaching material in the new grade 1 curriculum.

Within this overall similarity in their aim at skill teaching, the instructions of the teachers still had their own particularities. The Kunama instruction emphasis on transparency meant greater time spent on teaching tone, long and short vowels, and consonant geminations. The Saho syllable level teaching of phoneme level script was dedicated mostly to syllable reading and blending. The second language teaching approach to Arabic instruction made the teaching of alphabetic Arabic different from the rest of the languages. The Ge'ez syllabic teaching seemed to move easily to word reading, although a bigger amount of time was dedicated to *fidel* memorization.

All the inconsistencies (e.g., teaching names of letters and not sounds, failing to use reading readiness materials, failure to use the work book, and in general the partially inadequate application of the new curriculum) make it difficult to judge whether the new curriculum is replacing the old one or whether some elements of the new curriculum are finding a way to co-exist with the old teaching approaches and traditions. As Wright (2002) found out there is merit in understanding and acknowledging the old teaching methods of reading and writing in Eritrea. No one also denies that the new teaching materials produced in the context of the revised curriculum are far more improved compared to the materials that were in use earlier. The language and education experts at the Ministry of Education tried to combine elements of both phonics and whole language approaches in producing the new teaching materials. By doing so, the Eritrean educators aligned themselves with what is current in the debate on phonics versus whole language approaches, i.e., an approach that advocates for combining the two methods is gaining ground in the debate (Hurry, 2004). However, the mixed phonics and whole language approach embraced in the curriculum in Eritrea was not fully reflected in practice. The 'day after day' or the 'operational' curriculum observed in the classrooms of this study has deviated from the 'formal' curriculum written on the education documents reviewed (Goodlad, Klein & Tye, 1979).

CHAPTER 5

Grain size in script and teaching: Literacy acquisition in Ge'ez and Latin[1]

5.1 Introduction

In the process of becoming literate, beginner readers across languages and orthographies primarily acquire systems of correspondences between graphic symbols and units of sound (Byrne, 1998; Share, 1995; Ziegler & Goswami, 2006). Depending on the writing system, the representation of language units in orthography may take the phoneme, syllable or morpheme as a starting point. Although it seems evident that phonological awareness plays an important role in the development of reading in all orthographies (Ziegler & Goswami, 2005), differences in the pace of the development of phonological recoding have been observed across languages. In a survey of early reading development in thirteen European languages, Seymour, Aro & Erskine (2003) discovered that the development of reading in opaque and inconsistent orthographies (such as English) was slower than in shallow and consistent orthographies (such as Finnish). In their seminal article on becoming literate in different languages, Ziegler & Goswami (2005) proposed the psychological grain size theory (PGST) to explain these developmental differences in reading in several European orthographies. According to the theory, differences in reading accuracy and speed observed across orthographies "reflect fundamental differences in the nature of the phonological recoding and reading strategies that are developing in response to the orthography" (Ziegler & Goswami, 2005: 19).

The psychological grain size theory highlights the significance of three core features in the relationship between language and orthography: the availability or accessibility of phonological units, the consistency of the mapping between spelling and sound, and the granularity or the grain size of the scripts. These features refer to the three core problems learners face in beginning to read. The

[1] This chapter is a slightly adapted version of Y.M. Asfaha, J. Kurvers & S. Kroon (2009), Grain size in script and teaching: Literacy acquisition in Ge'ez and Latin. *Applied Psycholinguistics*, 30 (4), 709-724. The journal is published by Cambridge University Press.

availability problem relates to the fact that not all phonological units are equally accessible (Durgunoglu & Oney, 1999; Gombert, 1992; Liberman, Shankweiler, Fischer & Carter, 1974). Consistency refers to the problem that some graphemes can have different pronunciations or some sounds different spellings. And the granularity problem reflects the reality that using a bigger grain size in the orthography typically means a larger number of basic orthographic units (e.g., there are more characters in Chinese than letters in English).

In the process of acquiring early phonological recoding skills, these three problems barely operate independent of one another. For example, using a more easily accessible bigger grain size (like a syllable) in the orthography often comes with a price – the beginner reader has to learn much more units than in small unit orthographies. In addition, the basic grain size in the orthographic systems do not always coincide with the grain size of the teaching methods (Ziegler & Goswami, 2006). Therefore, some of the important questions that follow are: What is the relative importance of each of the core features of availability, consistency, and granularity in beginning reading? How important is availability, for example, when compared to granularity or consistency? (For interactions of consistency and granularity in phonological dyslexia, see Wydell & Kondo, 2003). Ziegler & Goswami's (2005) cross-linguistic theory emphasized the consistency of the mappings between the orthographic and phonological units to explain differences in reading development across European languages. Goswami & Ziegler (2006) also acknowledged the relative availability of smaller units (phonemes) in simple phonological structures represented with consistent orthographies (e.g., Italian or Spanish) or in languages with rich morphological structures (e.g., Turkish).

Although there was no explicit reference to the psychological grain size theory, the study by Nag (2007) compared English and Kannada (an Indian alphasyllabary with 470 *Akshara* symbols) beginning reading skills. The outcomes of the study pointed to the impact of granularity as the study showed that learning to read in Kannada was slowed down by the large number of *Akshara* syllable symbols the children had to learn. Winskel & Widjaja (2007) studied the grain size adopted by beginning readers and spellers of Indonesian, a language where the syllable is salient and the alphabetic orthography transparent. They found out that reading and spelling were primarily acquired at the phoneme level but were augmented by acquisition of reading and spelling at the syllable level as well.

Despite the availability of cross-linguistic studies (Lee, Uttal & Chen, 1995; Nag, 2007; Seymour *et al.*, 2003), the application of the psychological grain size theory in learning non-alphabetic orthographies has been very rare. Studies across different scripts and languages are often complicated by the fact that comparisons are mainly possible in different cultural and educational traditions.

There are comparative investigations of early reading acquisition in different languages taught within a national curriculum (see Bruck, Genesee & Caravolas, 1997; Ellis & Hooper, 2001), although these studies deal with alphabetic scripts only (English, French and Welsh).

The current study investigated the relative importance of especially two of the core features of the PGST (i.e., availability and granularity) to early reading in different languages and scripts in Eritrea, a multilingual African country. The study compared early reading and spelling skills in four languages that employ two different systems of writing: the alphasyllabic Ge'ez or Ethiopic and the alphabetic Latin script.

Since the PGST emphasizes the phonological structures and the consistency with which those structures are coded in the orthography (Ziegler & Goswami, 2005), we briefly describe the languages in the study, their orthographies and the teaching methods used before presenting the empirical study and the results of the comparisons.

5.2 Ge'ez and Latin orthographies

Our study compared beginning reading and spelling in four different languages in Eritrea, a country in the Horn of Africa, where the educational policy allows the use of the country's nine languages and three scripts (Ge'ez, Latin alphabet and consonantal-alphabetic Arabic) in primary education. Four of these languages (Saho, Kunama, Tigrinya and Tigre) are the focus of this study. Saho and Kunama are written in the Latin alphabetical script, and Tigrinya and Tigre in the alphasyllabic Ge'ez script.

The four languages in this study share a simple phonological structure. The Semitic languages Tigrinya and Tigre allow V, CV, and CVC combinations as syllables, with clusters of consonants broken up with the insertion of a vowel to conform to the CV and CVC syllable structure (Raz, 1983). The Tigre language occasionally has the CCV or more precisely the tCV syllabic structure, e.g., *tgasa* (he sat down) (Saleh Idris, personal communication, July 2007). The Cushitic Saho also has a simple syllabic structure and does not allow consonant clusters (Banti & Vergari, 2005). Typical Saho contains V, CV, VC, and CVC syllables (e.g., *alsa* 'moon', *faras* 'horse'). Nilo-Saharan Kunama has an even simpler CV open syllable structure, especially with nouns. Thus, a loanword like *kubbayat* (cup) from Tigre, for example, adds a vowel at the end, *kubbayata*, to become a Kunama noun (Abraha, 2005). All the languages have rich morphology.

Although a systematic analysis is difficult to find, the orthographies of the four languages show regularity in the way orthographic units represent either phonemes (Saho and Kunama) or syllables (Tigrinya and Tigre). The Ge'ez

orthographies of Tigrinya and Tigre also use 'single consonant' symbols (with silent vowels) to represent syllable endings in the CVC-syllables.

Tigrinya and Tigre orthographies are based on the script of Ge'ez, an alpha-syllabary originally used to write a Semitic language by the same name that is now limited to Orthodox Church liturgical use. A single Ge'ez letter, commonly called *fidel*, consists of a core consonant and a vowel. The seven vowels form the columns of a traditional ordering of consonants in rows with vowel changes indicated by a slight change of the diacritic to consonant entry in each row. The resulting table consists of many syllable symbols (245 in the case of Tigrinya and 205 in Tigre) in a predictable pattern (see Appendix for the table of *fidel* symbols). The Tigrinya and Tigre orthographies do not represent gemination of consonants. Tigrinya has 35 consonants and seven vowels, where some of the Tigrinya consonants are labialized variants of the basic Ge'ez consonants. Tigre has 25 consonants and seven vowels. The Tigre orthography recognizes the vowels in the first and fourth column of the matrix as the same vowel with different lengths. Unlike other Semitic orthographies such as Hebrew, the Ge'ez orthographies of Tigre and Tigrinya are transparent in how they represent CV *fidel* symbols, although the vowel diacritics are not always graphically put in a predictable linear pattern.

Latin alphabetic Saho orthography consists of 31 consonant letters (out of which nine are digraphs) and five vowel letters. Long vowels and consonant geminations in Saho are represented by doubling of the letters. In the Latin alphabetic Kunama orthography, there are 20 consonant and five vowel letters with length of vowel and consonant gemination indicated by doubling of the letters. There are two digraphs in the orthography. Starting from 2004, the Kunama school orthography has incorporated two diacritics to represent a high and a rising tone (John Abraha, personal communication, July 2007). Until now, the tone diacritics have only been used in the lower grades of primary school.

5.3 Teaching methods in Ge'ez and Latin

Ziegler & Goswami (2006), like many others, warned against potential problems arising from socio-cultural differences in conducting cross-linguistic research (see also Lee *et al.*, 1995). Such differences include variations in educational traditions, teacher qualifications, teaching methods and the availability of resources. Eritrea is an excellent context for cross-linguistic and cross-scriptal research because all the schools employ the same national curriculum, comparable instructional materials and similar teaching method. Teacher qualifications are comparable (one year of teacher training) and group sizes are usually

big all over the country (on average 40-60 children in a classroom) (see also Chapter 4).

Textbooks are prepared in each of the nine languages by language panels (groups of language and education experts at the Basic Education Unit in the Ministry of Education) following the same scope and sequence descriptions that are based on the national curriculum. There is an alphabet book, a work book and a reading book. The textbooks are accompanied by a teacher guide. The grade 1 textbooks for the students in all the four languages of the study are similar in content and structure. The grade 1 alphabet books start with the introduction of a vowel in the case of Latin alphabet or a CV *fidel* symbol in the case of Ge'ez, appearing together with a picture of an object or animal the name of which begins with the same letter or *fidel* symbol. The rest of the letters and *fidel* symbols are gradually presented in the same manner over the pages of the whole book. Teaching of the Tigrinya and Tigre letters to beginner readers emphasizes familiarization with the *fidel* table, which has a demanding number of characters (245), although not as many as the *Akshara* syllable symbols (470) in Kannada (Nag, 2007). In all alphabet books (Ge'ez and Latin), new graphemes or *fidel* symbols are introduced together with a word and a picture, and followed by exercises in repetition and blending of graphemes or *fidel* symbols thus far presented.

Teaching the alphabetic Latin and the alphasyllabic Ge'ez has always been influenced by the traditional 'chanting after the teacher' (Wright, 2001), with its roots in religious Ge'ez and Arabic schools and its suitability to large class sizes. The current classroom practice revolves around drill-oriented learning and memorization of letters and syllable symbols. This appears to be leaning towards a skills approach. In both types of classrooms, syllable blending, simple word decoding and gradual introduction of short sentences are part of the instruction (see also Chapter 4).

Although the content of the alphabet books in Kunama and Saho is comparable, the introduction and teaching of the graphemes differs slightly. Teaching of the alphabetic Saho letters is centered on syllables. For example, the introduction of the letter *k* immediately starts with the syllable *ka*. The reading instruction goes on to name the rest of the CV-structures combining the consonants with the five vowels (*ka*, *ku*, *ki*, *ke*, *ko*). The exercises that follow the introduction of the letters are syllable blending (*ko* + *be* = *kobe*; *laa* + *ma* = *laama*). The next consonant is introduced in the same way (*la*, *lu*, *li*, *le*, *lo*). Kunama orthography teaching is more comparable to what is practiced in the teaching of the Latin alphabet, that is, there is an effort to achieve one to one phoneme-letter correspondences. Exercises on phoneme and syllable blending are commonly used to highlight length and gemination, and tone variations.

The current study compared the spelling and reading results of children from these four languages that use two scripts with different grain sizes, the syllable and the phoneme. The study aimed to compare reading and writing skills of grade 1 children in the alphasyllabic Ge'ez orthographies with the alphabetic ones, and to compare, within the alphabetic orthographies, the reading and writing skills of grade 1 children in the two languages that differed in the grain size emphasized in the initial teaching. Additionally, some grade 4 comparisons are added to aid interpretation of the grade 1 outcomes. The grade 4 Kunama results were in the old Kunama orthography that lacked tone diacritics.

As there have been studies that suggested that syllables are much more accessible than phonemes (Bertelson, 1986; Durgunoglu & Oney, 1999; Gombert, 1992; Liberman et al., 1974; Morais, Cary, Alegria & Bertelson, 1979), we expect that children learning to read the syllable-based Ge'ez orthographies to do better in word reading and spelling tasks than children in the phoneme-based Latin orthographies. From the availability point of view, this leads to the prediction that Ge'ez script students will have higher reading and spelling scores than Latin alphabet students. However, there are 205 and 245 symbols in the Tigre and Tigrinya Ge'ez orthographies respectively compared to the 28 or 34 letters in the Kunama and Saho Latin orthographies. In terms of the big number of syllable symbols, the Ge'ez script may prove to be a disadvantage to the beginning reader (compare Nag, 2007). From this granularity point of view, we expect Ge'ez *fidel* symbols knowledge to be lower than the Latin letter knowledge and we expect reading and spelling results in Ge'ez to be affected accordingly.

Regarding the consistent Latin orthographies of Kunama and Saho, we expect that the Saho syllable teaching method will be more advantageous to beginner readers than the Kunama phoneme-based teaching method.

In summary, the study aimed to investigate the impact of the grain size at two levels. First, it looked at the grain size of the script in relation to the number of symbols by comparing the alphasyllabic Ge'ez with the Latin alphabet. Secondly, the effect of the grain size of initial teaching in Saho and Kunama alphabetic orthographies was compared.

5.4 Method

5.4.1 Participants

The study included 385 grade 1 children randomly selected from 29 Kunama, Saho, Tigre and Tigrinya medium schools. In some cases, more than one classroom was sampled from a single school. Children whose mother tongue

differed from the language of instruction in the schools were excluded from the study. To minimize teacher effects, we randomly selected ten to twelve children from each of the classrooms. Since Walter & Davis (2005) revealed very poor reading performance among primary school children in Eritrea, we used a stratified sampling strategy to circumvent floor effects. About four to five children of the "high achieving" (ranking in the upper ten in overall classroom achievement) and slightly more students (six to seven) from the rest of the class were randomly selected. Therefore, about 40 percent of the children in the sample came from the ten best children in each of the classrooms, and the remaining from the rest of the students in the classrooms. From the same schools, 206 grade 4 students were assessed using the same word reading test as in grade 1 (see Table 5.1). The schools were selected from urban and rural geographical areas where the four languages are dominant. The physical conditions of the rooms, the availability of teaching materials, and the number and the professional training of teachers were comparable across the languages. For example, a minimum of 81 percent (Kunama) and a maximum of 98 percent (Tigre) of the teachers in the schools under study had received a year-long teacher training before they started teaching.

Table 5.1: Number of schools and students for each of the languages

Scripts	Language	N schools	Grade 1		Grade 4	
			N	%	N	%
Alphabetic	Kunama	5	102	26.5	59	28.6
	Saho	7	87	22.6	49	23.8
Syllabic	Tigre	6	86	22.3	49	23.8
	Tigrinya	11	111	28.6	49	23.8
Total		29	385	100.0	206	100.0

5.4.2 Instruments

Tests for grapheme or *fidel* symbol knowledge, word reading, and spelling were the main instruments developed for use in this research. All instruments were piloted in all the languages of the study in different locations.

Background questionnaire

The background questionnaire consisted of questions on the child's personal data (first language, age, classroom repetition, ranking, grade, sex, and pre-school experience), parents' education (years of schooling) and social (job) background.

Letter knowledge

Since knowledge of graphemes and syllable symbols (Lee *et al.*, 1995; Nag, 2007; Seymour *et al.*, 2003) was found to be a predictor of progress in learning to read in alphabetic and alphasyllabic orthographies, a list of 25 randomly selected letters and symbols from each of the four languages formed the letter and syllable symbols knowledge tests. In the Latin orthography tests, the letters were presented in clear lower case. For the Ge'ez script tests, a list of 25 *fidel* symbols was prepared (Ge'ez does not differentiate between upper case and lower case). Two practice items preceded the test items. The students were asked to name the letters. Both the names and sounds of the letters were considered correct.

Word reading

Many scholars (Hambleton, 2005; Lee *et al.*, 1995) acknowledged the difficulty of constructing comparative tests in different languages and different scripts, especially when beginning reading and spelling was the focus. Comparative test construction, therefore, has to be based on careful analysis of the curriculum of each language or script. In a single national curriculum in Eritrea, textbook analysis was a straightforward and valid way of proceeding with test construction, as schools use comparable textbooks for beginning reading in each of the languages. In preparing the reading tests, all words in the textbooks for grades 1-5 were listed for each of the languages. These lists of words constituted, for each language, a computerized dictionary (Lee *et al.*, 1995) from which the word reading and spelling tasks were prepared.

Every word from the grade 1 alphabet book was entered into the computerized dictionary. Subsequently, every new word from the textbook of the next grade level was added to the dictionary together with a note indicating the grade level. Considering the early readers' perspective and the rich morphology of the languages involved, inflections of root words (e.g., *wedi* Tigrinya for 'boy' and *awedat* 'boys') were mostly counted as new entries. The 200 word items in the word reading tests for each of the four languages were then randomly selected from these dictionaries. Out of the 200 words in the word reading task, 120 were selected from the grade 1 part of the list and the rest from higher grade-level entries in the dictionary. This was an attempt to include words that children have been exposed to in their first year at school but also words that they are likely to encounter in subsequent school years. The first seventy words in the word list were placed in a single page in two columns and the remaining words on the next page to avoid possible feelings of panic with those students poorly progressing through the list. The same word reading test was used in grade 4.

Spelling

The twenty items for the spelling test in each of the languages were randomly selected from the 200 items list in the word-reading test. Half of the twenty spelling items were from the grade 1 part of the word reading test and the rest were from the upper grades.

The internal consistency of all the tests was good in general and in each of the languages (see Table 5.2).

Table 5.2: Reliability (Cronbach's Alpha) of the instruments in each language

	Kunama N=102	Saho N=87	Tigre N=86	Tigrinya N=110	Overall N=385
Letter knowledge	.95	.95	.89	.94	.93
Word reading grade 1	.99	.99	.98	.99	.99
Word reading grade 4	.96	.98	.98	.90	.98
Spelling	.97	.93	.92	.94	.95

5.4.3 Procedure

The tests were administered with the help of multilingual research assistants and multilingual teachers from the schools that participated in the study. Both groups of assistants were given training ahead of the testing and were closely monitored by the principal researcher on all sites throughout the recording period. Only speakers with one of the four languages (Kunama, Saho, Tigre and Tigrinya) as their mother tongue were accepted as test takers. All the tests were administered with individual students in or around their classrooms using the respective languages of the children as media of communication. The child was handed the test copy and allowed to practice on the practice items before the examiner urged the first grader to move to the test items. In the grapheme or *fidel* symbol knowledge test, the examinee mentioned the letters or symbols as the research assistant recorded the answers in the examiner's copy. The word reading test was conducted in a similar way except that the child was reminded to read as far down the list of words as possible in the three minutes provided for the timed word reading task. The same procedures were used in the same word reading test given to grade 4 children.

Words in the spelling test to grade 1 were read to children who then attempted the spelling on the answer sheet while the examiner recorded the results. Dictating letters, words and sentences to students is still widely practiced in the schools, which meant in practice there was little or no need to put single words said by the examiner in context in most parts of the spelling test.

5.5 Results

5.5.1 Background data

We first examine the background data of the grade 1 sample of the four language groups (see Table 5.3), before proceeding to comparisons of grain sizes in the scripts and the teachings.

Table 5.3: Background of (Grade 1) participants, parents' mean years of education, and standard deviations (SD; in brackets)

	Tigrinya N=110	Tigre N=86	Ge'ez Total	Kunama N=102	Saho N=87	Latin Total	Overall Total
Male	54.5%	61.6%	57.7%	48.0%	78.2%	61.9%	59.7%
Female	45.5%	38.4%	42.3%	52.0%	21.8%	38.1%	40.3%
Pre-school	78.2%	88.4%	82.7%	37.3%	82.8%	58.2%	70.6%
Mean age	6.64	7.68	7.11	7.92	8.09	8.00	7.56
	(.76)	(.76)	(.92)	(1.04)	(1.85)	(1.47)	(1.30)
Father education	2.68	1.97	2.37	2.58	1.27	1.97	2.18
	(4.04)	(3.29)	(3.74)	(4.68)	(2.49)	(3.89)	(3.80)
Mother education	3.08	1.90	2.58	1.54	1.01	1.28	1.95
	(4.23)	(2.48)	(3.63)	(2.98)	(2.08)	(2.61)	(3.24)

The two script groups (Ge'ez and Latin) did not differ significantly in the number of boys and girls in the groups ($\chi^2(1, N=358)=.72$, ns). They did differ, however, in the percentages of children that had pre-schooling ($\chi^2(1, N=358)=27.74$, $p<.001$). The two script groups also differed significantly in age ($t=-7.03$, $df=314.291$, $p<.001$) and in the mothers' years of schooling ($t=-3.95$, $df=341.694$, $p<.001$). There was no significant difference between the script groups in the educational background of the fathers. The Tigrinya were mainly Orthodox Christians, while the Tigre and Saho were pre-dominantly Muslims. The Kunama were partly Christians (Protestant or Roman Catholic) and partly Muslims. Pre-school attendance for the Tigrinya referred mainly to Orthodox Church recitation based religious schools and to kindergartens in urban areas; for the Tigre, Saho and Muslim Kunama it mainly meant recitation based Qur'anic schools.

5.5.2 Grain size in scripts

To investigate beginning reading skills in the two scripts that differed in the grain size of the basic unit (syllable versus phoneme), we compared results of letter knowledge, word reading, and spelling tasks across Latin (Kunama and Saho, N=189) and Ge'ez (Tigre and Tigrinya, N=196). To measure effect sizes, Cohen's *d* was calculated. The two script groups differed significantly in pre-school experience of the children, in age and in educational level of the mothers

(see Table 5.3). Table 5.4, therefore, presents the results of comparisons and outcomes of the analysis of variance, with age, pre-schooling and mother's educational level as covariates.

Table 5.4: Grade 1 script group mean results, standard deviations (SD), F-values and Cohen's d

	Range	Total N=358		Alphabetic N=178		Syllabic N=180		$F_{1, 354}$	Cohen's *d*
		Mean	SD	Mean	SD	Mean	SD		
Letter knowledge	0-25	17.53	6.84	18.61	6.66	16.45	6.86	9.11*	0.33
Spelling	0-20	7.38	6.82	5.49	6.51	9.24	6.62	21.27**	0.57
Word Reading	0-115	31.19	31.16	22.27	29.12	39.57	30.93	18.09 **	0.55

*p<.01, ** p<.001

The results revealed that the mean scores of Ge'ez orthographies were significantly higher than Latin ones in the spelling and word reading tasks (p<.001). Notwithstanding the overall low reading rate (on average 31 words per three minutes), the difference between Ge'ez (about 40 words per three minutes) and Latin (23 words) was about 17 words, with medium to large effect sizes (d=0.57 and d=0.55). The scores on letter knowledge, however, were significantly higher in Latin than in Ge'ez. On average, 70% of the 25 graphemes or *fidel* symbols in the task were read correctly. The average Latin score was significantly higher than the Ge'ez score, with a medium effect size (d=0.33).

Although the longer list of *fidel* symbols in the Ge'ez script initially put children at a disadvantage, the effect of the easy to access and blend larger grain size (syllable) was nevertheless reflected in higher reading and spelling results in Ge'ez. Children appeared to be learning to read and spell faster in Ge'ez than in Latin scripts. As was evident in the comparisons of the consistent with the less consistent European orthographies (Ziegler & Goswami, 2005), the syllable availability advantage might fade away as children progress in reading. Taking this into consideration, the analysis next compared the Ge'ez and Latin results in grade 4 by first investigating the groups' background variables of age, pre-schooling, and educational levels of the parents. In all cases, the groups differed significantly. The grade 4 Ge'ez script students were younger than the Latin script students (t=-5.24, df=202.676, p<.001), significantly more Ge'ez script students had pre-schooling ($\chi^2(1, N=171) = 15.94$, $p < .001$), and both parents of the Ge'ez script students had on average more years of education (respectively t=2.81, df=169.618, p<.01 and t=3.79, df=160.184, p<.001). Therefore, age, pre-schooling, and parental educational levels were included as covariates. Table 5.5 presents the outcomes of comparisons of the two script groups.

Table 5.5: Grade 4 script group mean results, standard deviations (SD), F-value and Cohen's d

	Syllabic N=85		Alphabetic N=86		$F_{1, 165}$	Cohen's *d*
	Mean	SD	Mean	SD		
Word reading	115.49	36.54	118.48	30.87	2.21	0.08

As expected, the differences between Ge'ez and Latin script groups in grade 4 were not significant. The two script groups scored nearly the same. The advantages of the syllabic Ge'ez script over the alphabetic Latin that were observed in the grade 1 results seemed to diminish when learning progressed.

5.5.3 Grain size in teaching

Kunama and Saho share a consistent Latin script and a simple syllabic language structure. The two languages differ, however, in the grain size used in the initial teaching. The Saho teaching method emphasized the syllable while Kunama teaching focused on the phoneme. To see the effect of the grain size in teaching, we compared the Saho and Kunama results. Since the groups differed significantly in pre-school experience (significantly more Saho children had pre-schooling, $\chi^2(1, N=161)= 39.96$, $p<.001$) and educational levels of the fathers ($t=2.26$, $df=133.199$, $p=0.03$), covariance analysis was used with language as independent variable and pre-school experience and father's educational level as covariates.

The results of the comparisons of the two Latin orthographies are presented in Table 5.6. The results revealed that Saho children scored significantly higher than Kunama children did in all tasks ($p<0.05$ for grapheme knowledge, and $p<0.001$ for spelling and word reading). The effect sizes are high for word reading and spelling, and medium for letter knowledge.

Table 5.6: Grade 1 Kunama and Saho mean results, standard deviations (SD), F-values and Cohen's d

	Kunama N=86		Saho N=75		$F_{1, 157}$	Cohen's *d*
	Mean	SD	Mean	SD		
Letter knowledge	17.03	7.24	20.00	5.88	4.36*	0.46
Spelling	2.55	5.01	8.55	6.26	38.93**	1.03
Word reading	8.15	16.97	38.44	31.12	52.26**	1.95

*p<.05, ** p<.001

The results indicated that it made sense (with languages of simple syllabic structure) to use the syllable as a basis for teaching beginning reading even with alphabetic orthographies. The higher Saho results revealed that keeping the

traditional syllabic way of teaching was comparatively effective at the beginning stages of reading.

To see whether the syllable teaching advantage also occurs at a later stage, word reading results from grade 4 (where the Kunama word reading test was a reproduction of the grade 1 list without tone diacritics) in Kunama and Saho were compared. Although the addition of tone diacritics in Kunama grade 1 has made the orthography much more consistent, the cognitive load (memorizing) for the children became consequently higher, since the number of vowel representations, for example, increased threefold when compared to the old system.

Table 5.7 presents the grade 4 Kunama and Saho results, controlling again for significant differences in background variables of age ($t=5.61$, $df=106$, $p<.001$), pre-schooling ($\chi^2(1, N=86)=53.08$, $p<.001$) and parental educational levels (respectively $t=2.46$, $df=60.014$, $p=.02$ and $t=2.55$, $df=84.832$, $p=0.01$).

Table 5.7: Grade 4 Kunama and Saho mean results, standard deviations (SD), F-values and Cohen's d

	Kunama N=43		Saho N=43		$F_{1, 180}$	Cohen's *d*
	Mean	SD	Mean	SD		
Word reading	113.30	26.66	123.65	34.01	1.43	0.08

Although the average word reading scores of the grade 4 Saho readers were higher than the Kunama results, the differences were not significant.

5.6 Discussion

According to the psychological grain size theory, the three core problems beginning readers have to face are: *availability* (how easily accessible are phonological units), *consistency* (how much deviations are there from the one to one phoneme-grapheme correspondence), and *granularity* (how big is the inventory, since in systems based on bigger grain sizes the beginning reader has to learn more units). Using these features of the psychological grain size theory, the research set out to explain differences in results in early reading in four simple structured languages in Eritrea. The languages used the alphasyllabic Ge'ez and the alphabetic Latin scripts. Although the literacy instructions in these languages were provided within one national curriculum, there were slight variations in how letters within the alphabetic scripts were introduced to readers.

5.6.1 Alphasyllabic and alphabetic scripts

The results indicate that children taught to read and write in the Ge'ez syllable based script show significantly better results in word reading and spelling than children trained in the phoneme based Latin orthographies. Although Ziegler & Goswami (2005) warned against the simple 'large unit is better than small unit' comparisons, the results here reveal that the Ge'ez large unit based script is easier to acquire than the phoneme level system of Latin.

Syllabaries are known for their extensive inventory of syllable symbols, in the case of Ge'ez, the *fidel* symbols. It was the 'extensive orthography' of Kannada compared to 'contained' English (Nag, 2007) that dragged the development of reading in Kannada children. In this study, the 'extensive' list of *fidel* symbols does not appear to be a disadvantage when compared with the 'contained' Latin orthographies. Although letter knowledge is better in Latin orthographies, that knowledge does not easily convert into higher scores for word reading or spelling in the Latin orthographies. These results point towards the overarching theme of accessibility of the syllable. This advantage in availability appears to be there for beginning readers in Ge'ez where there is a systematic way of adding vowel diacritics on basic consonant symbols. As blending syllables is easier than blending phonemes, knowledge of *fidel* symbols, however low, translates into better word reading and spelling in Ge'ez than higher knowledge of letters does in the Latin orthographies. The syllable-based orthographies are compensated for the disadvantage of the big inventory of *fidel* symbols with the ease of accessibility of the basic writing unit of the system.

The outcomes reveal that the advantages of large grain size reading mainly affect the beginning stages of learning to read and spell. The initial differences in reading performances between the large unit and small unit writing systems do no longer exist at grade 4.

5.6.2 Syllabic and alphabetic teaching

The importance of availability is also reflected in the significant differences between Saho and Kunama reading scores. While both languages (with simple syllabic structures) use the phoneme-based Latin script, Saho teaching, at least at the initial stage, was based on the consonant-vowel combination teaching style, while Kunama stressed the phoneme-letter correspondences. The outcomes show that this puts Saho children in an advantageous position. While successful phonological recoding requires a shared grain size in the orthography and phonology (Goswami, Ziegler, Dalton & Schneider, 2003), the alphabetic small unit orthography in Saho is mediated by a large unit teaching that replaces phoneme-letter by syllable-letter correspondences.

This big unit teaching of small unit orthography seems to contribute to better word reading and spelling skills among Saho beginner readers. Unlike

Saho teaching, the Kunama instruction emphasizes phoneme-letter correspondences. The lower scores across the different tasks in Kunama, therefore, are indications of the unavailability of the phoneme at the teaching level. In grade 4, the Kunama and Saho results are comparable, indicating the possible loss of the initial grade 1 Saho syllable teaching advantage as readers progress in their learning. However, the grade 1 Kunama results could have also been affected by the implementation of the new tone orthography in Kunama schools, e.g., teachers' lack of familiarity with the tone diacritics.

Another point regarding Kunama that also requires further investigation is whether the small unit orthography and teaching contributes to better reading abilities at a later stage of the children's primary education (after five years of literacy instruction). As it has been established that phoneme level training (Ziegler & Goswami, 2006) benefits learners from all languages, even readers of the most complex orthographies such as English, it is possible that the small unit instruction in Kunama at the beginning might be beneficial at a later stage.

5.6.3 Implications

The findings show higher results of reading and spelling in the syllable-based Ge'ez orthographies although the number of basic units to learn is much higher in Ge'ez than in Latin. It is, therefore, possible to argue that this is the result of the ease of accessibility of larger units. Among the core problems of the psychological grain size theory considered by the study, these results suggest that availability counted more in influence than granularity in the initial stages of beginning to read and spell. As long as the inventory of signs is systematic and reasonably sized in number (compare Nag, 2007), the easy to access and blend syllables compensate for the price of larger inventory of basic orthographic units that children have to learn.

When the salient feature (i.e., the syllable) of the language is represented not in the orthography but in the large unit teaching, as in the case of Saho, then the large size in teaching (which the simple structure of the language allows) leads to better decoding of words. This slightly varies from the recommendations of the psychological grain size theory, where in teaching consistent orthographies, the theory predicts that the use of small grain size teaching works better than teaching based on large grain size (Ziegler & Goswami, 2005).

This availability advantage holds true for both a writing system that is basically syllabic as for a phoneme-based Latin alphabet that adopts the accessible syllable in teaching, ignoring more or less the phonemic basis of the script.

The syllable teaching method may only be applied, however, when the simple syllabic structure of the language allows it. For example, it may not work for English as the latter has a complex syllabic structure (with highly inconsistent orthography) that may not always allow the teaching of CV units. On the

other hand, the simple structures and consistent orthographies in Spanish and Italian may permit syllable teaching of the alphabetic scripts. This practice of syllable-based teaching is already known in the traditional CV-style recitations of Spanish alphabets (Pollard-Durodola, Cedillo & Denton, 2004).

If the latter outcome could be confirmed by more research, it may have implications for literacy instructions in simple syllabic structure languages in Africa and in the rest of the world that have adopted the Latin alphabetic script. The suggestion might be, as has been put forward earlier by Gleitman & Rozin (1977), to teach reading and writing in the Latin alphabet using the easy to access and blend syllable as a starting point.

CHAPTER 6

L2 reading in multilingual Eritrea: The influences of L1 reading and English proficiency[1]

6.1 Introduction

A central question in second language reading research deals with the role of second language (L2) proficiency and first language (L1) reading skills in the process of learning to read in a second language (Alderson, 1984; Bernhardt, 2005; Bernhardt & Kamil, 1995). While there has been considerable research on this matter in Western countries, there has been a notable lack of research carried out in the African context, where issues of access to adequate resources in reading and second language acquisition are at the forefront. L2 reading is particularly relevant in many African countries where the main language of education is English, often being the L2 or L3 of the students. While research (Bernhardt, 2005; Bernhardt & Kamil, 1995; Bossers, 1991; Carrell, 1991) has shown that L2 language proficiency and L1 reading play primary roles in predicting L2 reading in developed Western contexts, it remains to be seen whether this also holds for the acquisition of L2 reading in non-Western developing countries. Another factor, which has not been adequately explored in the existing studies, is whether and how the script in which L1 is acquired affects L2 reading acquisition in another script. The study in this chapter focuses on exactly these under-explored areas: the relationship between L1 and L2 reading in an African context as well as the role of script in L2 reading.

In this study, we look at the reading and language skills of Eritrean students in primary schools where the languages of instruction are usually the children's mother tongues. English serves as the language of learning and teaching in education from the sixth grade onward. In order to be successful in education, Eritrean students are expected to be proficient in English (L2 or sometimes L3)

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language and reading skills. It is important to understand the relationship between the children's L2 language proficiency and their L1 reading skills. In particular, it is relevant to establish what variables play a role in this process. Taking participants from five different languages written in three different scripts, we measure language and reading proficiency in the L1 and L2 (English). All of these language, reading and script related factors are then analysed in order to determine the predictors of L2 reading in Eritrea. We also consider the predictors of L1 reading.

6.2 Multilingual education in Eritrea

Eritrea, a country in the Horn of Africa on the Red Sea, was colonized for over a century by Italy, Great Britain, and Ethiopia respectively, before gaining independence in 1991. Eritrea is a linguistically diverse country with 3.6 million inhabitants belonging to nine different language groups. The languages are represented by three language families and written in three different scripts. The Semitic languages Tigrinya and Tigre use an alphasyllabic script called Ge'ez (known also as *Fidel* or Ethiopic) while the Nilo-Saharan languages Kunama and Nara and the Cushitic languages Afar, Saho, Bilen and Bidhaawyeet use the alphabetic Latin script. The Arabic language uses a consonantal alphabetic script.

The Ge'ez script was originally used to write a Semitic language by the same name that is now limited to Orthodox Church liturgical use. It is now used to write the Tigrinya and Tigre languages in Eritrea. A single Ge'ez syllable symbol, commonly called *fidel,* consists of a core consonant and a vowel. The seven vowels form the columns of a traditional ordering of CV symbols in a table with consonant entries coming in rows. Vowel changes are indicated by adding diacritic marks to the basic *fidel* symbol. The alphabetic Latin is used to write six of the nine languages in Eritrea. The Latin orthographies indicate vowel length or consonant gemination by doubling of the letters. One of these orthographies, the Kunama orthography, carries tone diacritics to indicate a high and a rising tone.

All the nine Eritrean languages and the three scripts are used in primary education throughout the country (Department of Education, 1991). Children are allowed to attend schools that use their mother tongue as a medium of instruction. Parents can also choose to send their children to attend schools where one of the dominant languages (Tigrinya and Arabic) is the medium of instruction. English is taught as a subject starting from second grade in primary schools and is the language of instruction in secondary school and higher education.

Some studies (e.g., Dutcher, 1998; Hailemariam, 2002) have shown that there are a number of problems relating to curriculum (many hours of language instruction, cognitive overload and low achievement levels) and resources (lack of trained teachers, bigger class size, etc.) that have resulted in low reading levels among primary school students in Eritrea. A 2002 survey of reading in eight Eritrean languages and English sponsored by the Ministry of Education revealed reading results in all the languages (including English) that are worryingly low (Walter & Davis, 2005). This has prompted a major revision of the education system with new textbooks and a more student-centred pedagogy at the heart of the changes.

6.3 English in Eritrea

All the nine languages of the country are the media of instruction in the first five years of education in the regions where they are spoken. Starting from the sixth year, the start of middle school, and in subsequent secondary and higher-level education, the medium becomes English. It is, therefore, important to understand the role of English in education in Eritrea. The ability for learners to progress in their education is hinged on their ability to master English.

English was first introduced into Eritrea by missionaries in the 19th century, though the most significant exposure to English occurred during the British military administration (1941-1952). During this period, English was adopted as the language of education in all post-primary and higher education (Wright, 2002). From 1952 to 1991, during Ethiopian rule in Eritrea, Amharic (the official language in Ethiopia) dominated primary education as well as all formal functions, though English remained important in post-primary education. English continued to be the language of instruction in post-primary education after 1991 when Eritrea gained independence from Ethiopia.

Outside of education, the role of English, described by Woldemikael (2003: 123) as "a neutral language without a strong social or political base in Eritrea", is extremely limited. English serves in international business and communication, but there is little occasion to speak, use or even encounter English outside of the educational setting (Walter & Davis, 2005).

The English curriculum used by the primary schools, where it is taught as a subject between second and fifth grades, emphasizes listening and oral comprehension in second grade, and general vocabulary, grammar, reading and writing in third, fourth and fifth grades. Compared to the local language programs, the English curriculum is quite comprehensive with well-developed textbooks and a detailed teacher's guide (Walter & Davis, 2005).

However, the English proficiency of Eritrean students remains very low due to many reasons. One challenge for students trying to learn English is the limited amount of time dedicated to teaching English. During the four years of primary English instruction, students receive approximately 750 English lessons totalling 450 contact hours. According to Walter & Davis (2005) at least four times this amount of time (1800 hours) is needed in order for the average child to be able to reach the level of English proficiency demanded by post-primary education. In addition, Walter and Davis noted that most of the teachers had a limited working proficiency of English and do not seem to have thorough control of the grammar. Having teachers whose English is so weak can be a major obstacle in building strong English skills in the students.

Another problem that could affect English proficiency can be found in some aspects of the curriculum itself. Wright (2002), in an ethnographic analysis of the social and cultural contexts of English language and literacy teaching and learning in a multilingual Eritrean town, noted that the teaching methods in the English curriculum deviated from the traditional teaching methods employed for L1 instruction. In their training, the teachers are told explicitly not to employ the traditional teaching techniques to teach English. The teachers who are already unfamiliar with the language must, on top of that, employ teaching techniques that are foreign to them. This provides a less than ideal learning environment that could also be a factor in the low English proficiency of the students.

Regardless of the students' English proficiency, the fact remains that when they begin their secondary education, these students will have to function using both written and spoken English in order to progress. As mentioned earlier, the English instruction in primary schools is preceded by at least one year of reading instruction in local languages. Within this context of multilingual primary education in Eritrea, we examine the relationship between the first and second (English) languages and reading skills.

6.4 The relationship between L1 and L2 reading

One of the main questions in the field of L2 reading research has been whether second language reading is a language problem or a reading problem (Bernhardt & Kamil, 1995: 15). There has been much research carried out on this topic, with results that seem to support both the language and the reading side of the debate. Some studies support the claim that success in L2 reading skills is dependent on L2 language proficiency, while others argue that L2 reading is achieved by transfer of reading skills from the L1. These two perspectives within L2 reading research are demonstrated in two hypotheses relevant to the

field: the Linguistic Threshold Hypothesis and the Linguistic Interdependence Hypothesis.

The Linguistic Threshold Hypothesis states that in order to read and understand in L2, a certain level of L2 language proficiency must first be achieved. The Linguistic Interdependence Hypothesis states that reading in an L2 is achieved by transferring and using the same reading skills already used in L1 reading. Thus, the Linguistic Threshold Hypothesis mainly holds L2 language proficiency responsible for L2 reading whereas the Linguistic Interdependence Hypothesis holds L1 reading responsible for L2 reading.

Bernhardt & Kamil (1995), however, have made it clear that the question in L2 reading is not either language (as in the Linguistic Threshold Hypothesis) or reading (as in the Linguistic Interdependence Hypothesis) but it is rather that both L2 language proficiency and L1 reading have a role to play in the development of L2 reading. Bernhardt & Kamil (1995) investigated these roles of Linguistic Threshold Hypothesis and Linguistic Interdependence Hypothesis in second language reading in a study focusing on students in three levels of Spanish instruction. The participants were all given reading comprehension tests in Spanish and two versions of comprehension tests in their native language English. Other standardized English literacy scores for many of the students were also available. The results of these examinations revealed that reading variables accounted for between 10 and 16 percent of the variance in L2 reading, and L2 language proficiency accounted for 30 to 38 percent of the variance in L2 reading. These results showed that both L2 language proficiency and L1 reading have an effect on L2 reading.

While L2 language proficiency does account for a greater proportion than L1 reading, both are important factors in their ability to explain L2 reading. However, the contribution from both the variables is still not enough to fully explain L2 reading acquisition, with other factors accounting for 50 percent of the unexplained variance in the L2 reading analysis. Some studies (e.g., Bernhardt, 2005; Bernhardt & Kamil, 1995) have suggested that the unexplained variance might be related to variables such as background knowledge and interest in topic, motivation, memory, perception, and other cognitive and background factors.

The interaction of the variables identified as predictors of L2 reading is complex. In a theoretical compensatory model of second language reading, Bernhardt (2005) argued that the variables contributing to L2 reading are not merely additive. This theoretical model emphasizes that the knowledge sources are not working in isolation from one another, but rather "operate synchronically, interactively, and synergistically" (Bernhardt, 2005: 140) in their ability to predict L2 reading. When knowledge in one area is not sufficient, another area can provide the needed support. Empirical results from a study by

Yamashita (2002) have shown a similar compensatory relationship between L1 reading skills and L2 language proficiency. Working on Japanese speakers of English as a foreign language, Yamashita (2002) found out that a small increase in L2 proficiency, for example, could compensate for a large decline in L1 reading to achieve a certain level of L2 reading.

As most of the L2 reading research has been conducted in Western contexts (see however, Lee & Schallert, 1997; Yamashita, 2002), many researchers (Bernhardt, 2005; Pretorius & Mampuru, 2007; Williams, 1996) have underlined the importance of finding out the relevance of L2 reading research and results to non-Western contexts. When it comes to the African continent, L2 reading research faces some practical problems related to L1 reading and L1 language. The absence or very low proficiency in L1 reading in many communities in Africa makes the study of transfer of skills from L1 to L2 difficult (Pretorius & Mampuru, 2007; Williams, 1996). According to Williams (1996: 184), the problem of identifying the contributions of L1 reading in L2 reading is made all the more difficult by the fact that in some cases L2 readers "have never read in their L1 simply because there is no written form, and for whom L1 reading can therefore make no contribution". Reading skills in Africa are often more strongly developed in the L2 than in the L1. Most of the research in the Western context assumes the existence of reading proficiency in the L1, and has yet to be reproduced in such an African setting where the prevalence of L1 instruction ensures L1 reading. The context in which reading is acquired in Africa is also characterized by limited educational resources, low reading levels, poorly prepared instructional materials, and a print-poor environment. The opportunities for gaining and maintaining reading skills, particularly in L1 languages, are extremely limited and restricted.

Another difficulty surrounding the conceptualization of the first language in Africa is the existence of varieties and dialects of the language of instruction. Williams (1996) noted that 'L1' was often used without qualification and it was rarely clear whether the language of schooling was the L1 of the student and not another language or dialect the child spoke. This can cause a great "misrepresentation of children who grow up in situations where many languages are in use" (Williams, 1996: 184). Any L2 reading research in Africa, therefore, has to adequately address the issues surrounding L1 languages and reading. For Williams, L2 reading research in Africa has to strive to fulfil two important conditions. First, the researcher must make certain that the L1 being tested is actually the L1 of the speaker and not simply a language the subject speaks proficiently. It is also important to control for non-standard varieties of the tested L1. Secondly, the readers to be tested in any L2 reading research must have already been adequately exposed to L1 texts (presupposing that L1 texts are available). In short, language proficiency and reading in the L1 must be

sufficient and tested in order for the findings to be relevant to the L2 reading research carried out in other contexts.

In addition, attention has to be drawn to any difference in L1 and L2 scripts. The most prominent and current research in L2 reading only investigated L1 and L2 languages that shared the same Latin script (English, French, Dutch, Spanish and Turkish) (Bernhardt, 2005). Reviewing second language reading research, Grabe (1991) presented studies that cited difficulties that are likely to arise from differences in scripts in the first and second (English) languages. Orthographic differences such as directionality of the writing system, consistency of correspondences between language and orthographic units, and punctuation and spacing, may all cause difficulty to some students of English as a second language of literacy. Another factor cited as a possible source of difficulty was the influence of a specific route of access (lexical or phonological) that logographic, syllabic, or alphabetic scripts seem to favour in word reading.

In another review of (English) second language reading research, Slavin & Cheung (2005: 274) argued that initial reading instruction in alphabetic languages such as Spanish and French may prove beneficial to the English as second language learner as "phonemic awareness, decoding, sound blending, and generic comprehension strategies clearly transfer among languages that use phonemic orthographies." In a cross-script study of Oriya, an Indian alpha-syllabary, and English, Mishra & Stainthorp (2007) investigated the influences of phonological awareness and word reading in the first and second language reading. The results showed transfer of phonological awareness with Oriya large unit (syllable) awareness influencing Oriya reading when Oriya was the first language of literacy but having no effect when Oriya was the second language of literacy instruction. However, English small unit (phoneme) awareness contributed to English word reading whether English was the first or second language of literacy instruction. Mishra & Stainthorp (2007) concluded that awareness of the smallest unit can facilitate reading in small or large grain-size script but larger unit awareness may not facilitate reading in small grain-size script.

The study presented here addressed the L2 reading situation in Eritrea. Our study partly fulfilled the ideal conditions for L2 reading research in an African setting proposed by Williams (1996). One of these conditions was that students in an L2 reading research must have received instruction in their L1. As primary education in Eritrea is delivered in all the local languages (see above), the study tried to make sure that the L1 reading training the participants received was indeed in their respective mother tongues. The students also had English (L2) as a school subject starting from their second year. All participants, therefore, had reading instruction experience and access to, mainly school based, print in their L1 in addition to the compulsory English instruction. This unique setting

provided an opportunity to explore the applicability of the L2 reading theory in a non-Western context. Given that the different languages in Eritrea are written in three scripts, the study also looked at the effect of L1 script on the relationship between the L1 and L2 reading and language variables. Although the study did not directly measure awareness of different phonological units, the influences of the small unit Latin and Arabic scripts and the large unit Ge'ez script may be revealed in differences in English reading results. As reading instruction in local languages precedes English literacy instruction, the Latin and Arabic script groups might show better English reading results because of potential transfer of alphabetic (small unit) reading skills (Mishra & Stainthorp, 2007) from these local languages to English. The study will explore the possible contribution of L1 script in predicting English reading.

Based on existing literature on L2 reading and its relations with L1 reading and L2 language proficiency, the research aimed at answering the question: What variables predict L2 (and L1) reading ability among primary school children in Eritrea? The study investigated the interactions of L1 and L2 reading, L1 and L2 language proficiency, and L1 script variables.

6.5 Method

6.5.1 Participants

The research design included fourth grade primary school students from five different Eritrean languages (Arabic, Kunama, Saho, Tigre and Tigrinya). These five languages were chosen in order to have adequate representation of languages from the three different scripts used in Eritrea (Arabic, Ge'ez and Latin). Tigrinya and Tigre represent the Ge'ez script and Kunama and Saho the Latin script. There are no other languages (outside Arabic) that employ an Arabic-based orthography in Eritrea. The same students were tested in both their L1 and English.

About 50 fourth-grade students from each of the languages made up a sample of 254 subjects. Around ten to fifteen students were randomly selected from classrooms in 21 schools all over the country. Since Walter and Davis (2005) revealed poor reading performance among children in Eritrea, we used a stratified sampling strategy to circumvent floor effects. About four to six children of the "high achieving" (ranking in the upper ten in overall classroom achievement) and slightly more students (six to eight) from the rest of the class were randomly selected. The schools were selected from the areas in which the five languages are prominent (a wide geographical area) and were roughly divided among urban and rural schools. The physical conditions of the rooms,

the availability of teaching materials and the number and the professional training of teachers were comparable across the languages.

A criterion for a student's participation in the tests was that the language of instruction in the school was also the mother tongue of the student. The only case in which the criterion was not strictly followed was in selecting students for the Arabic sample. While Arabic is a language spoken throughout Eritrea, it is only the mother tongue for a small group of people, the Rashaida. In our study, we were only able to test nine students from the only school in the Rashaida area, where instruction is in Arabic. The rest of the students tested in the Arabic sample came from Arabic medium schools in other regions of the country and had Arabic as their second or third language. Even for those whose mother tongue was Arabic, the variety frequently used in their homes, colloquial Arabic, might be largely different from the classroom variety, modern standard Arabic.

An overview of the participants is given in Table 6.1.

Table 6.1: Number of schools and students from each of the languages

Script	Language	N schools	N students	% of total
Latin	Kunama	4	59	23.2
	Saho	4	49	19.3
Ge'ez	Tigrinya	5	47	18.5
	Tigre	4	50	19.7
Arabic	Arabic	4	49	19.3
Total		21	254	100.0

6.5.2 Instruments

The instruments used in this study are the following: L1 reading comprehension test, English reading comprehension test, and L1 and L2 (English) language proficiency measures, L1 word reading test, and background data questionnaire.

L1 reading comprehension

In preparation for the development of the L1 reading comprehension test, we adapted one of the Progress in International Reading Literacy Study (PIRLS) 2001 reading comprehension tests. The PIRLS is an international comparative literacy assessment of readers in primary grades in 35 countries. It is organized by the International Association for the Evaluation of Educational Achievement (IEA). Only one passage was selected from a group of four passages available in the *PIRLS 2001 International Report* (IEA, 2002). The test had a reading passage (a story of a lion and a hare) of around 500 words followed by 11 questions. Five of the questions were multiple choice, two required short

answers of two to three words and another four questions needed answers with explanations based on the passage. These questions produced a total of 16 items that were coded as right or wrong in the analysis.

The first Tigrinya adaptation of this PIRLS test was piloted with 52 fourth-grade students at a school in Asmara, capital of Eritrea. The majority of the students finished the test within the assigned time of 40 minutes. After some minor adjustments, a final L1 reading comprehension instrument in Tigrinya was produced. This instrument was later translated into the other Eritrean languages (Arabic, Tigre, Kunama and Saho) this study was concerned with. We used judgemental comparability to assess the equivalence of the tests in the different languages. In judgemental comparability, a bilingual person looks at the source and target translation of the test to judge equivalence of translated material (Hambleton, 2005; Van de Vijver & Poortinga, 2005). Bilingual experts from the Ministry of Education in Eritrea translated the Tigrinya comprehension instrument into Tigre, Arabic, Kunama and Saho. A different group of bilingual translators from the University of Asmara in Eritrea served as forward translators and compared the source and target language copies. Comments from the forward translators were then presented to the translators and in case of any disagreement both translators sat together and discussed the differences. Before the test translations started, a separate workshop on translation guidelines and a thorough orientation of the research aims was given to each group of translators. The overall Cronbach alpha measure of reliability of the L1 reading comprehension instruments is 0.73.

L2 (English) reading comprehension

For the English reading comprehension, we used an instrument from the Eritrean National Reading Survey (Walter & Davis, 2005) with permission from the Ministry of Education and the authors. It consisted of two one-paragraph reading passages followed by ten comprehension questions. The reliability of this instrument is lower than the L1 reading instrument (Cronbach alpha 0.58, and 0.60 when two poorly correlated items are deleted).

L2 and L1 proficiency measures

The English language proficiency is based on what is called 'Semester 1 Result'. This measure, referred to in this study as L2 language proficiency or simply L2 proficiency, is a classroom-based assessment of performance of students in English during the whole first semester of the academic year. It is a grade mark (ranging from 0-100) that students earn after a series of assignments and exams. It aims to assess a student's language ability in the four functions of reading, writing, listening, and speaking. The reading and writing assignments usually include an assessment of grammar knowledge. Although there is no single un-

derstanding of the construct L2 language proficiency and its operationalisation (see Yamashita, 2002), the classroom assessment used here provided a broader and more inclusive measurement of language skills. In the same manner, 'Semester 1 Results' for Arabic, Kunama, Saho, Tigre and Tigrinya were used as measures of L1 language proficiency. School records were consulted to find out each student's performance. These school based language assessment records were not always readily available as sometimes the classroom teachers were not present to provide the documents.

Additional instruments

The L1 word-reading test, originally developed for another research question, was used as an additional measure of reading in the first languages. The preparation of the 200-items word reading was based on the analysis of the textbooks in grades 1-5. Based on Lee, Uttal & Chen (1995), a computerized dictionary listed all the words in the primary school textbooks for all the five languages. The test consisted of words randomly selected from mainly the lower grade textbook (120 words were selected from the grade 1 primer and the rest from subsequent grade books). The first 70 words in the word list were placed in a single page in two columns and the remaining words in the next page to avoid possible feelings of panic with those poorly progressing through the list.

A background questionnaire documented the test-taker's personal data (the child's first language, age, grade repetition, and pre-school experience), parents' educational (years of schooling) and social (occupation) background.

6.5.3 Procedure

Both the L1 and English reading comprehension tests were group administered with the randomly selected fourth grade students sitting in a room inside the school. As soon as students finished the L1 comprehension test, they were handed the English test. On average, about 30-40 minutes were spent on the L1 tests, with another 20-30 minutes on the English reading comprehension test. The same students were then individually given three minutes to read as far down the word list as possible in L1 word-reading test. Instructions and examples of appropriate responses (when relevant) were given in the respective languages of the tests.

6.6 Results

Table 6.2 presents language group mean scores and standard deviations in the reading comprehension tests and classroom results in language proficiencies in L1 and L2 (English). Comparisons (ANOVA) revealed that the language

groups differ significantly in L1 reading ($F_{4, 253}$=11.67, p<0.001), L2 reading ($F_{4, 253}$=3.98, p<0.01) and L1 language proficiency ($F_{4, 238}$=11.10, p<0.001). Differences among language groups in L2 language proficiency and L1 word reading results were not significant. Kunama and Tigrinya students scored better results in L1 and L2 reading comprehension (Kunama students' L2 reading results stood at 5.29, slightly higher than the average 4.57). Performance was generally low across both reading tests (L1 and L2 reading comprehension). The average L1 reading comprehension score was 6.20 out of 16 maximum points. The L2 reading was also low, with a mean score of 4.57 out of 10. The classroom assessments of L1 and L2 language proficiencies could be considered moderately high by the local schools' standards.

Table 6.2: Mean scores and standard deviations (SD) of each language group on the different tests

Language group	L1 Reading comprehension N=254		L2 Reading comprehension N=254		L1 Language proficiency N=239		L2 Language proficiency N=183		L1 Word reading N=248	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Range	0-16		0-10		21-100		35-100		0 - 199	
Kunama	7.03	3.12	5.29	1.92	70.66	11.62	66.89	16.72	114.00	25.35
Saho	4.98	2.98	4.29	2.04	76.29	11.60	71.88	13.86	121.92	32.68
Tigrinya	8.11	3.25	5.02	2.04	85.45	7.47	74.13	16.92	128.43	28.73
Tigre	6.40	3.15	3.96	1.96	74.41	11.64	72.36	16.71	105.84	36.78
Arabic	4.39	2.99	4.16	2.55	72.85	16.72	70.83	19.69	101.00	48.52
Total	6.20	3.35	4.57	2.16	75.78	12.96	70.79	16.76	114.08	36.35

Post hoc analyses of pair-wise comparisons across scripts (Tukey HSD) revealed significant higher Ge'ez (80.04) results in L1 language proficiency compared to those in Latin (73.21) and Arabic (72.82). L1 reading comprehension results in Arabic (4.4 average) were significantly lower than results in Ge'ez (7.17) and Latin (6.10). Differences between Ge'ez and Latin script L1 reading comprehension results were also significant. Script based differences of L2 language proficiency, L2 reading comprehension and L1 word reading results were not significant.

Although mean comparisons were possible at the language group level, there were not enough subjects in each language sample to conduct regression analysis to establish the L1 and L2 relationship at the level of the language groups. Subsequent regression analysis, therefore, employed the overall sample (reduced from the initial 254 subjects to a valid number of 182) to explore the relationship between L1 and L2 language and reading variables. The effect of script in these relationships is examined later in this section.

As a first step into the investigation of the predictors of L2 reading, all the reading tests and proficiency measures were correlated. The results in Table 6.3 show that the strongest correlation exists between the two school-based language proficiency assessments. This may be expected, as good results in one school subject are likely to predict similar results in the other subject. There was a strong correlation between L2 reading comprehension and L2 language proficiency. The correlation between L1 and L2 readings was not as strong. The rest of the significant correlations among the variables were moderate, with the lowest correlation observed between L1 reading comprehension and L1 word reading. Overall, L2 reading showed significant correlations with L1 reading, and L1 and L2 language proficiencies.

Table 6.3: Correlations (Pearson) of the different variables in the study

	L1 Language proficiency	L2 Language proficiency	L1 Reading comprehen.	L2 Reading comprehen.
L1 Language proficiency	1.000			
L2 Language proficiency	.637**	1.000		
L1 Reading comprehension	.442**	.339**	1.000	
L2 Reading comprehension	.342**	.478**	.356**	1.000
L1 Word reading	.525**	.403**	.263**	–

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

To predict the L2 reading comprehension from the different variables described in the study, we conducted multiple regression analyses with L2 reading as an outcome. Informed by the theory that L1 reading and L2 language proficiency were the major predictors of L2 reading (Bernhardt, 2005), the analysis focused mainly on both these variables. The two were forced into the first regression model, with the rest of the variables coming in subsequent stepwise analysis that would explore their contribution to the model of L2 reading. In subsequent analysis, background variables (parents' education, student age, and pre-school experience) and other L1 results (L1 word reading) were assessed for their contribution in predicting L2 reading (see Table 6.4).

Table 6.4: Predictors of L2 reading with L2 language proficiency forced first

Model	Predictors	β	Significance
1	L2 Language proficiency	.481	.000
2	L2 Language proficiency	.409	.000
	L1 Reading comprehension	.216	.002

The results in Table 6.4 reveal that only L2 language proficiency and L1 reading comprehension significantly predict L2 reading comprehension. None of the other variables significantly predicted L2 reading. The L2 language proficiency

and L1 reading variables accounted for a significant proportion (27 percent) of the variance in L2 reading. The existing literature (e.g., Bernhardt, 2005) showed that L2 language proficiency had a bigger contribution than L1 reading comprehension in predicting L2 reading comprehension. Thus, forcing the L2 language proficiency into the regression analysis first, the results showed that L2 language proficiency and L1 reading predicted L2 reading. L2 language proficiency shared a bigger proportion of the variance in L2 reading (R^2=.23, $F(1, 181)=54.42$, $p<.01$). The contribution of L1 reading was much smaller (R^2=.04, $F(2, 180)=10.24$, $p<.01$). However, when L1 reading was forced into the regression analysis first, L2 language proficiency and L1 reading still predicted L2 reading (see Table 6.5). The proportions of the variance explained by the two variables were slightly different, although the overall explained variance remained the same. L1 reading predicted L2 reading comprehension better (R^2=.12, $F(1, 181)=25.49$, $p<.01$), while L2 language proficiency still explained a bigger proportion of the variance in L2 reading (R^2=.15, $F(2, 180)=36.90$, $p<.01$).

Table 6.5: Predictors of L2 reading with L1 reading comprehension forced first

Model	Predictors	β	Significance
1	L1 Reading comprehension	.351	.000
2	L1 Reading comprehension	.216	.002
	L2 Language proficiency	.409	.000

The outcomes so far presented are based on analyses that included the Arabic sample. It is worthwhile to take a closer look at our Arabic sample as it has already been mentioned that much of the L2 reading research in Africa fails to establish whether the L1 in the studies are in fact the first languages of the children. Most of the students in our Arabic language sample did not use Arabic at home. Even for the limited number (nine Rashaida students) that did have Arabic as their mother tongue, the home variety might be different from the classroom variety (modern standard Arabic). To control for the effect of both these varieties in the Arabic sample, all the reading and language proficiency variables were again regressed against L2 reading by excluding the Arabic sample from the analysis (now leading to N=153) (see Table 6.6).

Table 6.6: Predictors of L2 reading with L2 language proficiency forced first (without Arabic subjects, N=153)

Model	Predictors	β	Significance
1	L2 Language proficiency	.452	.000
2	L2 Language proficiency	.384	.000
	L1 Reading comprehension	.222	.003

The results in Table 6.6 show that again both L2 language proficiency and L1 reading comprehension significantly predict L2 reading comprehension. However, the ability of the variables in explaining L2 reading was slightly lowered (25 percent explained variance compared to 27 percent with N=182; see above). With L2 language proficiency forced first, the L2 language variable explained a bigger proportion of the variance in L2 reading comprehension (R^2=.20, $F(1, 152)$=39.00, p<.01). L1 reading comprehension explained a smaller proportion of L2 reading comprehension (R^2=.05, $F(2, 151)$=25.00, p<.01).

The overall sample (N=182) covered five languages that use three different scripts. The next analysis explored the contribution of script in explaining L2 reading comprehension (by recoding the script group variables as dummy variables). The effect of L1 scripts in predicting L2 reading comprehension was not significant.

The study took advantage of the wide use of first languages in schools in Eritrea to investigate some of the predictors of L2 reading comprehension. The data gathered provided additional opportunity to investigate predictors of L1 reading comprehension. The results were compared with findings from other studies (Pretorius & Mampuru, 2007) where L1 language proficiency did not significantly predict L1 reading.

Table 6.7 shows that L1 language proficiency and L2 reading comprehension are the main predictors of L1 reading comprehension.

Table 6.7: Predictors of L1 reading with L1 language proficiency forced first

Model	Predictors	β	Significance
1	L1 Language proficiency	.423	.000
2	L1 Language proficiency	.340	.000
	L2 Reading comprehension	.228	.003

When it was forced into the analysis first, L1 language proficiency explained a significant proportion of variance in L1 reading comprehension (R^2=.18, $F(1, 237)$=51.60, p<.01), while L2 reading's contribution was far less (R^2=.05, $F(2, 236)$=34.01, p<.01). The contribution of L2 language proficiency in L1 reading comprehension was not significant. Interestingly, L1 word reading (a task of reading a word list) was also not a significant predictor of L1 reading comprehension, measured in this study by a reading comprehension instrument (this is discussed in the next section). However, analysis of the contributions of L1 scripts (by recoding script groups as dummy variables with Latin script group as a baseline) showed that L1 script significantly predicted L1 reading comprehension (Table 6.8). L1 script explained a significant proportion of the variance in L1 reading (R^2=.086, $F(2, 251)$=11.76, p<.01).

Table 6.8: Contributions of L1 script in predicting L1 reading

Predictor variables	β	Significance
Latin versus Ge'ez	.156	.018
Latin versus Arabic	-.195	.003

The results in Table 6.8 show that both Ge'ez and Arabic script groups score significantly different from the Latin baseline group in L1 reading comprehension. The Ge'ez L1 reading comprehension scores increased when compared with the baseline Latin while the Arabic scores decreased when compared with the baseline Latin (see above for script group averages in L1 reading comprehension). Lower Arabic results could again be linked to the second language aspect of Arabic to many students in the study. Further investigation may be needed to study whether the accessible syllable basis of Ge'ez (compared to the more abstract phoneme, the basic unit in the Latin script) is behind the higher Ge'ez L1 reading comprehension results.

6.7 Discussion

This study aimed to explore the relationship that L2 reading has with different variables (L1 reading, L2 language proficiency and L1 script) in the multiple language and script educational setting in Eritrea. The research was designed to overcome some of the limitations that earlier L2 reading studies in African contexts faced by controlling for variables related to participants' L1 language and reading experiences.

The overall influence of L1 reading and L2 language proficiency variables on L2 reading in the Eritrean study appeared to be more or less consistent with that predicted by existing literature on L2 reading, although the reading levels in both L1 and L2 proved to be low. The study reaffirmed that L2 language proficiency and L1 reading comprehension are the two significant predictors of L2 reading comprehension. Other variables (L1 language proficiency and L1 script) did not significantly predict L2 reading. The degree of contributions of L1 reading and L2 language proficiency variables in their ability to predict L2 reading were also comparable to the results of some of the existing L2 reading studies. In our investigation, both these variables accounted for around 30 percent of the variance in the L2 reading. The proportion of L2 language proficiency in predicting L2 reading was higher than that of L1 reading, consistent with the stronger contribution of L2 language proficiency recognized in existing literature. What these results or proportions mean in terms of specific compensatory relationships between L1 reading and L2 language proficiency variables needs further investigation. In compensatory relationships between L1

reading and L2 language proficiency, the help of one is invoked to achieve a certain degree of L2 reading in situations where the proficiency level of the other is found deficient (Bernhardt, 2005; Yamashita, 2002).

Where our findings differ from existing literature on L2 reading is in the reduced ability of the L2 language proficiency and L1 reading variables to predict L2 reading. While other studies conducted in Western countries found out that about 50 percent of the variance in L2 reading can be explained by L2 language proficiency and L1 reading, in this study in an African country, only about 30 percent of L2 reading was explained by L2 language proficiency and L1 reading.

Another variable explored in this research was the effect on L2 reading of the three scripts (Ge'ez, Latin and Arabic) in which L1 reading is acquired in Eritrea. Script variations in L1 did not significantly predict L2 reading (in English). The fact that some of the L1 languages and English share the same small grain-size (alphabetic) script (Mishra & Stainthorp, 2007) did not seem to have any effect on the relationship. Little has been revealed from the current results as far as why the contribution of L1 script in predicting L2 reading is limited. Further research is needed to better understand this relationship.

The study showed that L1 variables (in addition to L2 reading) predicted L1 reading comprehension where earlier studies have found little or unexpected results. The results indicated that L1 language proficiency accounted for 18 percent of the explained variance in L1 reading. This is in slight variation from the results in Pretorius & Mampuru (2007) where L1 language proficiency barely contributed to predicting L1 reading. In the current study L1 reading was significantly predicted by L1 language proficiency and L2 reading (R^2 18% and 5% respectively). L1 script also significantly predicted L1 reading. However, the task of reading a list of words prepared in each of the L1 languages in the study was not a significant predictor of L1 reading comprehension. This might be explained by higher task requirements in the L1 reading comprehension instrument compared to reading out words from a list devoid of context in the L1 word reading instrument.

The language proficiency measurements used in this research were based on the first semester language marks achieved by the students in the schools (in both L1 and English). While it would have been better to measure language proficiency with a specific proficiency test, it is assumed that the teachers marked their students according to standards provided by the Ministry of Education and that these marks therefore could be regarded as relevant measures. However, these classroom based language assessments might be sensitive to inter-school variations despite the uniform procedures and timing dictated by the Ministry of Education guidelines. Although a number of methodological improvements were made in this study, the low reliability coefficient in the L2

reading comprehension instrument and the low number of items in both the L1 and L2 reading instruments might call for a cautious interpretation of some of the results.

CHAPTER 7

Multiscriptal literacy acquisition in multilingual Eritrea: Conclusions and implications

7.1 Introduction

This research aimed at comparing literacy acquisition in different languages and scripts in Eritrea, a country where linguistic and cultural diversities are acknowledged in the national language and education policies and practices. In a multidisciplinary examination of literacy acquisition and use, the research used theoretical frameworks and methodologies from different disciplines (sociolinguistics, psycholinguistics, education). In this final chapter, we briefly revisit the different studies reported in the preceding chapters and present concluding remarks on the possible implications of the different findings to multilingual and multiscriptal literacy acquisition theory, research and educational practice. For detailed discussions of the studies and the results, one can refer to the specific chapters on languages and scripts (Chapter 2), literacy and script uses and attitudes (Chapter 3), literacy instruction methods and practices (Chapter 4), literacy skills in different scripts (Chapter 5), and transfer of literacy skills (Chapter 6).

The mother tongue education policy in Eritrea, described in Chapter 2, allows the use of the languages of the nine ethnolinguistic groups of the country in primary education and mass media. The languages, originating from different language families, are written in three different scripts. These are the full Latin alphabetic script (used for Bilen, Bidhaawyeet, Kunama, Saho, Nara and Afar languages), consonantal-alphabetic Arabic script (Arabic) and the syllabic Ge'ez or *fidel* script (Tigrinya and Tigre). The primary schools in the country use all these languages and scripts to deliver basic education to children from each ethnolinguistic group. From grade 6 (start of middle school) onwards English becomes the language of instruction. The scripts and the languages of the country are also in use in public broadcast media, in business, and local informal commerce.

7.2 Summary of research findings

As part of the study on literacy acquisition and use, the sociolinguistics survey in Chapter 3 investigated the attitudes of adult Eritreans towards literacy in general and to the different scripts in particular. The study included 25 interviews and a survey of 670 adults, including about 60-80 respondents from each of the nine ethnolinguistic groups. Results showed that people value literacy highly for a variety of reasons that can be reduced to two main factors pertaining to intrinsic and economic values of literacy. In some of the smaller ethnolinguistic groups, the high value attached to literacy by group members contrasted with considerable disapproval of the script of the languages of the smaller groups that, following the language and education policy, is used for literacy teaching in primary education. The different values attached to scripts were reduced to three factors pertaining to ease, wider use, and familiarity of the script. The outcomes of the literacy and script attitudes survey were discussed in the context of Eritrea's mother tongue education policy. It was noted that the majority (75%) of the respondents in the survey voiced approval for the education policy that prescribes the languages and scripts to be used in primary schools.

In Chapter 4, we compared literacy instruction in three different scripts in Eritrea, using data stemming from classroom observations of beginning readers (grade 1) during their first and second months in school, including the examination of teaching materials and teacher interviews. The main aim was to examine and compare the introduction of the written code in classrooms that use different languages and scripts in the context of a single national curriculum. The curriculum, textbooks and teacher guides give detailed direction on how to teach reading to beginning readers in their respective languages and scripts. We conducted classroom observations in nine schools with Tigrinya, Kunam, Saho and Arabic as media of instruction to see how teachers managed to introduce the alphabets and syllabaries of the respective scripts to the beginning reader. In all the instructions observed, there was a concentrated effort on teaching the child how to learn (memorize mostly) the letters of the specific orthography. Teachers used chanting, memory driven games, constant urging for reciting letters or syllable symbols, and repeated exercises of letter writing that emphasized graphic forms. All these were aimed at teaching the letters and basic word reading. These mostly phonics based lessons rarely involved explicit explanations of the written language or print awareness or other similar whole language experiences. The observations also showed instructional practices peculiar to each language (e.g., the emphasis on building vocabulary in early Arabic instruction).

In Chapter 5, a literacy acquisition study compared reading results in four Eritrean languages that used either syllabic Ge'ez (Tigrinya and Tigre languages) or alphabetic Latin scripts (Kunama and Saho). A sample of 385 grade 1 children were given letter knowledge, word reading, and spelling tasks to investigate differences at the script and language levels. Results showed that the syllable based Ge'ez script was easier to learn than the phoneme based Latin script despite the bigger number of basic units in Ge'ez (e.g., 245 Tigrinya *fidel* symbols compared to 25 Latin letters in Kunama). Moreover, the syllable based teaching of alphabetic Saho produced better results than alphabetic teaching of Kunama. These findings were discussed using the psycholinguistic grain size theory (Ziegler & Goswami, 2005). The outcomes highlighted the importance of the availability of phonological units in learning to read.

The study in Chapter 6 presented data on the transfer of reading skills from the first to second language. A major question in L2 reading research has been whether L2 reading is a language or a reading problem. Existing research, mainly carried out in Western contexts, have demonstrated that 50 percent of variance in L2 reading can be explained by L1 reading and L2 language proficiency (Bernhardt & Kamil, 1995). Our study applied the L2 reading theory in the Eritrean context, where L1 reading is acquired in multiple languages and scripts. The study employed reading comprehension tests in five Eritrean languages (Tigrinya, Tigre, Kunama, Saho and Arabic) and English administered to 254 fourth graders randomly selected from schools all over the country. Regression analysis revealed that L1 reading comprehension and L2 language proficiency significantly predicted L2 reading with both variables explaining 27 percent of the variance in L2 reading. L1 script was not a significant predictor of L2 reading in English. On the other hand, L1 language proficiency, L1 script and L2 reading significantly predicted L1 reading. All three variables explained about 32 percent of the variance in L1 reading.

These were the major findings of the different studies reported in the preceding chapters and the implications of the findings to relevant theories were explained in detail in the respective chapters. In this chapter we turn our attention to additional implication of the findings to research and practice on multilingual and multiscriptal literacy acquisition.

7.3 Implications to research

Our cross-linguistic literacy research has confirmed that not the phoneme but the syllable is the most accessible phonological unit in learning to read (e.g., Durgunoglu & Oney, 1999). The findings have significance to early reading and reading across different languages in at least two other ways. The study has

highlighted the relative importance of the accessibility of language units at the base of the orthography as compared to granularity or the number of basic orthographic units. It has shown that the syllable based orthographies of Ge'ez are easier to learn to read than the phoneme based orthographies. This is despite the large number of symbols that a syllable based writing system usually has. These results lay to rest age-old worries about the 'unmanageable number' of *fidel* symbols and their perceived negative effect on the development of reading in a child. The second important contribution of the literacy acquisition study is the finding that suggested the superiority of the syllable-based style of teaching alphabetic orthographies of languages with simple phonological structure. This finding has implications to theories of comparative early reading, particularly to the psycholinguistic grain size theory of early reading development. In teaching transparent consistent alphabetic orthographies, the psycholinguistic grain size theory advises the use of small unit (i.e., phoneme) based teaching of beginning reading (Ziegler & Goswami, 2005; 2006). Our findings pointed towards the advantages of large unit (i.e., syllable) teaching of alphabetic orthographies of languages with consistent orthographies and simple syllabic structures.

The findings in the study on transfer of reading skills from L1 to L2 have some implications to L2 reading research in Africa. Studies in other African countries have shown findings that are incomparable (Williams, 1996) or inconsistent (Pretorius & Mampuru, 2007) with existing theories and models on transfer of reading skills from L1 to L2 (or from L2 to L1). Although these models were mainly based on studies of alphabetic languages that were mainly conducted in the West, undertaking similar studies in Africa was barely possible due to the limited instruction in mother tongue of the children in Africa who attend school mainly in their L2 (Williams, 1996). Our study in Eritrea, a country with the advantage of a relatively stable instruction in the mother tongue, was able to at least identify that the model of transfer of literacy skills developed elsewhere is applicable to African languages and educational contexts where instruction in the first language of the children can be established. Although it requires further research, the results in the transfer of literacy skills study suggest that building L1 instruction can help bolster L2 reading. Thus, instructions in local languages might contribute to the educational goal of achieving English reading proficiency in Eritrea and other African countries where English holds higher status, e.g., as a working language of administration or as a language of instruction in secondary and higher education.

In the comparative reading results reported in Chapter 5, Saho large unit (syllable) teaching contrasted favourably against Kunama small unit (phoneme) teaching of reading and writing. The origins of the syllable style of teaching alphabetic Saho (i.e., teaching letters as syllables) may have come from the more

widely spread Ge'ez syllabic orthography of Tigrinya. Literacy education in Tigrinya has a longer history and as a language of wider communication may have influenced the development of education in the more recently written languages in Eritrea. One example of such possible influence is the development of Tigre Ge'ez orthography by local members of missionary churches who were literate in Tigrinya. The first Tigre educators wrote the first and fourth order Tigre *fidel* symbols (which have the same vowel only with different length) in the same way as in Tigrinya orthography, which treats them as two separate vowels.

The developers of the Saho orthography have probably borrowed the syllable style of teaching from the *fidel* syllable teaching. Some of the teachers interviewed argued that the Saho CV teaching style has its basis in the teaching of Arabic letters and the vowel variations. Recitation of CV combinations of alphabetic letters was also common in traditional Spanish literacy instruction (Pollard-Durodola, Cedillo & Denton, 2004). Although further research into the origins of Saho teaching is planned (through a grant from the International Reading Association), our results showed that syllable style teaching of letters incorporated the salient features of the language (i.e., syllable) in teaching reading. This seems to have helped students in early reading.

In many recently written African languages, Latin was a popular choice for writing languages that had before been limited to the oral realm. However, as we have seen from the script attitudes results in this study, Latin was not always the preferred script of the speakers of some languages (see Chapter 3). There are examples in the Horn of Africa region where there was a switch from other scripts into Latin script (Abbay, 2004; Dutcher, 1998). The Ge'ez orthographies of (Eritrean) Bilen and (Ethiopian) Oromo were abandoned in the last decade in favour of using the Latin script. Therefore, where there is a decision to use Latin (for social or political/historical reasons), there is little educators can do except to find a way to teach it better. Adopting a CV style of teaching alphabetic Latin might produce better results in languages of simple phonological structure.

A traditional teaching method widely practiced in Eritrea is "chanting after the teacher" (Wright, 2002). Although it is partly a big classroom management technique, the loud whole class chanting of letters, syllables, and words after the teacher has also instructional value. Teachers said it helps students memorize the letters or words. It is particularly useful, according to some teachers interviewed, to lift weak students by giving them the opportunity to hear and then say the letters and words. Investigating these traditional methods could also enrich our understanding of the role of literacy instruction in early reading development (Ziegler & Goswami, 2005).

The different studies reported in this book have attempted to incorporate diverse disciplines in conducting comparative literacy research in multilingual Eritrea. As this approach required the use of different perspectives, our study employed a mix of methodologies developed in different fields of inquiry in tackling literacy acquisition and use. Methodology related innovations in our research included the development and use of comparable instruments, the use of a survey to sketch the sociolinguistics of literacy use and attitudes, and a combination of methods (observation, document analysis, and teacher interviews) to document literacy instructions.

The reading and spelling assessment instruments for the grade 1 study were developed from an inventory of words in all the language textbooks of primary education. By enumerating all the words in the textbooks for grades one to five, a computerized dictionary (Lee, Uttal & Chen, 1995) was prepared in each of the five languages of the study. Instruments for the study of transfer of skills from L1 to L2 were also prepared. These instruments could prove to be useful for future use in educational assessments and academic investigations of literacy in Eritrea or any other multilingual education context.

Another aspect of the study that helped the analysis was the use of one set of data to interpret another set of data. For example, the results of the qualitative classroom observations were used to interpret the reading results of the quasi-experimental design. The classroom perspective was needed to understand the psycholinguistic processes of reading in Latin and Ge'ez scripts.

7.4 Future research directions

Eritrea is a country where many languages with small numbers of speakers coexist with historically dominant languages that serve as *lingua franca* in different parts of the country. Attitudes towards the use of the languages of wider communication and languages of the smaller groups vary as was discussed in Chapter 3. The question then is how adult attitudes affect children's classroom reading results. Do language and literacy views and values of communities make their way to the classrooms and affect the attitudes, motivations, and performances of the children from these communities? Do attitudes across groups with recently written languages and those with a relatively longer writing history affect students' classroom performances differently? These questions require research that links what is happening in the classrooms with the social use and values of literacy. Our research has shown that, for example, the Latin script is not that much visible in Eritrea and that adult attitudes favour other scripts over Latin. Although these and other findings detailed in each chapter were

essential to link the classroom literacy acquisition with the social use and values of literacy, future research is needed to further understand the link.

The study on literacy acquisition in the different languages has underlined the similar phonological structures of these languages, which have Semitic, Cushitic and Nilo-Saharan ancestry (Abraha, 2005; Banti & Vergari, 2005; Raz, 1983). Recent theories on reading development have noted the importance of these phonological (Goswami & Ziegler, 2005) and morphological structures (Frost, 2006; Durgunoglu, 2006). For example, some aspects of Turkish morphology facilitate a degree of pre-reading awareness of phonemes, a skill commonly believed to come only after acquiring literacy, which nonetheless is crucial in accelerating the process of acquisition as well (Durgunoglu, 2006). Do similar morphological or even phonological peculiarities exist in the Eritrean languages in the study? For example, how does the open syllable structure of Kunama affect awareness of sub-syllabic units and how does that in turn affect learning to read? These and other questions on the linguistic features of the languages in Eritrea merit further investigation.

Throughout the fieldwork trips to schools and communities in Eritrea, a question related to the transfer of literacy skills was frequently raised by teachers and parents of students. The popular 'hypothesis' is that acquiring L1 literacy in Latin script rather than in Ge'ez script helps children learn English language and literacy faster. The reason usually forwarded was that since the Latin orthographies (Saho, Kunama, Nara, Afar, Bilen and Bidhaawyeet) and English use the same alphabetic script, children learning the Latin orthographies might find it easier to learn to read and write in English. Some argued that the opposite could be true since sometimes the same letters (i.e., same graphic symbols) represent different phonemes in English and the local Eritrean languages. Our transfer of literacy skills data (grade 4 reading comprehension results in English and in Arabic, Kunama, Saho, Tigre and Tigrinya) showed no significant difference in English reading results among the Arabic, Latin, and Ge'ez script groups. In other words, there was no L1 Latin script advantage reflected in the L2 English results. One of the reasons for this might be the inconsistency in the English orthography. The analysis reported in Chapter 6 also revealed that L2 (English) reading is not significantly predicted or influenced by L1 script. Future research could incorporate the script groups and languages in the design in a more robust way to further test the popular hypothesis that claims the existence of a better transfer of skills from L1 Latin scripts to English reading.

Further research is also needed to better understand the effects of the tonal features of Kunama and the corresponding tone diacritics in its script in early reading acquisition. The discussions in Chapter 5 hinted at potential problems arising from poor instruction, e.g., teachers' lack of experience in teaching tone

or lack of mastery of the tone diacritics. A more comprehensive study of Kunama tone diacritics instruction might be needed to better understand its effects on early reading.

Further investigation on these and related questions can have both theoretical and practical implications to reading development and instruction in Eritrea or in any multilingual context.

7.5 Practical implications

The 2004 curriculum revision in Eritrea provided two examples of different styles of interventions that affect the latter's effectiveness. In preparing for the curriculum revisions in primary schools, the basic education unit of the Ministry of Education and its language panels had to decide on either a whole language or a phonics approach in designing their grade one to five curriculum content and teaching methods. They finally decided on a "mixed" whole language and phonics approach. (In practice, the teaching was phonics, based on the alphabet book as other teaching materials such as the reading and work books were not available.) In the same period of curriculum revision, a new Kunama orthography with tone diacritics was introduced. These two interventions, however, differed in the style and management of the changes introduced.

As described in Chapter 4, the introduction of the whole language approach within the skills oriented instruction in Eritrea was pushed by some language panels and expatriate experts working at the time at the Ministry of Education in Eritrea. The proposal for a whole language approach (with an emphasis on language and print experience) led to consultations and discussions with teachers during a number of workshops at the Ministry of Education and its regional offices. The responses from teachers were not very supportive to the idea of a whole language teaching approach. Ultimately the mixed approach was adopted with a main alphabet book designed in the skills or phonics approach whereas the reading readiness material, the reading book, and partly the work book were fashioned in a whole language approach perspective. In retrospect, this was the most practical way of accommodating a new curriculum approach that was mostly alien to the Eritrean educational institution. A curriculum only using a whole language approach would have suffered from a range of problems, e.g., low rates of acceptance by the teachers, the lack of written materials, big class sizes, and lack of resources for retraining of teachers.

The introduction of tone diacritics in the Kunama orthography and the simultaneous production of grade 1 Kunama textbooks were mostly done without the involvement of teachers. Here again there were inputs from expatriate

consultants. The need for tone diacritics was widely accepted by teachers and experts at the Ministry of Education as Kunama has a complex tone scheme with seven level and contour tones (Abraha, 2005). However, what was not acceptable to many teachers interviewed (see Chapter 4) was the extended size of the material in the textbook. Some complained that it was not possible to cover the textbook within the allotted time. Some said that many teachers still have problems mastering the tone diacritics or the suggested way of teaching them. As was suggested earlier in Chapter 5, the lack of mastery of the tone diacritics might have contributed to the comparatively lower reading results in Kunama. Almost all of the teachers interviewed would have liked consultations with them to precede, at least, the textbook production.

These two examples illustrate contrasting styles of introducing innovations in primary education. The introduction of a mixed whole language and phonics curriculum was partly a bottom up process with experts and education officials initiating the intervention but involving the teachers who are crucial to the implementation of the innovation. The introduction of tone diacritics and the production of the first textbook that used tone diacritics in Kunama was mostly done in a top down style with experts deciding the changes and leaving the implementation to the teachers. The Kunama intervention is not only missing out on potentially fruitful comments early in the process but it is also alienating until late in the process the change implementers, i.e., the teachers, whose understanding of the goals of the intervention is important to its success.

The introduction of tone diacritics was one of the changes introduced in the new Kunama orthography. Long and short vowels were now clearly marked with doubling of the letters. The emphasis in the new orthography is now on one to one sound letter correspondences, which means that the old syllable style teaching of alphabetic letters has little room in the new Kunama orthography. All these three aspects of the new curriculum had to be accommodated in the actual teaching practice. The first few weeks of lessons were dedicated to teaching only the five vowels of the Kunama letter inventory. There was a great amount of attention devoted to teaching tone, vowel length, and sound letter correspondences that almost no real attempt at teaching word reading seemed to happen. These (tone, vowel length and sound-letter correspondences) are some of the many linguistic and orthographic principles children might be expected to figure out at a later stage in learning to read. The decision to explicitly teach them in Kunama classes might not only go against tradition but might also constrain available resources, including time needed for training to improve the teachers' mastery over these elements. The recommendation here is to de-emphasize the tone, vowel length and, to a limited degree, the lessons on sound-letter correspondences in classroom teaching without calling for a new orthography or textbooks. Teachers have to move faster with their dealing of

these elements and allow students to gradually comprehend the roles of tone, vowel length, and sound-letter correspondences in the overall process of reading. Reading of words (at phoneme, syllable, or whole word levels) should be the primary focus of the classroom instruction. Every resource (e.g., the traditional syllable style teaching) has to be deployed to achieve minimum levels of fluency or accuracy upon which children can be expected to build their understanding of the particularities of the Kunama orthography. Starting instruction up front with those peculiarities has meant very slow progress in reading in the new Kunama orthography.

The Arabic results in the literacy skills tests conducted in our study were the lowest among the five languages in the study. The reason for these low scores (and the exclusion of the Arabic sample from analysis in Chapter 5) was attributed to the status of the language as a second language to almost every Eritrean (with the exception of members from the Rashaida ethnolinguistic group). Not every one involved in primary education in Eritrea accepts or appreciates the second language status of Arabic mainly because of its religious significance to the Muslim community and its enormous popularity in the country in general. However, teachers interviewed have complained that the majority of the children in Arabic medium classes do not have the opportunity to speak or read Arabic outside the classrooms. Even within the classrooms, many students were observed to ask questions in Tigrinya or Tigre while teachers themselves insisted on speaking Arabic. There are, however, efforts that recognize the second language status of Arabic to many learners in Eritrea. The textbooks in the new curriculum attempt to build vocabulary of the children before starting to introduce Arabic letters. The Ministry of Education recently advertised a position for an educational consultant who is an expert in Arabic as a second language teaching or materials preparation. These are positive steps in recognizing the second language nature and the appropriate teaching style in Arabic instruction in Eritrea.

Lack of printed materials outside the school textbooks has contributed to a poor print atmosphere in rural and urban communities all over Eritrea. This in turn contributes to poor pre-school print experience and even lowers the chances of enhancing and sustaining school acquired literacy. It can be argued that this makes it even more difficult to acquire literacy outside the schools. The lack of print materials is even more pressing in the recently written languages in the country. As we saw in Chapter 3, the limited use of these languages (especially those written in Latin script) in the public sphere is behind the lower acceptance of Latin literacy education among some of the language groups. It was also reported in Chapter 3 that the Ministry of Education conducts public awareness campaigns to raise the acceptance of the use of all languages in schools. The public campaigns and the acquisition of literacy in and

out of schools might be greatly supported if more print materials in the local languages could be produced. Recently, some activities were conducted in that direction. A new version of the Ministry of Information newspaper, *Hadas Eritrea*, has begun to appear in Tigre, one of the languages with limited printed materials available. Through joint efforts by Tilburg University, the Ministry of Education in Eritrea, and the Dutch Royal Embassy in Asmara, a collection of Tigre folk stories was published in Tigre and English and distributed to schools in the country (Ministry of Education, 2007a; 2007b). In 2006, the Ministry of Education, following similar calls in 2000 and 2003, invited artists and writers to compete to write children's books in all the languages of the country and English to be published by the Ministry. These efforts have to be continued vigorously until availability of written materials for children and the visibility of the recently written languages improve dramatically.

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APPENDIX

The Ge'ez script based Tigrinya *fidel* symbols

Name	IPA	e	u	i	a	ie	ɨ/-	o
pa	p	ፐ	ፑ	ፒ	ፓ	ፔ	ፕ	ፖ
ba	b	በ	ቡ	ቢ	ባ	ቤ	ብ	ቦ
pha	p'	ፀ	ፁ	ፂ	ፃ	ፄ	ፅ	ፆ
ma	m	መ	ሙ	ሚ	ማ	ሜ	ም	ሞ
fa	f	ፈ	ፉ	ፊ	ፋ	ፌ	ፍ	ፎ
va	v	ቨ	ቩ	ቪ	ቫ	ቬ	ቭ	ቮ
wa	w	ወ	ዉ	ዊ	ዋ	ዌ	ው	ዎ
ta	t	ተ	ቱ	ቲ	ታ	ቴ	ት	ቶ
da	d	ደ	ዱ	ዲ	ዳ	ዴ	ድ	ዶ
tha	ṯ	ጠ	ጡ	ጢ	ጣ	ጤ	ጥ	ጦ
tsa	ts'	ጸ	ጹ	ጺ	ጻ	ጼ	ጽ	ጾ
na	n	ነ	ኑ	ኒ	ና	ኔ	ን	ኖ
sa	s	ሰ	ሱ	ሲ	ሳ	ሴ	ስ	ሶ
za	z	ዘ	ዙ	ዚ	ዛ	ዜ	ዝ	ዞ
ra	r	ረ	ሩ	ሪ	ራ	ሬ	ር	ሮ
la	l	ለ	ሉ	ሊ	ላ	ሌ	ል	ሎ
ca	ʧ	ቸ	ቹ	ቺ	ቻ	ቼ	ች	ቾ
ja	ʤ	ጀ	ጁ	ጂ	ጃ	ጄ	ጅ	ጆ
cha	ʧ'	ፏ	ፏ	ፏ	ፏ	ፏ	ፏ	ፏ

Name	IPA	e	u	i	a	ie	ɨ/-	o
nya	ɲ	ኘ	ኙ	ኚ	ኛ	ኜ	ኝ	ኞ
sha	ʃ	ሸ	ሹ	ሺ	ሻ	ሼ	ሽ	ሾ
zha	ʒ	ዠ	ዡ	ዢ	ዣ	ዤ	ዥ	ዦ
ya	j	የ	ዩ	ዪ	ያ	ዬ	ይ	ዮ
ka	k	ከ	ኩ	ኪ	ካ	ኬ	ክ	ኮ
kwa	kw	ኰ		ኲ	ኳ	ኴ	ኵ	
ga	g	ገ	ጉ	ጊ	ጋ	ጌ	ግ	ጎ
gwa	gw	ጐ		ጒ	ጓ	ጔ		
qa	k'	ቀ	ቁ	ቂ	ቃ	ቄ	ቅ	ቆ
qwa	kw'	ቈ		ቊ	ቋ	ቌ	ቍ	
kxa	x	ኸ	ኹ	ኺ	ኻ	ኼ	ኽ	ኾ
kxwa	xw	ዀ		ዂ	ዃ	ዄ	ዅ	
qha	ʁ'	ቐ	ቑ	ቒ	ቓ	ቔ	ቕ	ቖ
qhwa	ʁw	ቘ		ቚ	ቛ	ቜ	ቝ	
hha	ħ	ሐ	ሑ	ሒ	ሓ	ሔ	ሕ	ሖ
ʿä	ʕ	ዐ	ዑ	ዒ	ዓ	ዔ	ዕ	ዖ
ʾä	ʔ	አ	ኡ	ኢ	ኣ	ኤ	እ	ኦ
ha	h	ሀ	ሁ	ሂ	ሃ	ሄ	ህ	ሆ

(source: *http://www.omniglot.com/writing/tigrinya.htm*)

SAMENVATTING

Verwerving van geletterdheid in meertalig Eritrea Een vergelijkend onderzoek naar lezen in verschillende talen en schriften

Deze studie betreft een vergelijking van de verwerving van geletterdheid in verschillende talen en schriften in Eritrea, een land dat talige en culturele diversiteit erkent in zijn nationale taal- en onderwijsbeleid. Met behulp van uiteenlopende onderzoeksmethoden zijn in een aantal deelstudies de verwerving en het gebruik van geletterdheid in verschillende talen en schriften onderzocht. In deze samenvatting wordt eerst ingegaan op de onderzoekscontext en worden daarna de verschillende deelstudies en de belangrijkste onderzoeksresultaten gepresenteerd.

Het onderzoek is uitgevoerd in Eritrea, een meertalig land in de Hoorn van Afrika dat in 1991 na een lange gewapende strijd onafhankelijk werd van Ethiopië. In Eritrea wonen minstens negen etnolinguïstische groepen (Afar, Bidhaawyeet, Bilen, Kunama, Nara, Rashaida, Saho, Tigre en Tigrinya). De namen van de talen die deze groepen gebruiken, zijn hetzelfde als de namen van de groepen, behalve in het geval van de Rashaida die Arabisch als taal hebben. Het taalbeleid in Eritrea, dat geworteld is in de gewapende onafhankelijkheidsstrijd, staat het alle kinderen toe een lagere school te bezoeken waar in hun eigen moedertaal les wordt gegeven. Dit betekent dat alle negen talen van het land worden gebruikt als instructietaal in de eerste vijf jaar van het onderwijs. Deze talen worden geschreven in drie verschillende schriften of schriftsystemen die gebaseerd zijn op verschillende talige eenheden: het syllabische Ge'ez schrift, dat gebruikt wordt voor het Tigrinya en Tigre, het alfabetische Latijnse schrift, dat gebruikt wordt voor het Afar, Bidhaawyeet, Bilen, Kunama, Nara en Saho, en het consonantisch-alfabetische Arabische schrift, dat gebruikt wordt voor het Arabisch. Zoals in zoveel Afrikaanse landen speelt ook in Eritrea het Engels een grote rol in het onderwijs. Kinderen worden op de lagere school eerst onderwezen in hun moedertaal en krijgen vanaf de tweede klas Engels als vak. Na de lagere school, op de middenschool, wordt Engels de instructietaal. De schriften en talen van het land worden ook

gebruikt in de media, in de zakenwereld en in de plaatselijke informele handel. De meertalige context van Eritrea biedt ideale omstandigheden voor vergelijkend onderzoek naar verwerving van geletterdheid. Deze studie onderzoekt derhalve de verwerving van en het onderwijs in geletterdheid in verschillende talen en schriften in meertalig Eritrea en ze probeert het gebruik van geletterdheid en de waardering van de leden van de verschillende etnolinguïstische groepen voor die talen en schriften te achterhalen.

Het eerste onderzoeksdomein betreft de verwerving van geletterdheid in verschillende schriften. Een vergelijkend onderzoek naar de verwerving van geletterdheid in verschillende schriften door kinderen binnen een en dezelfde onderwijscontext is vooral van belang in verband met de verschillen in fonologische status tussen de syllabe (zoals in het Ge'ez schrift) en het foneem (zoals in het Latijnse schrift). Toegang krijgen tot het foneem is een goed gedocumenteerde cognitieve hinderpaal voor veel kinderen die in een alfabetisch schrift leren lezen. Vergeleken met alfabetische schriften, zijn de cognitieve eisen die gesteld worden aan het leren lezen in een syllabisch schrift niet diepgaand onderzocht. Dergelijk onderzoek is van belang voor het testen van de verschillende theoretische posities die worden ingenomen in vergelijkend onderzoek naar schriftverwerving en naar leesproblemen. Er is ook maar weinig bekend over de transfer die bij het leren lezen in twee schriften plaatsvindt, met name wanneer het als eerste geleerde schrift syllabisch is. Eritrea biedt een uitstekende gelegenheid om de verwerving van geletterdheid in een syllabisch schrift (Ge'ez) te vergelijken met de verwerving van geletterdheid in twee verschillende alfabetische schriften (het alfabetische Latijnse schrift en het consonantisch-alfabetische Arabische schrift) en om de overgang te bestuderen van de verwerving van een syllabisch schrift naar de verwerving van een alfabetisch schrift. De onderzoeksvragen van de vergelijkende studie zijn derhalve: Hoe leren kinderen lezen en schrijven in de verschillende schriften in het Eritrese lager onderwijs? Wat zijn de resultaten van leren lezen in een syllabisch schrift (Ge'ez) in vergelijking met leren lezen in twee verschillende alfabetische schriften (alfabetisch Latijns schrift en consonantisch-alfabetisch Arabisch schrift)? Hoe verhoudt zich leren lezen in de eerste taal van de kinderen tot leren lezen in het Engels als tweede taal?

Het tweede onderzoeksdomein betreft het onderwijs in geletterdheid in de verschillende talen en schriften in Eritrea omdat dit beschouwd kan worden als een factor die de verwerving van geletterdheid beïnvloedt. Dit onderzoek beoogt meer inzicht te krijgen in de in het onderwijs in lezen (en schrijven) gevolgde methodes en benaderingen, in de aard en inhoud van de gebruikte schoolboeken, in het concrete onderwijs in de klas en in andere aspecten die samenhangen met dit onderwijs in een meertalige context. Centraal in het onderzoek naar het onderwijs in geletterdheid staat de vraag hoe kinderen

wordt geleerd te lezen en schrijven in de verschillende schriften en talen. Hoe wordt de kinderen geleerd te lezen en schrijven in het Ge'ez, Latijns en Arabisch schrift? Wat zijn de specifieke activiteiten op het gebied van geletterdheid in de klas, welke materialen gebruiken de leraren en welke rol spelen deze bij het inwijden van beginnende lezers in het lezen en schrijven?

Het derde onderzoeksdomein betreft het sociale gebruik en de waardering van de verschillende schriften en talen die als instructietaal in het onderwijs aan kinderen fungeren. Dat geletterdheid in Eritrea in meerdere talen en meerdere schriften verworven wordt binnen hetzelfde nationale curriculum in de context van het vigerende moedertaalonderwijsbeleid, betekent niet dat geletterdheid door de verschillende etnolinguïstische groepen in het land op dezelfde manier wordt gewaardeerd en gebruikt. In de meertalige onderwijscontext in Eritrea is een grootschalig onderzoek naar het gebruik van geletterdheid en naar de waardering van geletterdheid en schrift van groot belang, niet alleen om de populariteit en levensvatbaarheid van het taalbeleid te onderzoeken maar ook om de uitkomstem van het boven beschreven onderzoek naar de verwerving van en het onderwijs in geletterdheid beter te kunnen duiden. De onderzoeksvragen in deze studie luiden: Welk gebruik maken de Eritrese etnolinguïstische groepen van geschreven taal en welke waarde hechten zij aan geletterdheid in de negen talen en drie schriften van Eritrea? Hoe waarderen de verschillende etnolinguïstische groepen in Eritrea geletterdheid in het algemeen en specifieke schriften in het bijzonder? Hoe hangt deze waardering samen met factoren als religie, onderwijsniveau en sekse?

In het tweede deel van deze samenvatting worden kort de resultaten van het uitgevoerde onderzoek weergegeven en wordt ingegaan op de implicaties van deze bevindingen voor verder onderzoek naar de verwerving van meertalige geletterdheid.

In het sociolinguïstische onderzoek naar het gebruik van geletterdheid en de waarden die ermee verbonden zijn, is gebruik gemaakt van een vragenlijst om de attitudes van volwassen Eritreërs met betrekking tot geletterdheid in het algemeen en met betrekking tot de verschillende schriften in het bijzonder te achterhalen. De vragenlijst probeert ook de frequentie van schriftgebruik bij de verschillende etnolinguïstische groepen vast te stellen. Het onderzoek omvat 25 interviews en een survey bij 670 volwassenen, met ongeveer 60 tot 80 respondenten van elk van de negen etnolinguïstische groepen. De resultaten laten zien dat de mensen om uiteenlopende redenen veel waarde hechten aan geletterdheid. Deze redenen zijn via factoranalyse herleid tot twee belangrijke factoren die verwijzen naar respectievelijk de intrinsieke en de economische waarde van geletterdheid. In sommige van de kleinere etnolinguïstische groepen contrasteert de hoge waarde die door groepsleden gehecht wordt aan geletterdheid met

de sterke afkeuring van het schrift dat conform het taal- en onderwijsbeleid voor hun minderheidstaal gebruikt wordt in het onderwijs. De waardering voor de schriften is herleid tot drie factoren die verwijzen naar gebruiksgemak, gebruiksmogelijkheden van het schrift in de regio en vertrouwdheid met het schrift. Dat een meerderheid van de respondenten (75%) het eens blijkt te zijn met de talen en schriften die conform het Eritrese moedertaalonderwijsbeleid in de gebieden waar ze wonen op school worden gebruikt, betekent een duidelijke ondersteuning van dit beleid.

Uit het survey blijkt ook dat het gebruik van geschreven taal in Eritrea beperkt is. In veel gevallen geeft een meerderheid van de respondenten aan dat geschreven taal slechts 'af en toe' gebruikt wordt en slechts een klein deel van hen, met name de hoger opgeleiden in stedelijke gebieden, rapporteert 'frequent' gebruik van geletterdheid. Geletterdheid blijkt voor te komen in verschillende levensdomeinen, gecategoriseerd als geletterdheid in relatie tot werk en ontspanning, functionele geletterdheid, religieuze geletterdheid en geletterdheid in relatie tot burgerschap. Geletterdheid in relatie tot de domeinen werk, ontspanning en alledaags functioneren, komt meer voor dan geletterdheid in relatie tot de domeinen religie en burgerschap. De resultaten met betrekking tot het gerapporteerde gebruik van verschillende schriften laten zien dat het Ge'ez het meest gebruikt wordt en dat er van een betekenisvol gebruik van het Latijnse schrift in de verschillende levensdomeinen eigenlijk geen sprake is. Tot op heden wordt het Latijnse schrift, behalve voor het Engels in sommige domeinen, buiten de school in Eritrea nauwelijks gebruikt.

Het onderwijs in geletterdheid in verschillende schriften in Eritrea is onderzocht door middel van klassenobservaties bij beginnende lezers in de eerste klas van de lagere school en interviews met leerkrachten in deze klassen. In dit verband zijn ook de gebruikte onderwijsleermiddelen geanalyseerd. Het belangrijkste doel van dit onderzoek is de vergelijking van de introductie van de geschreven code in verschillende klassen die verschillende talen en schriften gebruiken binnen een en hetzelfde nationale curriculum. Het leerplan, de schoolboeken en de leerkrachtenhandleidingen geven gedetailleerde aanwijzingen over hoe beginnende lezers in hun respectievelijke talen en schriften moeten leren lezen. Er zijn klassenobservaties uitgevoerd in negen scholen met Tigrinya, Kunama, Saho en Arabisch als instructietaal om te achterhalen hoe leerkrachten de alfabetten en syllabesymbolen van de respectievelijke schriften bij de beginnende lezers introduceren. In alle geobserveerde lessen is er sprake van een intensieve inspanning om het kind de letters van de specifieke orthografie (van buiten) te laten leren. Daarbij wordt gebruik gemaakt van klassikaal opdreunen, onthoudspelletjes, constante aansporingen om letters, syllabesymbolen of woorden te herhalen en steeds herhaalde oefeningen in het schrijven van letters met nadruk op hun grafische vorm met als doel de letters te leren en

eenvoudige woorden te leren lezen. In deze veelal volgens de *phonics approach* gegeven lessen wordt nauwelijks aandacht besteed aan expliciete uitleg over de geschreven taal, aan bewustzijn van het gedrukte woord of aan taalervarings-activiteiten (*whole language approach*). De observaties laten ook taalspecifieke instructiemethoden zien. Zo blijkt er bijvoorbeeld in het onderwijs Arabisch aan beginnende lezers een sterke nadruk te liggen op woordenschat. En in het aanvankelijk leesonderwijs in het Kunama blijkt de nadruk te liggen op een-op-een klank - letter correspondenties terwijl het onderwijs in het Saho begint met syllabisch lezen van alfabetische letters (bijvoorbeeld *ka* i.p.v. *k*).

In het onderzoek naar verwerving van geletterdheid zijn de leesresultaten van kinderen met elkaar vergeleken in vier Eritrese talen die of het syllabische Ge'ez schrift (Tigrinya en Tigre) gebruiken of het alfabetische Latijnse schrift (Kunama en Saho). Bij een steekproef van 385 eersteklassers zijn een letter-kennistaak, een woordleestaak en een spellingtaak afgenomen om verschillen op schrift- en taalniveau te onderzoeken. De resultaten laten zien dat het syllabische Ge'ez aanvankelijk makkelijker te leren is dan het op fonemen gebaseerde Latijnse schrift ondanks het veel grotere aantal symbolen in het Ge'ez (bijvoorbeeld 245 Tigrinya *fidel* symbolen tegenover 25 Latijnse letters in het Kunama). Bovendien levert het bij de syllabe aansluitende onderwijs in het alfabetische Saho betere resultaten op dan het bij het foneem aansluitende onderwijs in het Kunama. Deze uitkomsten bevestigen de bevinding dat het leerproces sneller verloopt naarmate een fonologische eenheid gemakkelijker toegankelijk is.

Het tweede deel van het onderzoek naar verwerving van geletterdheid betreft de transfer van leesvaardigheid van de eerste taal (T1) naar de tweede taal (T2) van de beginnende lezers. Een centrale vraag in het onderzoek naar leren lezen in een T2 is of T2-lezen een taalprobleem of een leesprobleem is. Met name in het Westen uitgevoerd onderzoek heeft laten zien dat 50 procent van de variantie in T2-lezen kan worden verklaard door T1-lezen en T2-vaardigheid. Dit onderzoek vormt een toepassing van de T2-leestheorie in de Eritrese context waar T1-lezen wordt verworven in uiteenlopende talen en schriften. In het onderzoek zijn leesbegriptoetsen in vijf locale talen (Tigrinya, Tigre, Kunama, Saho en Arabisch) en Engels afgenomen bij 254 vierdeklassers, willekeurig geselecteerd op scholen uit het hele land. Regressieanalyse maakt duidelijk dat T1-leesbegrip en T2-taalvaardigheid, met samen een verklaarde variantie van 27 procent, significante voorspellers zijn van T2-lezen. Het schrift van de T1 is geen significante voorspeller van T2-lezen in het Engels. Van de andere kant zijn T1-taalvaardigheid, T1-schrift en T2-lezen significante voorspellers van T1-lezen. Deze drie variabelen samen verklaren 32 procent van de variantie in T1-lezen.

Deze bevindingen zijn van belang voor aanvankelijk lezen en voor lezen in verschillende talen. Het onderzoek naar de verwerving van geletterdheid heeft het relatieve belang aangetoond van de toegankelijkheid van de talige eenheden die de basis vormen van de orthografie of centraal staan in de didactiek. Het heeft laten zien dat het gemakkelijker is de op de syllabe gebaseerde orthografie van het Ge'ez te leren lezen dan de op fonemen gebaseerde orthografieën, ondanks het grote aantal symbolen dat het syllabische Ge'ez telt. Deze resultaten betekenen het einde van de aloude zorg over het onhanteerbare aantal *fidel*-symbolen en hun veronderstelde negatieve effect op de leesontwikkeling van kinderen. De resultaten hebben ook het aanvankelijke voordeel laten zien van een op syllaben gebaseerde onderwijsaanpak voor alfabetische orthografieën (zoals in het Saho). Dit heeft implicaties voor theorieën uit het vergelijkend onderzoek van aanvankelijk lezen, met name voor de psycholinguïstische *grain size* theorie van aanvankelijke leesontwikkeling. Bij het onderwijzen van transparante consistente alfabetische orthografieën adviseert de psycholinguïstische *grain size* theorie aanvankelijk leesonderwijs dat gebaseerd is op kleine eenheden (fonemen). De bevindingen van dit onderzoek wijzen op de voordelen van een aanpak die bij het leren lezen van talen met consistente orthografieën en simpele syllabische structuren uitgaat van grotere eenheden (syllaben).

De resultaten van het onderzoek naar de transfer van leesvaardigheid van T1 naar T2 hebben implicaties voor het T2-leesonderzoek in Afrika. Studies in andere Afrikaanse landen hebben resultaten opgeleverd die onderling niet vergelijkbaar zijn of in strijd met bestaande theorieën en modellen met betrekking tot transfer van leesvaardigheid van T1 naar T2 (of van T2 naar T1). Hoewel die transfermodellen vooral gebaseerd zijn op onderzoek naar alfabetische talen uit het Westen, is het uitvoeren van soortgelijke studies in Afrika nauwelijks mogelijk als gevolg van het beperkte onderwijs in de moedertalen van de kinderen in Afrika die met name onderwijs volgen in hun T2. Het onderzoek in Eritrea, een land met het voordeel van een relatief stabiel onderwijs in de moedertaal, heeft laten zien dat het elders ontwikkelde model van transfer van leesvaardigheid toepasbaar is op Afrikaanse talen en onderwijscontexten waar onderwijs in de moedertaal van de kinderen kan worden verzorgd. Hoewel er meer onderzoek nodig is suggereren de resultaten van het onderzoek naar de transfer van leesvaardigheid dat T1-onderwijs een positieve uitwerking kan hebben op T2-lezen.

De verschillende onderzoeken in deze studie hebben ook bijgedragen tot de formulering van vragen voor toekomstig onderzoek. Zo heeft het onderzoek naar de verwerving van geletterdheid in de verschillende talen (Tigrinya, Tigre, Saho en Kunama) de nadruk gelegd op de vergelijkbare fonologische structuur van deze talen die van Semitische, respectievelijk Koesjitische en Nilo-

Saharaanse oorsprong zijn. Vergelijkend onderzoek naar leesontwikkeling heeft gewezen op het belang van de fonologische en morfologische structuren in het begrijpen van beginnend lezen. Sommige aspecten van de Turkse morfologie bijvoorbeeld faciliteren een zekere mate van pre-geletterd bewustzijn van fonemen, een vaardigheid waarvan algemeen wordt verondersteld dat ze pas na het leren lezen optreedt terwijl ze tegelijkertijd cruciaal is voor het versnellen van het verwervingsproces. Is er sprake van soortgelijke morfologische of zelfs fonologische kenmerken in de Eritrese talen in deze studie? Hoe beïnvloedt bijvoorbeeld de open syllabestructuur van het Kunama het bewustzijn van subsyllabische eenheden en hoe beïnvloedt dat op zijn beurt het leren lezen? Deze en andere vragen over de linguïstische kenmerken van de talen in Eritrea verdienen verder onderzoek. Daarenboven is verder onderzoek nodig naar de invloed van de recent aan de orthografie van het Kunama toegevoegde diakritische tekens voor toon op het aanvankelijk leesonderwijs.