NATURE AND PREVALENCE OF READING DIFFICULTIES AMONG SCHOOL-DROPOUTS: A CASE OF SELECTED SCHOOL AREAS IN CHIPATA DISTRICT

By

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DECLARATION

I, **Bestern Kaani,** do declare that this dissertation is my own work and has not been submitted for a degree award at this or any other University.

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This dissertation by Bestern Kaani is approved as partial fulfilment of the requirements for the award of the Master of Education (Special Education) degree of the University of Zambia

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ABSTRACT

The aim of the study was to explore the nature and prevalence of reading difficulties among school dropouts (experimental) in comparison to in-school (control) children. Many studies to determine the nature and prevalence of reading difficulties among in-school participants have been carried out, but none among school dropouts. This is despite the fact that large numbers of children dropout of school every year.

A sample of 98 participants drawn from 4 school areas in Chipata district took part in the study. There were two urban and two rural school areas. An experimental group of sixty (60) school dropouts and a control group of 38 in-school children constituted the study sample. The two samples were matched by age, gender, grade level and school area.

Reading assessment tests comprising Zambia Achievement Test's reading recognition, pseudoword decoding and reading comprehension subtests were administered by trained assessors to all participants, together with a nonverbal intelligence test, the K-ABC Pattern Reasoning, in their respective school areas.

Data analysis was achieved by comparing mean differences of two groups, using a series of one-way ANOVAs and Chi-Square of differences on each of the three reading subtests. Descriptive statistics revealed that in-school participants outperformed school dropouts on all ZAT reading subtests. Data analyses were done using the SPSS and web-based chi-square analysis.

The mean score differences between the two group means were all statistically significant on all subtests, with in-school outperforming school dropouts. Generally, school area location had significant main effects on reading performance as urban participants had higher mean scores than rural participants. Similarly, female participants performed poorly compared to their male counterparts. As suspected, rural in-school participants performed better than the rural out of school.

The prevalence of reading difficulties was significantly higher among school dropouts than among the in-school children. On subtest basis, prevalence of reading difficulties was high among school dropouts than among in-school participants. The differences in the proportions of children scoring above or below 15% reading threshold on the reading recognition in the two groups did not show statistical significance. But the proportional differences on the Pseudo-words decoding and Reading Comprehension subtests were statistically significant. The nature of reading difficulties in the three reading disability implicated core domains revealed that the reading difficulties were more severe among experimental than among the control sample. Similarly, the levels of prevalence of reading difficulties were also significantly higher among the experimental group compared to the control group.

These results corroborate findings of several other studies which report that reading performance in Zambian schools is generally poor (Sharma, 1973; Chikalanga, 1990; Matafwali, 2005). However, school dropouts exhibited significantly more reading difficulties in comparison to in-school children. The severity of RD and huge proportions observed among school dropouts in comparison with in-school participants revealed by this study raises a question of whether reading difficulties are as a result of inherent reading weaknesses or other factors like lack of teaching/learning and/or lack of adequately qualified teachers.

These findings reinforce Stanovich's (1986) earlier observation that a child who starts reading training poorly is more likely to experience significant reading difficulties in later years, than one who starts off well. A phenomenon he termed "the Matthew Effect." This is because good reading beginners enjoy reading, thereby acquiring more skills in both reading and other academic domains, while poor beginners lag behind because their poor reading skills lead to the development of poor reading habits. Repeated reading failure may inevitably lead children with reading difficulties to dropout of school.

DEDICATION

This Dissertation is dedicated to:

My Parents:

Mr. Edward Kaani (My Father) and Ms. Semelina Kanyama-Kaani (My Mother)

To Both of You I Say Thank You

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CHAPTER ONE
INTRODUCTION

1.1. Introduction

The ability to read is an important determinant of success in school. This is because assimilation of all learning materials depends on the learner's good reading skills. In fact, according to Lyon (2003, p. 1);

> "research has consistently shown that if children do not learn to understand and use language, to read and write, ... and to communicate their ideas and perspectives, their opportunities for a fulfilling and rewarding life are seriously compromised."

Research shows that only 5% of children learn to read effortlessly, while 20-30% read relatively easily once exposed to formal instruction. However, an astounding sixty percent (60%) of children in schools will face formidable challenges (www.michigan.gov/mde/), although about 50% of them are expected to learn the skill eventually. Dyslexia, "a disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence and socio-cultural opportunity" (Critchley, 1970, p.11), has been extensively researched, but only in school-going children.

1.2. Background to the Study

The incidence of low reading achievement in school-going children in Zambia has been researched and the problems associated with reading difficulties have been well known for quite a long time (Nkamba and Kanyika, 1998; Williams, 1993; 1996; Grigorenko, et al, 2003). The prevalence of reading difficulties in Zambia has been estimated to be quite high among children who are in school. In a study conducted by Matafwali (2005) at grade 3 level in basic schools in

Lusaka, 26% of the school-going children experience significant difficulties in reading. This statistic implies that approximately 1 in every 4 students experience reading difficulties. Globally, studies have established that reading disabilities are a major constraint of school going children. One can, therefore, wonder what the magnitude of the problem is among children who have dropped out or not enrolled in school. This group represents an important population, since over a third of all school-age children have either dropped out or have never been enrolled in school (Lungwangwa, 1999).

1.3. Rationale of the Study

Research findings show that reading levels in Zambian schools are not a good reflection of education standards (Williams, 1996; Matafwali, 2005). Low reading performance has a bearing on retention of children in school. Although many children learn to read without difficulties, some struggle significantly in their quest to acquire reading skills. A number of children, therefore, develop negative attitudes towards school, which in turn leads them to quit school. However, not much is known about types and prevalence of reading disabilities, hence the need to explore the nature and prevalence of disabled readers among children who dropout of school and compare them to those still enrolled.

1.4. Statement of the Problem

Failure to acquire reading skills is seen mostly as a problem of school-going children, due to the urgent need for that skill in their school life. As a result, research on this subject has been entirely confined to in-school children at the expense of those who have dropped out or who are never enrolled in school. However, there are two main reasons for investigating the nature and prevalence of reading difficulties of children who are not currently enrolled in school:

The first reason is that in today's world, reading is an important skill not only to succeed in school and to pursue higher education, but also to function well in everyday life. The Ministry of Education's efforts to ensure that children develop "the ability to read simple text such as letters, local language newspapers, books and messages" (Ministry of Education, 2000, p.14) will be severely hampered if the prevalence of reading difficulties is high in the general population.

The second reason is that poor reading has a negative effect on self esteem and motivation to succeed in school. It is a well documented factor that, in the Western world, reading difficulties are a major factor among students who drop out of school or become delinquent (Zieman, 1999). LDOnLine (1998) states that "up to 15% of children with reading problems drop out of school; only 2% finish college" in the United States. It is, therefore, very possible that low reading performance is the cause for some children to drop out of school in Zambia.

1.5. Purpose of the Study

The purpose of this study was twofold and these were:

- to investigate the nature of reading difficulties that school dropouts experience; and,
- to determine the prevalence of reading difficulties in children, who have dropped out of school, and to compare it to the prevalence of children from the same communities currently enrolled in school.

The ultimate goal of the study is to outline various difficulties that children face in relation to reading sub-skills; recognition, pseudo-word decoding, and to a lesser extent reading

comprehension. The reading comprehension subtest will be administered, only to children showing satisfactory performance in reading recognition.

This study is based on the premise that some school dropouts do so because they are overwhelmed by their inability to read learning materials. This is due to the fact that assimilation of taught materials is rendered difficult due to pupils' limited reading adeptness.

1.6. Research Hypotheses

The study was aimed at testing the following research hypotheses:-

Hypothesis 1

H_1: The differences in mean scores of control (school-going) and experimental (school dropout children) on ZAT reading ability measures will show statistical significance.

H_0: There is no statistical significance in mean scores between control and experimental sample on the ZAT.

Hypothesis 2

H_1: The prevalence of children exhibiting reading disabilities (word recognition, pseudo-word decoding and comprehension) is higher among experimental group (school-dropouts) than among control group (school-going children) as measured by ZAT subtests.

H_0: There is no significant difference in prevalence of reading disabilities among experimental and control groups.

1.7. Significance of the Study

Reading is an increasingly important skill to function well in today's urban environment (reading signs and directions, newspapers, etc). Reading is also a crucial aspect of a child's school life, and a lack of reading proficiency has strong negative impact on the child's learning self-esteem and eventual stay in school. Children who fail to develop proficiency in reading earlier in their school career are more likely to dropout of school than their more proficient counterparts (LDOnLine, 1998; Stanovich, 1986). It is hoped that this study will help establish to a reasonable extent why children dropout of school despite the government's best efforts to retain them.

The study may also make parents, teachers, education planning experts and other educational stakeholders to realise that reading failure could also be an important factor in retention of children in schools. Apart from Matafwali's 2005 study, no other studies to date have investigated the prevalence and types of reading difficulties among children, let alone those who have dropped out of school. It is hoped that this study has, therefore, added to the scanty existing literature base on this subject.

Finally, determining the nature and prevalence is important because approximately 80% of the school population is affected one way or another by various reading difficulties (Learner, 1990). Therefore, this study may arouse interest in studying children plagued by this debilitating problem.

1.8. Limitations of the Study

Limitations related to this study are threefold. Firstly; research participants involved stopped schooling at different times, some have been out of school for a long period, while others were

only out of school for a short time; therefore, statistical analysis posed significant challenges. Secondly; experimental participants were classified by school area and they have been taught by different teachers employing varying methods in their teaching of reading skills. Thirdly; the research sample was determined by convenient sampling. This is because only those children and their parents, who responded to requests made by respective school authorities to come to school, were considered.

Therefore, generalisation of research findings was hampered somehow. It was difficult to generalise these findings to the general population of school dropouts in Chipata.

1.9. Delimitations of the Study

This study targeted all children who have dropped out of school in Chipata district, although sampling was restricted to the four school centres of Chipata and Lutembwe Basic School areas as urban schools, while Nyauzi and Kasenga Basic School areas were treated as rural sample.

1.10. Operational Definitions of Research Terms

1.10.1. Educational Status

Refers to the current status of the research participants, that is they are either enrolled in school or have left school. It is a dichotomous variable in the current study; in-school and/or school dropout participant.

1.10.2. Learning Disability

It is an umbrella term that encompasses a wide range of disorders and problems, (language, speech disorders, reading) the biggest one being dyslexia or reading disability.

1.10.3. Nature of Reading difficulties

Refers to types or areas of reading weaknesses children will show such as reading recognition, pseudo-word decoding or reading comprehension,

1.10.4. Phonemic awareness (phonological awareness or processing)

Refers to the ability to identify and manipulate speech sounds. It is also the understanding that speech is composed of a sequence of sounds (phonemes) that are combined and can be recombined to form other words.

1.10.5. Phonics

Refers to the study of the relationships between letters and the sounds they make, and the methods of instruction used to teach letter-sound relationships.

1.10.6. Prevalence of reading difficulties

Refers to the percentage or proportional of children exhibiting reading disabilities, (reading proficiency below 15% of the expected total score) in comparison to children without reading problems (reading above 15% threshold) within the same cohort of participants.

1.10.7. Pseudo-Words Decoding (Non-Sense Word Reading)

Refers to the ability to read pronounceable strings of letters that have no meaning, like ig, ak, Pseudo-words are often used to assess decoding skills, because correct pronunciation can only be based on phonological decoding.

1.10.8. Reading Comprehension Skills

Refers to the ability of testee to read and draw meaning from what they are reading in the text.

1.10.9. Reading difficulty

This is when a reader has difficulty meeting reading milestones for a given age or grade. A child can have difficulty with one or more aspects of the reading process. The difficulty is characterised by a significant discrepancy between a child's general intelligence and reading. A reading difficulty may also be referred to as a reading problem, reading disability, reading disorder or dyslexia.

1.10.10. Reading Recognition Skills

Refers to the ability of recognizing a familiar word and pronounce it correctly, regardless of whether it is in isolation or embedded in a text. Skilled readers recognize written words automatically, using direct visual word recognition skills, (Goulandris and Snowling, 1995).

1.10.11 School dropout Children

These children once enrolled in school, but have stopped attending school for 3 months in the age-range 8-18 years. They must have attended school up to the 3rd grade.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter explores literature related to the nature and prevalence of reading disability in the general school population. It also dwells on measures put in place to mitigate the reading difficulties in both Zambia and more developed western societies.

2.2. Literature Review

Reading difficulties have been given a lot of attention in children attending schools (Orton, 1937; Geschwind, 1962; Galaburda and Kemper, 1979; Tallal and Fitch, 1993). Causes and methods of managing reading disabilities have been areas of study for several notable researchers (Stanovich, 1988; Shaywitz, et al, 1998; Grigorenko, et al, 1999; 2000; Kaplan, et al, 2002). Through their ground-breaking studies, these scientists have made major contributions towards addressing reading difficulties. Studies have also been conducted to determine the nature and prevalence of the problem. However, very little, if any studies, have been done about the prevalence and nature of reading difficulties among children who have dropped out of school.

2.3. Nature of Reading Difficulties in School-going Children

Reading printed material is a complex task. In order to read successfully children should master the following skill components of reading: decoding, recognition and comprehension processes (Mercer and Mercer, 1993). In order to have a good understanding of problems associated with reading, one must start by appreciating the mechanics involved in automatically performing the

skill. According to Gough and Hillinger (1980) reading is not a natural act; it is an act which must be deliberately learnt by the child.

2.3.1. Development of Reading Skills in Children

The individual learns to read gradually in a continuum from simply mastering phonological processing skills (letter-sound associations) through development of lexical skills (word recognition) to drawing meaning from the printed material (reading comprehension). Goulandris and Snowling (1995, p.94) posit that "there are three distinctive reading skills which contribute to competent reading: the ability to recognise familiar words *(reading recognition)*; the ability to use phonic skills to pronounce unfamiliar words (*pseudo-word decoding*) and the ability to understand what is being read (*reading comprehension*)," (emphasis supplied)

There is a lot of controversy surrounding the process of reading development in children. Researchers have proposed two major approaches to explain how reading develops; the Whole Language and Phonics approaches (Thompson and Nicholson, 1998; Hempenstall, 1994; Emmitt, 1999). The Whole language approach stipulates that reading can be best taught by exposing the learners to whole written words. Children are expected to memorise and commit words to memory. Proponents argue that learners will recognise and decipher meaning of memorised words in text later. Whereas, the phonics approach requires that the children learn letter-sound to come up with intelligible word, before introducing them to word recognition.

Both groups of proponents have long been locked in an intense academic debate as to which approach best explains development of reading skills. Mather (1992) quoted in Smith (1992, p.152) argues that "new research findings show that students with learning disabilities do not, in

general, benefit from the whole language approach.... They do, however, profit from learning basic phonological skills—sound blending and decoding, for example."

In order for children to read successfully, they must develop phonological processing skills. Research has shown that phonological abilities are critical determinants of future success at reading (Stanovich, 1988; Torgesen, et al, 1994). Wagner and Torgesen (1987) define phonological awareness as "awareness of and access to the sound structure of language." It is strongly argued that phonological awareness is causally related to learning reading during the early years of schooling (Bradley and Bryant, 1983). This is a reason advanced for employing phoneme segmentation and phonics manipulation in reading assessments. Phonemic awareness and phonics are necessary for eventual development of accurate word recognition. Faster and accurate word retrieval in novice readers is necessary for the development of fluent reading and comprehension.

2.3.2. Characteristics of Disabled Readers

Most children develop reading abilities with relative ease, while the majority experience formidable difficulties during early years of schooling (Lyon, 2003). However, some eventually catch up with their peers. There is a sizeable number that persistently struggle at reading. The most compelling finding from recent research in reading is that children who start off poorly rarely catch up with their peers (Francis, et al, 1996; Torgesen and Burgess, 1998). Indicators from similar studies show that poor first-grade readers almost invariably continue to lag behind in subsequent grades.

For an individual to be classified as reading disabled he/she must exhibit significant deficits in phonological processing, despite conventional instruction, adequate intelligence, and socio-cultural opportunity. "Reading disability in the form of deficits in phonological awareness is the most prevalent type of learning disability and affects approximately 17% of school age children to some degree" (Lyon, 1996). According to Grossen (1997) "phonological processing is the primary ability area where children with reading disabilities differ from other children." Major components of phonological processing are phonemic awareness and phonics.

Phonological processing acquisition leads to development of letter-sound relationships (phonics), and thereafter, the mastery of word recognition skills. Word recognition skills develop as a result of sustained exposure to printed text, both as single-words and in context. Indrisano and Chall (1995) argue that word recognition and pseudo-word decoding deficits are the most common reading problems among students with reading difficulty.

In their book, *Our Labelled Children: What Every Parent and Teacher Needs to Know about Learning Disabilities,* Sternberg and Grigorenko (1999) outline five steps leading to reading automaticity. The five steps are Alphabetic insight (visual cue word recognition), Phonetic-cue word recognition, Automatic word recognition, Strategic reading and optimal reading. The following paragraph describes these steps in detail.

A reader must, first of all, understand the relationship between letters and the sounds they represent, for him/her to be able to make words. Failure to do so at this stage may result in developmental reading difficulties. Secondly, the ability to segment word sounds in their components (phonemes) is a cardinal element of reading proficiency. The reading learner must

know sounds made by individual letters of the alphabet (Alphabetic principle) (Lyons, 2003). Novice readers struggle in developing this skill. This is especially so in non-transparent orthographies, like English (Karanth, 2003). However, this level depletes the novice reader's energy because a lot of attention is directed towards decoding sounds making up the word rather than deriving meaning from print.

Thirdly, Automatic word recognition is a level where words are automatically identified from memory. According to Ross, et al, (2000, p. 74) automatic word recognition

> "is a little like playing a musical instrument. If you have to think each time you see a note about how to finger the note on your instrument, you will never get smooth enough to make the notes sound like music. A student who does not have many, many words on "automatic" is too busy decoding *letter-sound relationships* to understand what s/he is reading and it takes so much effort *that* they lose track of the sense of a reading passage." (emphasis supplied) .

Children who fail to develop this skill at this stage will not be able to decode words accurately; they will have difficulties in deciphering the content of what they are reading.

Fourthly, once a student becomes an automatic reader, he/she begins to think of what words mean and how the material is organized. The reader learns that reading is useful and entertaining; however, if there is reading failure in due course, reading becomes painful and may be accompanied by embarrassment and discomfort.

> "If a student gets to the automatic point, but late, s/he usually has a strong aversion to reading anything that does not have to be read. Overall, some students are well convinced that they are too dumb to get what the 'smart students' are getting from reading. This is,

of course, nonsense and may lead to development of a non-strategic approach to reading" (Ross, et al, 2000, p. 74),

and hence dropping out of school. Finally, each proficient reader begins to develop interest in a particular area of learning, such as literature, biology, etc, because it is easy for him/her to decipher and understand printed materials.

2.4. Prevalence of Reading Difficulties in School-Going Children

The prevalence of reading difficulties experienced by school-going children has been studied by several researchers for a long time. The western world has dedicated millions of dollars to research in a bid to alleviate reading problems, not only in children, but also among adults plagued by reading disabilities. In the United States, federal agencies, such as the National Institute of Health (NIH), and its subsidiaries; have dedicated huge amounts of resources in research grants to determine the prevalence and nature of reading difficulties (Grossen, 1997; Lyon, 2003). Until recently, statistics related to reading abilities, whether for school-going or out of school children, are based on studies carried out in the developed countries with little or no applicability to developing countries (Williams, 1996; Nkamba and Kanyika, 1998; Kelly and Kanyika, 2000; Matafwali, 2005).

2.4.1. Difficulties in Determining the Prevalence of Reading Disabilities

Researchers agree that determining the prevalence of reading difficulties is extremely difficult because of differences in defining the term Reading Disabilities. The problem of determining the prevalence of reading is compounded by lack of an agreed definition. The non-agreement on definition is mainly due to the fact that reading difficulties (dyslexia) may manifest differently in different languages, (Lyon, 1996; Miles, 2004). The other problem is one related to criteria for

determining reading disability; some argue that pupils' grades fall below 15th percentile, while others rises the cut-off point to the 25th percentile (Lyon, 1996).

Some researchers define reading disability as if it includes all manner of reading and writing problems. This is problematic as is the case in Sweden, where the term is used for dyslexia is ambiguously applied and often broadly to include all kinds of reading and writing difficulties (Alm, 2004), where the prevalence of the problem is quite high compared to other countries. Alm (2004) argues further that "research studies on dyslexia, with the disorder defined differently, means different inclusion and exclusion criteria." With the low standards of educational provision in Zambia, it is possible that most of the perceived reading difficulties could be due to poor teacher training, inadequate learning/teaching materials and other intervening factors like poor health and malnutrition (World Health Organization. 1997; Chelala and Robison, 2004).

2.4.2. Prevalence of Reading Difficulties: The Global Perspective

According to research conducted mostly in developed countries, the prevalence rates are approximated to lie between 10%–17.5% (Shaywitz et al. 1998). The International Book of Dyslexia estimates the prevalence of dyslexics in 14 countries around the world as ranging between 1% and 11% of the population (Smythe, 1997). The US and UK account for an estimated 4% of the school population in each of the two countries (The American Psychiatric Association, 1994; British Dyslexia Association, 1998). The estimates for reading disabilities in Sweden have been found to range between 5-10% (Høien and Lundberg, 1992). As earlier stated, the difference could be accounted for by the ambiguity with which the term "dyslexia" is defined.

The prevalence rates for US and UK children are based on the definition used by two diagnostic and classification systems; the *Statistical Manual of Mental Disorders*, fourth edition (American Psychiatric Association, 2000) and *The ICD-10 Classification of Mental and Behavioural Disorders* (World Health Organization, 1992). These two systems adopted their definition from the one formulated by the World Federation of Neurology (Critchley, 1970).

2.4.3. Prevalence of Reading Difficulties: Zambian Perspective

There are several studies focusing on reading difficulties in Zambian schools (Chikalanga, 1990; Williams, 1993; 1996; Nkamba and Kanyika, 1998; Kelly and Kanyika, 2000). It must be made clear that most, if not all, studies cited above did not specifically focus on reading disabilities as defined by the current study.

Williams' studies (1993; 1996) were intended to highlight the problem caused by learning reading in a different language other than the one the child uses at home (mismatch between language spoken by the child and the one taught at school). Nkamba and Kanyika (1998) wanted to find out whether Zambian school-age children were functioning at the same level as children in other countries in the sub-region. The study conducted in 1973 quoted by Chikalanga (1990) focused on finding out whether children in Zambian schools were coping with reading lessons conducted in English, their second language. Essentially, the studies were undertaken to establish the effectiveness of the language policy in the Zambian education system. Although not directed related to the current study, these reports give a reasonable impression of the nature and prevalence of learning disabilities in Zambia.

2.4.3.1. Studies on Reading Proficiency conducted in Zambia

Due to lack of studies focusing specifically on nature and prevalence of reading difficulties, any statistics used in Zambia are extrapolated from studies looking at the effectiveness of reading teaching methods in the country. The first published study related to reading is one carried out by Sharma (1973) on 3,298 third Graders to whom a 40-word recognition test was administered. The list was drawn from Zambian course books for the first-three years of school (grades 1, 2 and 3). The results revealed that only 4.15% were able to decipher all the whole list of words, 5.36 percent of the participants failed to read a single word from the list. Regrettably, of all grade 3 pupils taking the test only 17% managed to correctly read all from the grade 1 syllabus, while only 7.2% could read all grade 1 and 2 word materials correctly.

Another notable study was conducted at almost the same time as the Sharma study, in which a sample of 538 fifth graders was tested, is quoted by Chikalanga, 1990. The findings revealed that "there is a large group of very poor readers in most classes and they are unlikely to be able to neither cope with the English course of the New Zambia Primary Course nor be able to do much of the work in other subjects" (p. 69). There are no further details concerning this study.

During the period 1991 and 1992, the Overseas Development Agency (ODA) an international development agency of the UK, commissioned a study to "investigate the effect of the differing language policies in primary education in terms of the children's relative performances in reading in English and in the local language," conducted by Williams (1996: p. 187) in Malawi and Zambia. In Zambia, he tested reading proficiency of 452 pupils (grades 3, 4 and 6) in both English and Chinyanja. The sample was drawn from two urban and three rural schools in Chipata District of Eastern Province. Williams' report concluded that the sample exhibited inadequate comprehension skills in English among 85% of Grade 3 pupils, 84% of Grade 4 pupils and 74%

of Grade 6 pupils. However, the children also performed poorly in reading Chinyanja, a local language in the province, (Sampa, 2005). It is, therefore, possible that most of the pupils who took part in this study were experiencing reading difficulty.

The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), a consortium of Ministries of Education in the Southern African sub-region conducted a study in 1995 at grade 6 level in English. Its findings revealed that only 25% of the children tested were reading at the minimum required level, and a mere 3% read at desirable level. The Examination Council of Zambia's (ECZ) study in 1999 for grade 5 National Assessment found similar results in literacy and numeracy (Kelly and Kanyika, 2000). The Primary Reading Baseline Study confirmed the findings that reading proficiency among pupils in the country was extremely low. Apart from establishing that children were not reading fluently, it was discovered that a huge number of children failed examinations because they could not read and understand instructions. The research findings further found that poor reading skills were also prevalent among high school and tertiary education students.

2.4.3.2. Nature and Prevalence of Reading Difficulties in School Children

The most explicitly reading disability related study in Zambia is one undertaken by Matafwali (2005) in Lusaka Province. The main aim of the study was to investigate the nature and determine the prevalence of reading difficulties among grade three pupils. A sample of 104 pupils was drawn from 4 Basic schools at grade 3 level in Lusaka Urban and Chongwe Districts. Three schools in Lusaka urban were; Northmead, Lusaka Boys and Lusaka Girls Basic Schools and Chongwe Basic in Chongwe district. The reading skills domains assessed were serial rapid naming, alphabetic principle, phonological awareness, working memory and reading

comprehension skills. In general, the study established that 26% were experiencing significant reading difficulties. The participants also exhibited significant weaknesses in the phonological processing domain. It is the only study focusing specifically on reading problems in Zambian schools. If the prevalence among school-going children is as high as 26%, then it is expected to be even higher among school dropouts.

In conclusion, it should be noted that all studies reviewed in this section were conducted on school-going children. Matafwali's (2005) findings (26% prevalence of reading disabilities) have significant implications, not only on the status of the educational system in Zambia, but also the current study. Research findings in western countries show lower prevalence rates (Smythe, 1997; Shaywitz, et al, 1998) compared to developing countries (William 1996; Matafwali, 2005). The discrepancy in prevalence of reading disabilities can be justified in the light of the developed world's ability to mitigate etiological factors, whereas developing countries lack resources to do so. The etiological factors of reading disabilities are discussed in detail later in this chapter. The following section focuses on causes of school-dropouts.

2.5. School Drop outs in Zambia

A substantially large number of children are enrolled in Zambian schools every year and are expected to remain in school until graduating after high school (grade 12) provided they keep satisfying examination requirements. However, a considerable percentage of children drop out of school at various levels of their education. Mumba (2002: p. 6) states that "a significant proportional drop out before completing the primary school circle." For instance, during the 1991 school year, 40,000 children of school age were not attending school compared to the school-going 1,494,817. By 1996, the number of out-of-school children rose to 650,000 in the

five years that had elapsed (Lungwangwa, 1999). A large proportion of out-of- school children are found in rural areas than in urban areas.

Despite the country's concerted efforts towards achieving Universal Primary Education (UPE) by 2015 (MOE, 1996), children enrolled in school have continued to dropout of the educational system. Achieving Universal Primary Education is one of the millennium development goals (MDGs), and in line with this MDG "no pupils at grades 1–7 are levied any user fees, including the Parent Teacher Associations (PTA) fees. School uniforms also cease to be compulsory and it is the responsibility of the schools to provide the basic requisites for pupils," (Ehnqvist and Reunanen, 2004: p.8). This incentive has not done much to reverse the school dropout trend in Zambia. The next section tackles reasons why children leave school prematurely.

2.5.1. Why Children Drop-out of Schools.

The Canadian Statistics (2005) view dropping out of school as a process, rather than as a decision taken at a single point in time. This implies that several factors contribute towards children dropping out of school. The problem of school dropouts is not only confined to Zambia, or is it a third world problem only. The problem is found in the educational systems in both developing and developed countries. For instance, school dropouts are estimated between 25-30% in the US before completing high school. Another study conducted by Harvard University and the Urban Institute found that 31 per cent of the high school students in California fail to graduate on time" (Irvine Quarterly, 2005).

Among many reasons cited for premature school-dropout in developing countries are; lack of classrooms, lack of desks, poorly trained teaching personnel, the HIV/AIDS scourge, and other

health-related problems. Many schools are facing problems of inadequate teaching/learning facilities. The numbers of classrooms are inadequate in most schools. Some teachers conduct their classes either in grass-thatched sheds and in worst cases, lessons are held under the sheds of trees in the open air.

In a few privileged schools with enough classrooms, structures are dilapidated and classes are too overcrowded for effective teaching. Due to overcrowding in a number of schools, one class may be divided into two classes to reduce the numbers. Since the two classes are taught by the same teacher, the amount of work is doubled, hence reducing time for preparing of lessons. When there are fewer desks in a school, one desk meant for two pupils is usually shared by as many as five, making it difficult to write and concentrate properly (GRZ, 1994; Kelly and Kanyika, 2000). This state of affairs discourages pupils, especially older girls, from continuing in such unsafe school environments.

In a study conducted by the Regional Ministerial Consultation entitled; *Closing the Gender Gap in Education: Curbing Dropout in 13 Forum for African Women Educators (FAWE)* in Eastern and Southern Africa countries, lack of financial resources was cited as the major reason causing children to dropout of school (FAWE, 2000). Of the 352 male and 264 female dropouts interviewed, 76.2% males and 73.3% females indicated that they left school due to lack of money (Table 2.1). The second most cited reason by premature school drop-outs is lack of interest in school, accounting for 7.7 and 6.9 % for boys and girls respectively. Other reasons cited were illness, teenage pregnancies and childcare, and death in the children's family, usually that of the primary caregiver due to the HIV/AIDS scourge.

Table 2.1: Main Reasons for Dropping out of School in Zambia:

Why Respondent Left School		
Reason for dropping out	**Male %**	**Female %**
Lack of money	76.2	73.3
Interest of interest	7.7	6.9
Other	8.9	6.9
Illness	3.6	6.1
Pregnancy/Child Care	-	3.1
Death in family	3.6	3.8

Source: Ministry of Education/IDS: Gender and primary Schooling in Zambia, October, 1999.

The HIV/AIDS scourge has brought with it, a number of educational related problems. A child orphaned by or coming from a family where a family member is suffering from HIV/AIDS is less likely to remain in school until graduation. A longitudinal study conducted by the World Bank (2002) in Malawi revealed that "double orphans were twice as likely to drop out of school (17.1 percent dropout rate)," (p. 19).

Related to the HIV/AIDS problem is the issue of general health and nutritional status of the child. There is a large amount of literature pointing to the impact of poor health and nutritional status on school retention. The School Health and Nutrition (SHN) of the Ministry of Education, under the auspices of the CHANGES programme, carried out a study in Eastern Province to find out the effects of poor health (helminth infections and micronutrient deficiencies in Zambia's school-age population) on the cognitive abilities. The problems of helminth infections and micronutrient deficiencies were endemic in the sampled population. The pupils were treated with Albendazole and Praziquantel (for S. Mansoni, S. Haematobium an Bilharziosis) and Vitamin A and Iodine supplements (for Iodine Deficiency Disorder) over a period of three years, (Chelala and Robison, 2004).

The children's cognitive skills were also assessed repeatedly at specified intervals during the same period (Grigorenko, et al, 2003). The results revealed that health infections adversely affect the cognitive functioning of children. The rate of dropouts was also monitored during the same period. Children who received medical interventions showed improved cognitive abilities, while the control group's abilities were quite weak. The rate of school dropouts had also reduced substantially by the end of the study, demonstrating that poor health and nutritional status has adverse effects on school attendance. Another review of literature on this subject shows "that infectious diseases contribute towards the enrolment, dropout, absenteeism and class performance of both boys and girls in school, although the impact seems to be higher on girls." (Kunkwenzu et al, 2003).

The US department of Education and the National Dropout Prevention Centre conducted a longitudinal study among grade 8-10 students aimed at finding out reasons why children drop out of school, (www.takestockinchildren.com). Three main categories of causes were identified; school, Job and family related reasons. The cited reasons with the highest frequency are those related to school life. The only other comparable reason is one related to teen pregnancy; probably this is because pupils have very little control over the problem once they become pregnant.

The conclusion drawn from the two situations described above (i.e., Zambia and USA) is that a number of children stop school because of academic related factors. The biggest proportion of children dropout because they do not like school, yet others do so because they were failing. This finding confirms the Zambian Ministry of Education (MOE/IDS, 1999) results citing academic-related demands on the child as the major cause of dropouts. The Mentors organisation in the US

argues that other factors not directly related to schooling, such as "...working and pregnancy, may not be the true causes but rationalizations or simplifications of more complex circumstance" (www.takestockinchildren.com/pages/mentors/minutes.jsp).

Little (1995) further asserts that the sense of school failure brought about by the inability to read may lead to early school dropouts. In Zambian schools, school authorities and/or parents are mandated to ask a child to repeat a grade when they feel that their child's academic performance is significantly low to progress to the next grade level. Moreover, poor performance is a clear indication that the child involved is at-risk of experiencing learning difficulties (Karlsson, 1996; Guerin and Denti, 1999; Murdock, 1999; Sagor, 1999). McMillen et al (1994) posits that High School dropouts reported that their inability to keep up with school-work or were "failing school" for stopping school. Generally, students with learning disabilities are twice more likely to dropout of school compared to those without disabilities (Phelps and Hanley-Maxwell 1997; Langdon, 2002). This likelihood can be attributed to their lack of academic success (UNICEF, 1999). Additionally, children with learning disabilities have a higher incidence of dropping out of school., and in most cases, they end up in jail.

From this explanation, it is rational to deduce that the prevalence of reading difficulties is higher among school dropouts than in their school-enrolled counterparts. Reading disabled pupils are unable to cope with increasingly difficult schoolwork, as they gradually progress from easy lower grades to high more challenging levels. Their reading skills become overstretched, rendering other school subjects unbearable because of poor comprehension skills. Therefore, they opt to dropout of school instead of constantly struggling with school work. Having

established that, there is a negative causal relationship between reading disabilities and school retention, the next section looks at the etiological factors of reading disabilities.

2.6. Etiology of Reading Difficulties

The causes of learning disabilities in school-going children have been a subject of rigorous research by many scholars over a period of time. Theories to explain the causes of reading disability phenomena have waxed and waned. According to Sternberg and Grigorenko (1999) learning disabilities, in general, are of genetical, biological and cognitive origin.

2.6.1. Genetic Causes of Reading Disabilities

According to genetics based research, learning disabilities are known to be transferable from parents to their children (Vogler, et al,1985; Gayàn and Olson, 2001; Kaplan, et al, 2002; Grigorenko, 2003). A ground breaking study by Smith and his colleagues (1983) reveals that there is "significant evidence for linkage between dyslexia and chromosome 15' in 20% of the dyslexic families. Lubs, et al (1993) consolidated this argument through another study of 74 family members. Their findings from a sample of eleven families indicated that siblings had a gene causing dyslexia. However, other studies have revealed that there are different chromosomes responsible for different reading skills. For instance, Grigorenko et al's (1997) study "revealed significant evidence for susceptibility loci for phonological awareness deficits on chromosome 6 and single-word reading deficits on chromosome 15."

2.6.2. Biological Causes of Reading Disabilities

Although, the contributions of genetics and biology in determining learning disabilities have been perceived to be very closely related, researchers argue that their contribution should not be

treated as the same. It has long been established that genetics determines the brain functions; recent studies have revealed that secondary factors, such as brain injuries, may alter cognitive abilities of an individual. Studies of brain structures of non-dyslexics and dyslexics reveal differences in symmetrical structures of left and right planum. Studies have revealed conflicting results about the contribution of brain asymmetrical to learning disabilities; rigorous research is still on-going (Morgan and Hynd, 1998; Sternberg and Grigorenko, 1999).

A number of studies employing state of the art technology in this field have enabled researchers to delve deep into the dyslexics' brain. Employing the three techniques, Electroencephalogram (EEG), Functional magnetic resonance imaging (fMRI) and Positron-emission tomography (PET), they have established that brain activity when reading sounds of words, such as whether the sounds rhyme, is different in good and poor readers, (Lyon, 1996; Evers, 1998; Sternberg and Grigorenko, 1999). There are indications that dyslexic adults have greater than normal activation in the occipital and prefrontal regions of the cortex.

2.6.3. Cognitive Causes of Reading Disabilities

Although, it has been argued that reading is a natural act, but one that must be learnt (Gough and Hillinger, 1980), no one can downplay the contribution made by cognitive skills towards reading acquisition. Reading disabled children exhibit lower verbal and listening comprehension skills. Despite differing by only one month in listening comprehension, dyslexics lag by 30 months by grade 4 level. Similarly, even if, there is no difference between the two groups (good and poor readers) by 8 years of age, poor readers have lower verbal skills than performance intelligence, (Bishop and Butterworth, 1980; Juels, 1988).

2.6.4. Other Etiological Factors

Another line of research thought has found a strong correlation between developmental reading failure and exposure to print, levels of parental literacy and parent reading to the child (Adams, 1990). Local culture and values attached to education influences the children's academic achievement. Communities which value education, encourage children to explore printed materials, thereby learning important aspects of reading, (Sternberg, et al, 1999). Intervention studies indicate that the influence of culturally and linguistically diverse populations as cause for reading failure is overestimated (Torgesen, 1997). However when appropriate instructions are undertaken at the beginning of schooling, exposed and non-exposed learners make equal reading improvements eventually.

2.7. Special Education Provision in Zambia

Special Education provision has had a long, but not so illustrious history in Zambia. Special educational services were most confined to traditional disabilities; visual and hearing impairments, in some cases physical impairments related services are also offered (Snelson, 1974). Initially, all special educational services were offered by mission educational institutions until 1971 when government took over the running of these services. Other than traditional disabilities, no other disabilities were catered for. As a result children with learning related disabilities were not given any attention. Even after the major Educational Reforms of 1977, no tangible changes were implemented to meet the needs of individuals with learning disabilities (Ministry of Education, 1977).

However, since the Samalanca Conference in Spain in 1994, whose main aim was to increase access to high quality education for individuals with special education needs (UNESCO, 1994)

the Zambian government has been making efforts to improve education for disabled children. Among the many steps taken to improve education for children with Special Education Needs includes integrating them into mainstream education (Ministry of Education, 1996). This might have improved access to educational services, but not the quality of special education. Apart from free services offered by The University of Zambia, Special Educational Assessment Centre, no other institution assists children with reading disabilities or any kind of learning disabilities in the country.

Education for Special Needs is still lacking the required prerequisites to adequately cater for learning disabled children. Kalabula (2000) concludes that the realisation of the integration dream in Zambia is a myth. Kalabula (2000) states further that major reasons behind failures observed in provision of special education are lack of financial resources to implement the Samalanca recommendations. This has been worsened by the country's declining economy. The other reason frequently cited is lack of political will on the part of stakeholders and government (Ministry of Education, 1992). In instances where some successes have been recorded, emphasis has been placed on traditional disabilities, requiring very little additional diversions from ordinary education such as knowledge of Braille and Sign Language on the part of the teachers and pupils.

Despite a large body of literature indicating that reading disability affects many of Zambian school-going children (Williams, 1996; Kelly and Kanyika, 2000; Matafwali, 2005), efforts to put in place safety nets by Ministry of Education to assess, intervene and appropriately place children with reading difficulties are far short of minimum expectations. Many research organisations in developed countries have long established the link between reading disability

and school dropouts (McMillen et al, 1994; Lyon, 2003). According to the Centre for Development and Learning (2003) reading failure is the overwhelming reason why children repeat grades, assigned to special education intervention programmes, given long term remedial services and drop out of school. Jimerson et al (2002) state that "without effective early prevention or intervention programmes, the developmental trajectories of children at risk of poor academic performance will likely lead to subsequent academic failure, perhaps even high school dropout," (p. 58).

The problem created by this causal relationship existing between reading difficulties and the rate of school drop-out poses not only an educational problem (Zigmond and Thornton, 1985), but also social, health and economic ones. For instance, it has been empirically proved that 50% of all juvenile delinquents and 60% of all adolescents in treatment for substance abuse have been detected to be learning disabled (Educational Testing Services, 1977). There is also a very strong correlation between reading problems and jail incarcerations, unemployed and underemployed adults. These damning statistics call for an urgent need for research in this area to formulate intervention strategies for at-risk children in Zambia.

2.8. Summary of Literature Review

Reading is a complex skill. It is not a natural skill; therefore, its acquisition requires deliberate effort. Although, some children learn this easily, a substantial number struggle. There are many causes implicated in reading failure. Among the many causes are genetic, biological and cognitive factors. Research indicates that as many as 26% of all school-going children in Zambia experience reading disabilities (Matafwali, 2005). Despite the high level of reading difficulty among learners, the Ministry of Education has not done much to mitigate the problem; therefore,

one inevitable outcome of reading failure is high levels of school dropouts (Jimmerson, et al, 2002). The foregoing arguments underscore the importance of determining the nature and prevalence of reading disabilities, because doing so will enable stakeholders to "catch them (affected children) before they fall," (Torgesen, 1998).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This section describes methods used in collecting data and how this data was analysed. It describes the research design employed, target population, sample size and sampling methods. Further, instruments used, their validity and reliability are outlined

3.2. Research design

This study is a survey of the nature and prevalence of reading disabilities among children who have dropped from school. The study was conducted in four school catchment areas in Chipata school district. Kasenga and Nyauzi Basic Schools were designated as rural, while Chipata and Lutembwe Basic Schools were urban research centres. The rural designated schools are located 40 kilometres along Chipata-Lundazi road, while the other two are located within the radius of Chipata town.

3.3. Target Population

This study targeted children who were once enrolled but have since dropped out of school. The following guidelines determined inclusion criteria of research sample:

- have attended school and dropped out at grade 4 level, because research has established that any child who has not acquired adequate reading skills by grade 3 or 4 is at greater risk of developing reading difficulties (Torgesen; 1998)
- in order to ensure consistency in the skills of children taking part, only participants who have been out of school for at least 6 months, but not more than 3 years. A ceiling of not

more than 3 years out of school will ensure that children do not lapse into functional illiteracy,

- be within the age-range 7-18 years old.

Only children whose parents gave permission by signing a consent form after the researcher had explained the purpose of the study were sampled.

3.4. Sampling Procedure

Since two different samples were required for the study, two different sampling methods were employed for determining each group.

3.4.1. School dropouts participants

All children who had dropped out of school in a given school hinterland, together with their parents, were invited to the school centre by the local school headmaster. The sample was determined by convenient sampling method because the sampling frame was determined by participants' willingness to take part. Depending on the number of consenting parents or guardians, stratified random sampling was employed to ensure that each village in the school hinterland was adequately represented.

3.4.2. School-going participants

These were followed to their respective schools during the normal school days and were randomly sampled from all present grade 4 pupils in grade classes on the assessment day. Informed consent was sought from participants' parents. In cases where it was impossible to get in touch with parents, the head teacher was asked to give consent on behalf of the parents.

3.5. Research Sample

Participants in this study consisted of a total of 100 pupils, consisting of 60 experimental (school dropouts) and 40 control (school-going) drawn from four (4) study areas in Chipata district of Eastern Province. There were almost equal sample sizes (10) from each school for school going participants, whereas the sample sizes varied in each school area for dropouts. Nyauzi Basic School area contributed the biggest proportion of participants for the experimental group (24) followed by Chipata with 19 participants, while Lutembwe Basic had 9 and the least number of participants was recorded at Kasenga Basic (8). Parents of children taking part in the study signed a consent form (see Consent Form sample; Appendix 3).

3.6. Research Instruments

This study elicited performance scores on reading ability and intelligence constructs, two assessment instruments were used: reading achievement measures and an intelligence measure.

3.6.1. Reading Achievement Measures

The Zambia Achievement Test (ZAT) reading subtests were used to provide individual measures of reading ability. ZAT is made up of 3 reading sub-tests developed to measure core areas implicated in reading disabilities, namely; reading recognition, pseudo-word decoding and reading comprehension in Zambia.

3.6.1.1. Reading Recognition Skills

The ZAT-RR provided reading recognition measures. The subtest is made up of 60 test items; the first 62-101 test items assess letter discrimination, sound matching, sound discrimination and letter-sound matching skills. All items in this subtest are multiple choice type. Items 102-121

assess single word reading skills. The list of words gradually increases in level of difficult to decode. (see Fig.1a in Appendix 2 for an example)

3.6.1.2. Pseudo-word Decoding Skills

The ZAT-Pseudo-word Decoding were used to test decoding skills. The subtest consists of 38 pseudo-words with phonetically regular construction. Initial items consist of simple vowel–consonant combinations (e.g., ig, ak) and become progressively more challenging in length and phonetic construction. The student is allowed to simply read the pseudo-words aloud (see Fig. 1b in appendix 2 for an example).

36.1.3. Reading Comprehension Skills

Reading Comprehension skills were determined by ZAT-RC. It consists of 24 test items, constructed with a performance response type. The respondent is asked to read a word, phrase or sentence presented to them and performance action stipulated by the test item. The sentences become more challenging gradually through vocabulary and sentence construction (see Fig 1c in appendix 2 for an example). Given the reading decoding requirements of this subtest, items on this subtest were only administered to children who performed at a satisfactory level (at least ½ of all test items) on the reading recognition subtest. All ZAT reading subtests were individually administered. Additionally, they all elicit oral responses from participants.

3.6.2. Cognitive Ability Measures

To measure participants' intellectual functioning, an intelligence subtest from the K-ABC pattern reasoning was administered. The test measures nonverbal performance.

3.6.2.1. K-ABC – Pattern Reasoning Subtest

In addition to reading ability measures, the Pattern Reasoning subtest from the Kaufman Assessment Battery for Children (K-ABC- II) (Kaufmann and Kaufmann, 2004) was used to determine the participants' cognitive abilities. This K-ABC subtest is a non-verbal measure. It is also an individually administered assessing intelligence. The non-verbal instrument was chosen in order to alleviate any influences due to cultural differences, inadequate language proficiency and low level of reading ability among participants. This subtest consists of 36 items in which the respondent must perceive a pattern in a series, generate and test hypotheses about the rule used to create the pattern, and apply that rule. This task was untimed.

3.6.3. Instrument Reliability

All instruments to be used have been adequately standardised and their norms are well defined on a relatively large Zambian school population, age ranges between 7 and 18 years in grades 3-7. The ZAT developed specifically for use in assessing learning disabilities in Zambia and has been piloted extensively in Chipata District in Zambia's Eastern Province. Although developed for use in predominantly western cultures, norms for K-ABC – Pattern Reasoning in Zambia, have been established through a pilot study conducted in Chipata district. Psychometric properties of both instruments have been found to vary appropriately in Zambia.

3.7. Data Collection Procedure

Test administrators attended a week-long training workshop, where they were intensively trained on specialised administration skills. Both sets of research participants were tested individually at the nearby school in the area. Each participant completed an assessment session in approximately 1 hour and 30 minutes. The testing periods were allocated as follows: forty-five (45) minutes for

three ZAT subtests, fifteen (15) minutes for Pattern Reasoning test. Both school dropouts (experimental) and school-going children (control group) were tested on the same day or days when the research team was in their school locality.

3.7.1. Data Analysis

In order to explore differences in performance between the experimental and control groups, the data was analysed using a number of Analysis of Variances (ANOVAs). First, a ANOVA was performed with participants' scores on ZAT-Reading Recognition, Pseudoword Decoding, Reading Comprehension and K-ABC-Pattern Reasoning as dependent variables.

The independent variables were participants' educational status (dropouts or school-going). In each case, analyses based on school location (rural or rural), gender were considered. The ANOVA approach was preferred because the study involved many categorical independent variables and multiple continuous dependent variables. The results of school dropouts and school-going were compared.

CHAPTER FOUR

RESULTS PRESENTATION

4.1. Introduction

This section presents findings of the study. The study was designed to establish the nature and prevalence of reading disabilities among school dropouts. The results are presented in the following order: starting with results for K-ABC pattern reasoning of each of group, then examine the nature of reading disabilities by presenting descriptive and inferential statistics for ZAT reading recognition, pseudoword decoding, reading comprehension subtests. Finally, determine prevalence of reading difficulties by subjecting the proportions of participants reading below and above 15% on each of three reading constructs to Chi square (X^2) statistical analysis. All data analyses were accomplished using Statistical Package for Social Sciences (SPSS) and web-based chi square (X^2) analysis programme.

4.2. Descriptive Statistics

The study sample comprised 98 participants, with 60 school dropouts and 38 in-school grade four (4) pupils drawn from four schools and school areas in Chipata District. The experimental sample comprised 35 male and 25 female school dropout children, while the control group was made up of 21 male and 19 female in-school participants (see table, 4. 1 below).

The age ranges of the experimental group were between 10 and 19 years with a mean of 14.13 years (SD = 2.33), whereas the control group had ages ranging between 9 and 16 years (Mean = 11.30; SD =1.79).

Table 4.1: Distribution of participants by School, Educational Status and Gender

School Location	Control Group (In-School)			Experimental group(Dropouts)		
	Male	Female	Total	Male	Female	Total
Chipata	5	5	10	7	12	19
Lutembwe	5	5	10	7	2	9
Kasenga	6	4	10	2	2	8
Nyauzi	5	5	10	9	9	24
Total	**21**	**19**	**40**	**35**	**25**	**60**

4.3. KABC – Pattern Reasoning

The KABC Pattern Reasoning subtest was administered to assess participants' nonverbal intelligence. The ANOVA was employed to determine whether or not the difference between the raw score means of the two samples was statistically significant. It revealed no statistical significance, between the means, despite the difference approaching significance, (F (1, 96) = 3.003; p = 0.089). The control group performed marginally better than mean (M = 6.53: SD = 3.47) than the experimental sample (M = 5.33; SD = 2.45), but not large enough to show statistical significance between them.

In-school participants showed better nonverbal intelligence performance than the out of school group. In-school female participants performed better than the males, but male dropouts outperformed the females (see fig.4.4a). Effects of gender revealed a mixed picture, as no single gender in the two categories showed superiority.

Fig 4.1: K-ABC Pattern Reasoning Mean Performance of Experimental and Control Groups

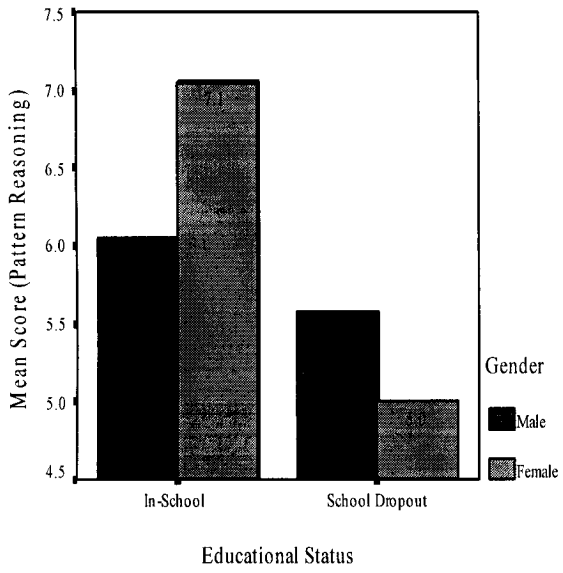


Fig. 4.4a. KABC Performance by gender

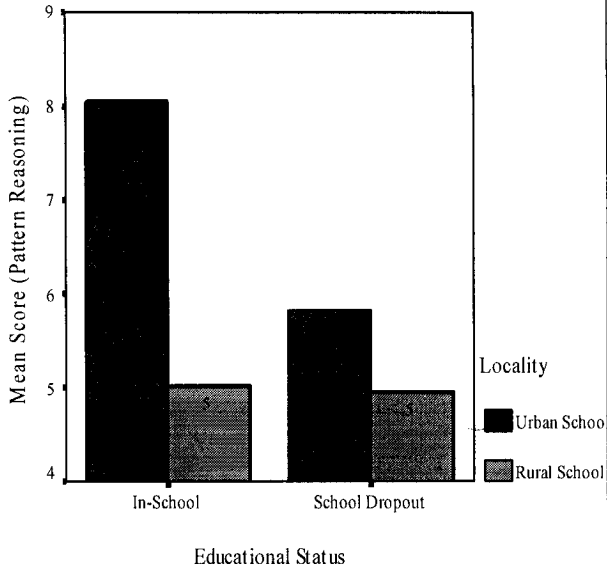


Fig. 4.4b. KABC Performance by school locality

In contrast to the mixture picture depicted above, urban participants performed better than the rural groups. Both rural groups (in-school and dropout) had a mean of 5, the lowest of all the mean scores. In-school urban participants had a significantly high mean than the urban school dropouts (fig. 4.4b).

4.4. Nature of Reading Difficulties

This section is aimed at determining the nature of reading disabilities by comparing reading performances of the experimental and control participants on the three core-areas implicated in reading disabilities. Each subtest is dealt with individually by comparing the means reading competence of each group of participants. Table 4.2 below, shows mean raw score performance, standard deviations, minimum and maximum scores of each group on the various reading constructs under consideration in this study.

Table 4.2: Descriptive Statistics; Means, SD, Mini and Max ZAT Reading Scores

ZAT	School Dropouts				School-Going			
Subtest	Mean	SD	Min	Max	Mean	SD	Min	Max
RR	29.32	18.82	0	112	42.37	30.28	0	111
PD	1.80	6.53	0	32	6.42	11.72	0	38
RC	0.80	3.58	0	19	3.21	6.30	0	23

4.4.1. ZAT Reading Recognition Results

To measure participants' ability of recognizing words without having to read out the individual sounds in a given word. ZAT reading recognition is sub-divided into five specific areas implicated in reading disability. The areas assessed by the reading recognition subtest are letter discrimination, sound matching, sound discrimination, letter-sound matching and single-word reading. In order to find out whether the mean differences between the experimental and the control groups were significantly different. A one-way Analysis of Variance (ANOVA) was conducted. The ANOVA test revealed a significant difference on the raw scores between the two groups, (F [1, 97] = 2.117, p< 0.05), with the experimental group scoring significantly lower (M = 29.32; SD = 18.82) than the control group (M = 42.37; SD = 30.92). ANOVA analyses for between-subjects effects for the three ZAT reading subtests are shown in table, 4. 3, below.

Table, 4. 3: Tests of Between-Subjects Effects: Educational Status as independent variable.

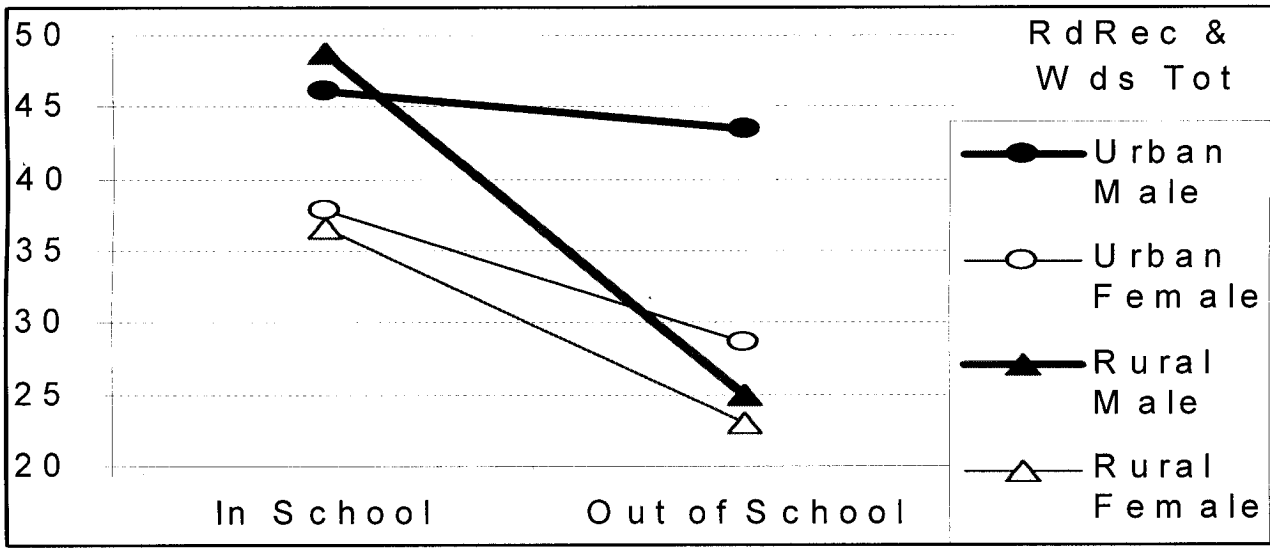
Source	*F*	Degrees of Freedom	Significant Level
K-ABC Pattern Reasoning	3.003	1, 96	= 0.098
Reading recognition	2.117	1, 97	< 0.05
Pseudo-word decoding	1.746	1, 97	< 0.05
Reading comprehension	1.987	1, 97	< 0.05

The descriptive statistics further reveal that the control group out performed the experimental in both rural and urban school areas, and in both cases male participants had higher raw mean

scores than their female counterparts, (see table, 4. 1). School dropout participants in urban areas were better reading achievers compared to rural participants. These results strongly support the research hypothesis that school-going children would outperform the school dropouts on the ZAT reading subtests.

Location of school and educational status had considerable effects on children's reading recognition performance. According to figure 4.1., of the four gender subgroups (in-school male and female and school dropouts male and female), schooling had a very strong effect on rural males. In-school participants had a very high mean score, while their rural out of school counterparts scored poorly.

Fig, 4. 2: Performance of Experimental and Control Groups on ZAT Reading Recognition



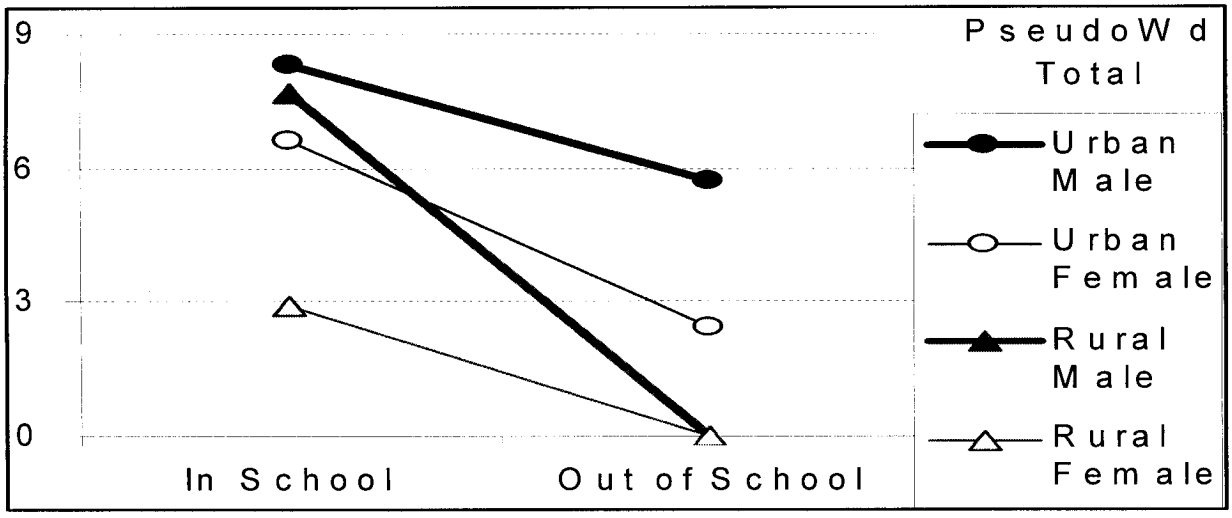
Female participants had the lowest scorers for both experimental and control groups compared to male participants. The mean difference between in-school and out of school urban was the smallest. In general, school-going participants had higher mean scores than dropouts, while

males showed superior overall performance compared to the females in both educational status categories.

4.4.2. ZAT - Pseudoword Decoding Results

In order to measure the children's ability to apply phonetic decoding (letter-sound relationships) skills, a pseudoword decoding subtest was administered to both groups. An ANOVA test with the Pseudoword Decoding raw scores as a dependent variable and participants' educational status as independent variable was conducted. The analysis revealed statistical significance in mean differences of the raw score between the experimental and the control groups, (F [1, 97] = 1.75, $p < 0.05$), with the control recording a higher raw mean score (M = 6.42; SD = 11.72) than the experimental sample (M = 1.80; SD = 6.53). This result also provides support for hypothesis 2, arguing for a higher mean scores among the school-going children compared to the experimental group.

Fig. 4.3: Mean Performance of Experimental and control on the Pseudo-word Decoding Sub-test



Descriptive statistics conducted in relation to school area location and educational status revealed that generally, urban based participants were superior readers than rural based children and in-

school children performed better as compared to school dropouts (see fig. 4.2). Among rural participants, rural in-school male children were good readers, while rural male dropouts performed poorly. Both rural in-school and dropout female had low mean scores. The figure above also shows that school dropouts (both males and females) in rural schools had very poor non-word decoding skills. They, in fact, were unable to decipher a single test item of the 38 pseudo-words on the subtest. Urban in-school males were the best readers. The urban out of school males did relatively better, even out performing in-school rural females. Location of school area has considerable effects on reading teaching outcomes.

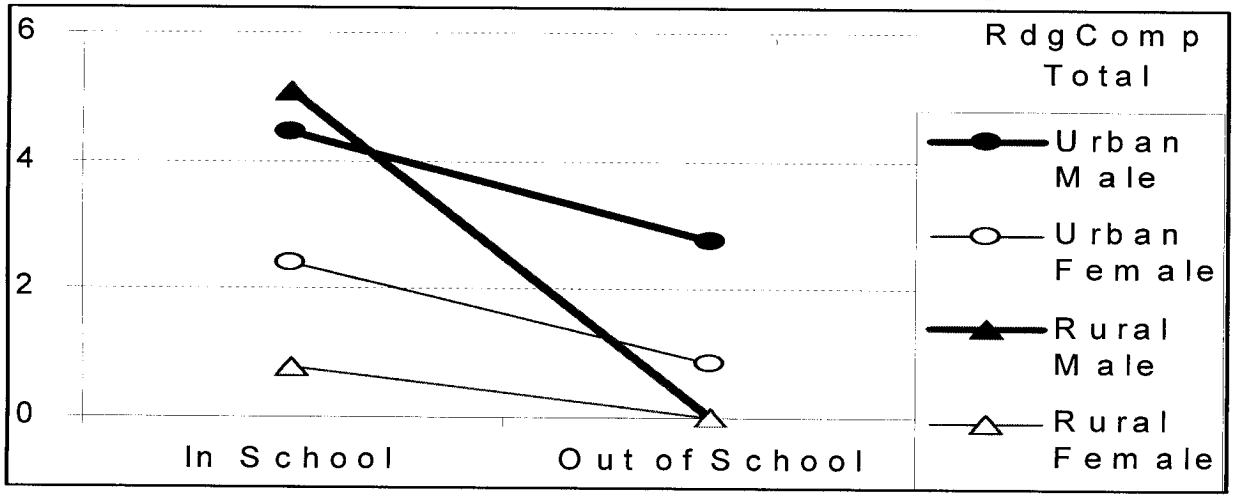
4.4.3. ZAT – Reading Comprehension

To determine participants' reading comprehension skills, a comprehension subtest of the ZAT was administered to both sets of participants. An analysis of variance was conducted to determine the main effects of the differences in raw mean scores on the reading comprehension (as dependent variable) and educational status (independent variables). The ANOVA test showed that the difference between the means of the two sets of raw scores was statistically significant, (F [1, 97] = 1.99, p< 0.05). The control sample recorded a higher mean score of 3.21 (SD = 6.30) compared to the experimental group's smaller mean of 0.80 (SD = 3.58). Inferential statistics of ANOVA analysis suggest a strong support for higher mean score difference in favour of the control sample, hence supporting Hypothesis 2.

Both urban and rural in-school male participants had higher mean scores compared to the female participants on reading comprehension assessment (see fig, 4.3). Like performance on reading recognition and decoding subtests, in-school children performed better than school dropouts. Descriptive statistics show that males scored better than females. Schooling seems to have more

main effects on reading performance in rural males because rural in-school outperformed rural dropouts by a large margin. In fact, like rural female dropouts, no rural male dropout read a single test item correctly.

Fig.4.4: Performance of Experimental and Control Groups on ZAT Reading Comprehension Sub-test



Children who failed to get 25% of the reading recognition test items, especially on the single-word reading part, did not take the comprehension test. This is because effective reading comprehension skill depends on good single-word reading skills. This exclusion criterion could have affected performance of school dropout participants.

4.5. Prevalence of Reading Difficulties

Data analysis to determine prevalence proceeded as follows: first, descriptive analyses were conducted to determine proportions of children, among school dropouts and school-going participants, reading below or/and above the 15% threshold. This was achieved by cross-tabulating the educational status and the predetermined threshold. Then, Chi square (X^2) analyses for all reading subtests were also carried out to determine whether the proportions observed in

each were significant representations of the expected proportions in each educational status category and the three ZAT reading subtests.

Table 4.4; Proportions (%) of Children reading above or below 15% on ZAT Subtests

		Reading Recognition		Pseudoword Decoding		Reading Comprehension	
Edu. Sta	**Location**	**≤15%**	**>15%**	**≤15%**	**>15%**	**≤15%**	**>15%**
In-School	Urban	7.89	42.11	26.32	23.68	34.21	15.79
Children	Rural	2.63	47.37	34.21	15.79	36.84	13.16
	Total	**10.53**	**89.47**	**60.53**	**39.47**	**71.05**	**28.95**
School	Urban	5.00	40.00	35.00	10.00	40.00	5.00
Drop-outs	Rural	13.33	41.67	55.00	0.00	55.00	0.00
	Total	**18.33**	**81.67**	**90.00**	**10.00**	**95.00**	**5.00**

Table, 4.4: shows proportions in percentages of children in each of the two categories (above and below 15%) based on educational status and location of the school area.

4.5.1. Prevalence of Reading Recognition Difficulties

Generally, both in-school and school dropout participants performed relatively well on this subtest. Results in table 4.4, above indicate that there were more poor readers among the school dropouts (18.33%) than the school-going (10.53%). A large proportion of rural participants scored more poorly than the in-school sample. There were more school-going (89.47%) children reading above the determined threshold than the dropouts (81.67%). When a 2 (educational status) x 2 (reading > or < 15%) Chi Square (X^2) test of independence was conducted to determine whether the proportions observed in each category were significantly different from the expected, no statistical significance was revealed by the X^2 in the distribution of participants, X^2 (1, N = 98) = 1.094, p >0.05. This finding does not statistically support the research hypothesis asserting that there will be significantly higher proportions of children scoring below 15% of the total reading recognition score among school dropouts than among in-school.

4.5.2. Prevalence of Pseudoword Decoding Difficulties

School dropout participants were outperformed by their in-school peers. Table 4. 4, reveals that more participants among the experimental group read below the 15% threshold than among the control sample, 60% of the school-going children read pseudoword test items poorly compared to a staggering 90% of school dropouts. Differences in proportions of participants in low and high reading categories were found to be statistically significant, when a 2 (educational status) x 2 (reading > or < 15%) Chi-Square of differences was conducted, X^2 (1, N = 98) = 23.33, $p <$ 0.001.

It is interesting to note that, in contrast to results on reading recognition, more participants were found to be achieving below than above 15% threshold. Out of the 40 in-school participants, 39.47% were reading above the determined 15% threshold, but only 10% of the school dropouts were reading above. Therefore, the first research hypothesis was found to be highly supported statistically by the findings on this subtest. Although the highest proportion (55%) of the lowest reading achievers was recorded from among the rural based out of school participants, a related lower proportion (34.21%) was found among urban based school areas. Results show that no rural child was able to read a single pseudoword on the subtest.

4.5.3. Prevalence of Reading Comprehension Difficulties

Like the participants' pseudoword decoding skills, a large proportion of children were in the reading achievers category (below 15% reading threshold) on the reading comprehension. According to table 4.4, 95% of all school dropouts were reading below the reading threshold compared to 71.05% of in-school participants. Likewise, fewer participants (28.95%) were

recorded as reading above the 15% threshold among the control sample, whereas only 5% of the participants in the experimental sample read above the threshold. A 2 (educational status) x 2 (reading > or < 15%) Chi-Square of differences conducted to determine whether differences of observed proportions in the four categories revealed statistical significance, X^2 (1, N = 98) = 20.35, $p < 0.001$. This finding offers statistical support for the research hypothesis stating that there would be a higher proportion of poor readers among school dropouts than among in-school participants. The null hypothesis was rejected.

Further analysis of research data reveal that rural based school areas had children performing more poorly than urban based. In fact, like on the pseudoword decoding subtest, no rural based school dropout child managed to read a single test item and perform the stipulated action. The proportion of the high achieving readers among urban participants was equally marginal, (28.95%).

4.6. Summary of Research Results

School dropouts performed poorly on all the three ZAT reading subtests. Mean scores on all subtests were higher among in-school participants compared to the experimental sample. The differences in the means were subjected to analyses of variance (ANOVA). Mean differences on the three subtests reached statistical significance. Reading recognition subtest, F [1, 97] = 2.12, $p < 0.05$), Pseudoword decoding, (F [1, 97] = 1.75, $p < 0.05$) and Reading comprehension, F [1, 97] = 1.99, p. 0.05). Research hypothesis 1, stipulating that reading disabilities are more severe in school dropouts was accepted on all the three ZAT subtests.

On the research hypothesis (2) asserting that the proportions of school dropouts would be larger than those of school-going children, the Chi Square (X^2) analyses of results revealed statistical significance on all, but one subtest (Reading recognition X^2 (1, N = 98) = 1.094, p >0.05, no statistical significance was found; Pseudoword decoding X^2 (1, N = 98) = 23.33, p < 0.001; Reading Comprehension X^2 (1, N = 98) = 20.35, p < 0.001). The Null Hypothesis was rejected in the pseudoword decoding and reading comprehension subtests, but was accepted on the Reading recognition, because the proportions were not statistically different.

CHAPTER FIVE

DISCUSSION OF RESEARCH FINDINGS

5.1. Introduction

This chapter discusses the findings of the study. The main objective of this study was to explore the nature of reading difficulties and determine the prevalence of the identified difficulties among children who have dropped out of school. This task was achieved by comparing reading performance of the experimental and control samples of the three ZAT reading tests.

5.2. KABC Pattern Reasoning; Nonverbal Intellectual functioning

The K-ABC pattern reasoning results revealed that generally school-going children have better intellectual abilities than the dropouts, although the difference between the mean scores of the two samples did not reach statistical significance, when an analysis of variance (ANOVA) was conducted. Descriptive statistics of the interaction between school area location and educational status indicate that rural school dropouts are better performers compared to rural in-school participants.

The findings that the difference between the mean scores of two samples did not reach significance imply a relative intellectual homogeneity between them. This outcome is important for the current study because the operational definition of reading difficulties requires that a child with specific reading difficulty should only have problems in reading, but intellectually functioning within the normal range (Critchley, 1970). In other words, specific reading difficulties can manifest in an individual even in the presence of adequate socialisation, normal

intelligence and learning experience. Although, there is a minor discrepancy between them on nonverbal intellectual functioning the two sets of participants are intellectually comparable.

Why did female rural school dropouts outperform in-school sample? One possible explanation to this phenomenon is that children who dropout of school in urban areas leave school because they are unable to cope with school demands or are not academically gifted. On the other hand, children dropping out of school in rural areas leave school because they are nominated to meet some family demands, which may include looking after livestock, sick family members and if orphaned, s/he may be expected to take care of siblings. According to Serpell, et al (2004) children who show promise in carrying social responsibilities are usually asked to undertake these chores more often than the rest of the children. Depending on how demanding these chores are children may be given "consent" to stop schooling. Consented dropping out sifts intellectually strong pupils from the school system leaving weak ones.

In general terms, however, rural participants performed weakly compared to the urban based. This finding could be due to differences in levels of exposure to the kind of test items contained in the assessment instrument. In that case, the socio-economic status plays a significance role in determining the child's intellectual outcomes. Children in rural areas have limited access to teaching/learning materials compared to urban participants to reading materials similar to those found in most assessment tools.

Several research findings reveal that disadvantaged populations (especially minority populations in USA) are usually over-represented among low intellectual functioning children (Herrnstein

and Murray, 1994; Lyon, 2003; Zigmond and Thornton, 1985). The more educational learning resources a child has access to, the more intellectually advanced s/he will be. Additionally, Christian, et al, (2001) argue that schooling enhances certain cognitive skills that are important for academic achievement. Rural children do not have limited access to education enrolment, but the quality is questionable because of poor distribution of both teachers and materials, (Kelly and Kanyika, 2000).

5.3. Nature of Reading Difficulties

Reading difficulties is identified by poor performance in word recognition, pseudoword decoding and reading comprehension skills. Novice readers graduate from single letter-sound associations through automatic word recognition to more complex reading comprehension skills. Failure to master any of the intermediate skills inevitably leads to reading failure. This section discusses the nature of reading difficulties experienced by school dropouts compared to in-school children.

5.3.1. Reading Recognition

Group means differences on the reading recognition subtest was statistically significant, F [1, 97] = 2.12, $p< 0.05$. This implies that children who drop out of school before completing their school course experience significant reading recognition problems much more than their in-school counterparts. This result is consistent with a study conducted in Zambia over thirty years ago, (Sharma (1973). Like in the current study, the majority of the participants were unable to read a list of 40 frequently occurring words two-grades below their current reading material. A number of other more recent studies reveal similar reading performance among in-school children in the country, (Kelly and Kanyika, 2000; Grigorenko, et al, 2003; Matafwali, 2005). However, as may

be observed from findings in this study, reading recognition related difficulties are more severe in school dropouts than in the in-school sample.

Several studies have established how important reading recognition is in predicting the development of reading comprehension skills (Stanovich, 1986; Juel, 1988). Juel (1988) argues that word recognition skills at the end of the first grade is strongly related to reading proficiency at the end of fourth grade. For readers to attain high levels of reading fluency and eventually comprehension proficiency, they should identify familiar words in and out of context without having to concentrate on deciphering individual letter-sound correspondences. Jenkins, et al (2003) found that poor readers spend more of reading energy trying to sound out individual sounds in words instead of concentrating on extracting meaning from text. Their reading is laboured and slow, leaving little or no resources to employ in understanding the text.

Research results also show that rural participants performed poorly compared to urban participants on this subtest. Rural females were poorer readers than rural males. Location of school had strong main effects on reading recognition performance; rural/urban reading gap could be a result of differences in socio-economic status. Socio-economic status obtaining in rural areas may be comparable to those in which low reading proficient minority groups living in the USA. Like rural based participants in Zambia, children from minority groups face significantly more reading difficulties than the majority populations (Catterall, 1998). The wide word recognition achievement gap could be attributed to differences in levels of access to literacy materials. Kelly and Kanyika (2000) state that rural schools in Zambia have little or no access to adequate teaching/learning materials compared to urban based schools. Teacher deployment to rural schools is quite erratic, thereby, overstretching the few available in schools.

Other researchers have also argued that children from disadvantaged backgrounds tend to enter school with inadequate general verbal ability and cognitive weaknesses related to phonological/language domain. Additionally, their entry to school is usually significantly delayed (Torgesen, 1998).

Apart from the school location reading achievement gap, there is also a gender-based achievement reading gap between the experimental and control groups. Male participants recorded higher raw mean scores, although previous research indicates that females experienced less reading difficulties compared to males (Shaywitz, et al, 1990). The reversal in reading norms in Zambia may be explained in the light of gender role differentiation. In rural Zambia, girls are given many home chores, such as cooking for the family, and caring for children, elderly and sick members of the family. These chores leave female children with very little time for reading practice compared to the male children. Reading recognition proficiency requires constant and sustained reading practice, so that the reader is constantly exposed to the same words many times, in order to commit them to memory. According to Cunningham and Stanovich (1998, p.1), "lack of exposure and practice on the part of the less-skilled reader delays the development of automaticity and speed at the word recognition level).

5.3.2. Pseudoword Decoding Subtest

Like on the reading recognition subtest, the mean difference between the two groups was significantly different (F [1, 97] = 1.75, $p < 0.05$). The control group out-scored the experimental group on the non-word decoding subtest. Readers achieve decoding skills by relating letter of the alphabet to sounds they make. Non-word performance is indicative of a student's ability to sound out unfamiliar words. It is an important skill in increasing the volume of vocabulary words.

Share and Stanovich (1995) argue that "the single best measure of children's ability to apply knowledge of letter-sound correspondences in decoding words is provided by measures of non-word reading."

Although, no study has been conducted to assess non-word reading in Zambia, decoding is an important aspect to reading fluency. Zambian languages have orthographic structures that map directly letter-sound relationships. Chinyanja is a very transparent language, requiring letter-sound mapping when reading it. Aro and Wimmer (2003) argued that the level of pseudoword decoding depends heavily on the orthographic structure of the reading language. They, further, state that transparent languages (languages whose writing and reading systems map directly into letter-sound structure), such as Italian and Finnish, are easy to decipher compared to opaque languages, like English.

Since Chinyanja is a highly transparent language, one would have expected participants to easily read Chinyanja pseudoword list in comparison to studies administering opaque orthographic languages, like English (Sharma, 1973; Chikalanga, 1990). However, research participants may have performed poorly overall because pseudoword items used on the subtest were derived from the English Orthographic structure, which is not as transparent as the majority of Chinyanja words. Additionally, the participants could have been confused by the fact that some words they were asked to read in Chinyanja were similar to English words. This could explain why rural participants, especially rural school dropouts who may not even have access to any kind of literature, could not manage to give a single correct response.

4.3.3. Reading Comprehension

Both sets of participants almost had similar results, as the Pseudoword Decoding subtest, on the reading comprehension subtest. The mean difference between the two was statistically significant, F [1, 97] = 1.99, p. 0.05). In-school children were better comprehenders compared to school dropouts. In general, the performance was poor for both samples. Reading comprehension results in the study are consistent with results reported by Williams (1996) in Eastern Province and Malawi among grades 3, 4, and 5 samples. In Williams' study, apart from recording very poor results, a good number of children deliberately informed researchers that they were unable to read the Chinyanja reading comprehension passage. Zambian children performed even poorer compared to Malawian children on an equivalent Chichewa reading comprehension test (a language very similar to Chinyanja).

In the current study, school dropouts performed poorly on all three reading subtests than the control group. However, overall reading performance is quite depressingly poor for both groups. A trend of poor results in reading-related areas has been observed in a number of other studies conducted among in-school children in Zambia (Williams, 1996; Nkamba and Kanyika, 1998; Kelly and Kanyika, 2000; Matafwali, 2005). Both the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) and Monitoring Learning Achievement (MLA) international studies revealed significantly low percentages of Zambian children at grade 4 and 5 levels reading at sub-regional acceptable level. In fact, on the MLA study, children in Zambian schools were among the lowest reading achievers, out performing only children from Mali.

The essence of learning or teaching how to read is comprehension of text being read (Kruidenier, 2002). Reading recognition and pseudoword decoding skills are necessary, although not sufficient, pre-requisites for development of proficient reading comprehension. Development of reading comprehension heavily depends on how well developed pseudoword decoding and reading recognition skills are. Non-word reading skills are required to enable the reader to decipher unfamiliar words encountered in text (Goulandris and Snowling, 1995), whereas word recognition abilities are important to assist with development of reading fluency (automated reading). Reading fluency is achieved through sustained reading practice. According to the Nation Reading Panel (2000) no child regardless of how bright can develop proficient reading comprehension without reading fluency. However, it must be noted that reading fluency does not necessarily imply that the child achieved reading comprehension. This is because a good proportion of readers have well developed reading fluency skills (hyper-lexics), but cannot derive meaning from what they are reading.

Once reading fluency skills are attained, through the development of high levels of pseudo-words decoding and word recognition skills, a child will direct his/her reading resources towards deriving meaning from text. Otherwise, children who fail to achieve these feats within the first few grades of schooling will face tremendous difficulty in developing reading comprehension skills (Stanovich, 1986).

In conclusion, Reading material in local languages is scarce in Zambia. According to Williams (1996) "Zambian pupils ... rarely see their language in form," a situation clearly highlighted by poor results in the current and other studies conducted in the country (Nkamba and Kanyika, 1998; Kelly and Kanyika, 2000; Matafwali, 2005). Therefore, even if it is easier to read in local

languages, school dropouts' reading scores may be impacted negatively by the scarcity of literature in everyday life of the child. The only time a child comes into contact with literature is when s/he goes to school. Schools are equally ill-stocked (Kelly and Kanyika, 2000).

From research literature, it has been noted that acquisition of reading fluency is achieved by constant of exposure to print (Cunningham and Stanovich, 1998), a luxury school dropouts in Zambia do not have. Once children dropout of school they are unable to develop reading recognition due to lack of exposure to print, making it even more difficult to understand what they are reading.

5.4. Prevalence of Reading Difficulties

The prevalence of reading difficulties was revealed to be on the high side in both experimental and control groups. It is, however, significantly higher in the experimental sample than the control. An average prevalence of 67.44% was recorded across the three ZAT subtests among the school dropouts, compared to an average prevalence of 47.37% among the in-school cohort. Both prevalence figures are significantly higher than the 26% revealed by Matafwali's (2005) study of grade 3 pupils in Lusaka Province. However, dropout participants' prevalence corroborates results of a study conducted among good and poor readers in Greece (Mouzaki, et al, (2005). They discovered that poor readers consisted of large proportions of participants performing in the lower proficient category on word recognition and reading comprehension measures than good readers.

Reading difficulties prevalence stated above are significantly higher than levels observed in studies elsewhere. The "normal" prevalence of reading disabilities range between 3 - 10% and 17% of the school population. This range of prevalence is based on western definitions of

reading difficulties. However, it has been observed that there is no consensus on various definitions of reading difficulties. Different countries employ different sets of inclusion and exclusion criteria, resulting in large variations of observed prevalence levels in different countries and studies. For instance, the Swedish definition of reading disabilities combines writing and reading problems (Høien and Lundberg, 1992).

The large reading achievement discrepancy between children in Zambia, a developing country, and more developed countries could be explained by socio-economic gap existing between them. Kelly and Kanyika (2000) state that schools in Zambia lack the necessities that constitute a minimum required standard of educational provision. Many schools in this country lack basic facilities like writing materials and qualified teachers. Desks are rarely found in adequate numbers to cater for all children. Lack of adequate facilities is dire in rural areas. Developed nations provide resources adequately for all children. Therefore, more children are assisted to mitigate problems associated with lower reading proficiency than in developing countries. This may, in part, explain the reading achievement gap between Zambia and developed countries. The same may also explain reading achievement disparities between in-school and school dropouts than in developed countries.

5.4.1. Relationship between Quality of Instruction and Achievement

According to Herrnstein and Murray (1994) there is a strong positive correlation between schooling and intelligence, ranging between 0.50 and 0.90. Schooling enhances some learners' cognitive skills, such as reading and mathematical abilities. However, the strength of schooling effects on cognitive development depends on the quality of instructions given to achieve a given outcome. According to Christian, et al (2001, p. 300) "the direct instruction approach of reading-

literacy is based on the premise that systematic teaching in both reading comprehension and word decoding is critical for the development of reading. Particularly for students struggling to read, mere exposure to print material is not sufficient to enhance reading ability. Instead, advances in reading occur through direct, well-regulated instruction." If the quality is of high standard, the effect size is correspondingly higher and vice versa. There are many factors that may affect the quality of instruction in the educational outcomes.

Over the years, children in Zambian schools have continuously performed poorly on a number of local and international assessments on reading (Sharma, 1973; Chikalanga, 1990; Williams, 1996; Kelly and Kanyika, 2000; Nkamba and Kanyika, 1998; Grigorenko, et al, 2003; Matafwali, 2005). Observed poor reading outcomes may be attributed more to the quality of reading instructions than the fact that Zambian children are inherently poor reading achievers. This is because the prevalence recorded by the current study and others before is too big to be attributed solely to dyslexia, a specific reading disability (SRD). It is not prudent to argue that in Zambia, over 45% of the school population has significant lifelong reading disabilities. The problem of reading difficulties observed may not be a life-long problem, but rather a temporal problem which can be alleviated with systematic remediation measures.

There are two possible reasons for poor reading outcomes. Firstly, education provision in Zambia has been poorly funded for a long time, a situation which compromises the quality of education delivered to learners. The government acknowledges that "public expenditure for education, expressed as a share of the total Government budget, has declined from 12-14% in the late 1970s to about 8% in 1989. During the same period enrolment have increased substantially, ... Many primary schools contain over 100 pupils and triple shifts are being practiced in some urban areas to cope with the imbalance between classroom facilities and the number of students,"

(GRZ, 1994; p. 21). At the same time, the number of teachers employed to teach has either reduced or remained stagnant, thereby, compromising the quality of education.

Secondly, apart from having to struggle for poor infrastructure and scarcely available teaching/learning supplies in schools, children in Zambia most often come from homes deprived of reading literature. Cunningham and Stanovich (1998) argue that exposure to print at home goes along way in enhancing the child's eventual reading skill acquisition. Children from home environments rich in reading literature have an added advantage over those from print-deprived home environments.

It is possible, therefore, that low reading proficient children in Zambian schools may be mitigated by making improvements to the quality of education provided, in areas such as teacher qualification, availability of adequate teaching/learning materials in schools. Increasing the amount of literature in the school environment will assist children from print-deprived home environments, get compensated at school. Failure to address this problem as a matter of urgency, children will continue producing depressingly poor results.

5.5. Reading difficulties, Matthew Effects and School Dropouts in Zambia

The results from the current study reveal that school dropouts exhibit significantly higher levels of reading difficulties than in-school children. Although, both groups of participants experience reading difficulties in all three reading related core-domains, these difficulties are more severe among dropouts.

Low reading adeptness can be detrimental to the child's eventual reading outcomes and continues retention in school until the appropriate time. Stanovich (1986) argue students who lag behind in acquiring pseudoword decoding and reading recognition skills, such as letter identification, letter-sound matching and sound matching skills, by the end of first grade, experience significant reading problems by the end fourth grade. Good beginners at first grade level, on the other hand, continue making reading progress. Stanovich (1986) termed the phenomenon where poor reading beginners continue to fall behind, while good beginners make tremendous progress, the "Matthew Effect," based on a Biblical metaphor of "the rich get richer and poor get poorer" (Matthew 13;12)."

Cunningham and Stanovich (1998, p.1) further state that "if a student reads well s/he tends to reads more, and as a result, they acquire more knowledge an all domains." Low proficient readers develop poor reading habits because they find reading material too difficult. They develop negative attitudes towards reading (Okra and Paris, 1986) thereby reducing reading practice, too, (Allington, 1984). Negative reading attitude may lead to reduced opportunity for both vocabulary growth (Nagy, et al, 1985) and development of comprehension metacognitive strategies (Brown, et al, 1986).

Eventually, the reading achievement gap between good and poor readers becomes too wide, poor readers are unable to cope with school-work. Academic performance is adversely affected as they progress to more advanced school materials. This failure is not only restricted to the reading domain, but other academic domains, too. Achievement in subject areas, such as maths, science and social studies, may suffer. As a result, children lagging behind may be retained in the same

grade for several years because they are perceived as non-progressors. Because they repeatedly fail to make progress in low grades, they are, therefore, deemed unable to cope with demands of higher grade.

Eventually, a child may inevitably opt to drop out of school to avoid continued ridicule and teasing from both teachers and peers as mature in age. The few who cling on to the hope that they may catch up, either become bullies and/or develop low self esteem (Lyon, 2003). This may explain the high levels of school dropout found in Lungwangwa (1989) street children study in Zambia.

5.6. Conclusion

The reviews of literature on the prevalence of reading disabilities reveal a higher prevalence of the reading problems among school dropouts than in-school children. Apart from having a large proportion among reading below a reading threshold of 15%, the severity of the problem is more adverse among the experimental in comparison to the control children. Socioeconomic status (SES) also seems to have significant main effects on reading outcomes. Children from communities with high SES performed better than those from low SES (Zigmond and Thornton, 1985). The main effects of gender on reading proficiency were also quite significant.

If reading difficulties are a cause of school dropouts in Zambia, the problem of reading difficulties is compounded when learners leave school. This is because if they failed to acquire the reading skills when they were still in the school environment where there is literature for reading practice, they are more likely to sink into functional illiteracy. Moreover, schooling

enhances certain cognitive skills important for both academic and social development (Christian, et al, 2001).

It is, therefore, important that all children are given an opportunity to acquire skills in reading because "reading literacy is not only seen as a necessary foundation for performance in other subject areas within an educational context, but it is also a prerequisite for successful participation in most areas of adult life...To meet this goal, students must be prepared to handle the variety of printed and written information that they will encounter throughout their lives," (Kirsch, et al, 2002, p. 3)

CHAPTER 6

SUMMARY OF RESEARCH FINDINGS AND RECOMMENDATIONS

6.1. Summary of Research Findings

The purpose of this study was twofold. Firstly, to investigate the nature of difficulties school dropouts face in mastering reading skills. Secondly, determine the prevalence of the observed reading difficulties in the same group. Both tasks were achieved by making a comparison with a control sample of in-school children presumed to be reading at acceptable level at grade 4 level. The two sets of participants were drawn from four school areas in Chipata District of Eastern Province. The most significant findings are as summarised below:

6.1.1. Although both groups exhibited reading difficulties, as revealed by other studies before, these difficulties are more severe among school dropouts than in-school participants. Similarly, school dropouts in rural were outperformed by dropouts in urban areas. Male participants scored higher than the female participants in both educational status categories, with rural female participants showing more reading difficulties than urban females.

6.1.2. The study also revealed that more dropouts than in-school children read below the 15% threshold, a threshold defining significant reading difficulty. Of the three reading domains tested, only reading recognition subtest showed some acceptable level of reading performance, where only 18.33% of dropouts and 10.53% of in-school participants were below 15% threshold. On the reading comprehension, a highest proportion (95%) of school dropout and a relatively low figure (71.05%) of in-school children read below

15% reading threshold. Prevalence rates were equally higher on the pseudoword decoding subtest (90% of experimental; 60% of control).

6.1.3. Another equally important finding drawn from the current study is that the two groups were not significantly different in their intellectual performance. This was despite showing significant differences on reading mean scores. The difference between their mean scores was not statistically different on the measure of nonverbal intelligence, KABC Pattern Reasoning subtest. Urban children outperformed their rural counterparts. Similarly, males had better mean scores compared to the females. Therefore, both sets of participants were intellectually comparable, implying that nonverbal performance differences could not be attributed to impairments in their intelligence.

6.2. Research Recommendations

Based on the outlined findings, the following measures have been recommended to assist the main education provider, the Ministry of Education, to improve the acquisition of reading skills among children and retain them in schools:

6.2.1. Since the prevalence rate of reading difficulties is significantly higher and severe among school dropouts, government through the Ministry of Education should put in place measures for early intervention and mitigation programmes at school and community. This will enable not only teachers, but also administrators, identify children at risk of reading failure. There are already adequate materials designed for this purpose. The Inclusive Schooling Programme (INSPRO) has been put in place for the purpose of identification, assessment and intervention for children with special education needs. The Ministry should operationalise the INSPRO programme by equipping teachers and

administrators with necessary skills to carry out assessments and plan individualised intervention programme.

6.2.2. Although, this study has not explicitly established that reading difficulties that cause some children to dropout, there is no doubt from the results that reading difficulties make significant contributions in "pushing out" some children from schools. Therefore, among measures put in place to curb the school dropout problem, there should be deliberate efforts aimed at enhancing reading skills. The New Break Through to Literacy (NBTL) programme also shows a lot of promise for low proficient readers. The programme devotes substantial amounts of time assisting low achievers. The NBTL and the two other components, Step In To English and Read On Course should all be strengthened so that children facing reading can be assisted to overcome their problems.

6.2.3. Encourage and fund local research activities in all school related skills in general, reading in particular, to enable professionals evaluate problems and come up with locally workable solutions to reading problems for children in Zambian schools.

6.3. Suggestions for Future Research

Based on the findings of the current study, the following research suggestions have been made:

6.3.1. Further research employing controlled research designs, such as matching participants on age, gender and period between dropping out and reading assessment should be carried out. This may reveal the magnitude of effect of schooling and reading skills decay in learners. Further research should also increase the number of skills to be assessed. This

may include letter identification, sound matching, phonological processing and working memory assessment.

6.3.2. Further study should also include study of home environments, such as exposure to print at home, parental and caregiver level of educational attainment.

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APPENDICES

Appendix 1: Table of Means and SDs for ZAT Reading Sub-skills

				School-Going				School dropouts			
				Urban		Rural		Urban		Rural	
Subtest	***Desc**	**In**	**Out**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**
Reading	Mean	42.37	29.32	46.11	37.90	48.70	36.56	43.38	28.64	24.89	22.93
Recognition	SD	30.92	18.82	37.36	26.10	38.37	21.77	31.14	19.18	5.55	5.60
Pseudoword	Mean	6.42	1.80	8.33	6.60	7.70	2.89	5.69	2.43	.00	.00
Decoding	SD	11.72	6.53	15.00	12.13	13.28	5.13	10.70	8.01	.00	.00
Reading	Mean	3.21	.80	4.44	2.40	5.10	.78	2.77	.86	.00	.00
Comprehensio	SD	6.30	3.58	7.59	4.86	8.58	1.72	6.77	3.20	.00	.00

*Desc = Descriptive Statistics.

Appendix 2: Sample of ZAT Reading Subtests Used for this Research

#23

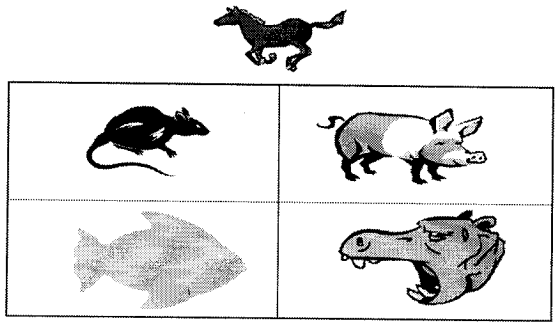
23. Point to the picture of the horse at the top of the page.

Say: **This is a picture of a horse.** Point to the area with the other pictures.

Say: **Which of these pictures begins with the same sound as this picture? Point to the word that begins with the same sound.**

Answer: Bottom Right

ZAT-RR-English 46



ZAT-RR-English 47

Figure 1.a: Sample item from the ZAT-Reading Recognition subtest

Say: **I want you to read some words that are not real words. Tell me how they sound.**

Point to the first word: **How does this word sound?**

Point to the following words: **Read these words to me.**

Phonetically:

122. ig (as in p*ig*)
123. op (as in m*op*)
124. et (as in g*et*)
125. ak ('ack' as in bl*ack*)

ZAT-PW-English 4

ig

op

et

ak

ZAT-PW-English 3

Figure 1.b: Sample item from the ZAT-Pseudoword Decoding subtest

#160

Student Instructions: **Jump.**

Examiner Instructions: Say, **Do what this says.** (Use this cue as necessary.)

If the child is unable to jump because of physical handicap, do not administer Item 1.

ZAT-RC-English 4

Jump.

ZAT-RC-English 3

Figure 1.c: Sample item from the ZAT-Reading Comprehension subtest

Appendix 3: Consent Form used to seek permission from participants' parents

Parental Consent Form

Name of Child: .....

Age:..... Sex: ..... Admission number: .....

School: .....

Zone / District: .....

School code / EMIS number: .....

It has been decided to establish a program to understand how children in Zambia learn. Our goal is to improve the services provided to school children in school. The University of Zambia, in collaboration with colleagues from Yale University in the United States, is conducting a survey of learning abilities and difficulties. We are talking both to children who currently attend school and to those who don't. By participating in this study, you are not committing yourself or your child to go to school.

Your village has been selected to take part in this program and we request your permission to allow your child to take part. Should you agree, your child will be asked to take tests that will help us understand how s/he learns best. The tasks are similar to things that children do in school and to tasks that they need to accomplish in their daily lives in your village.

We will also ask your child to let us take four photographs of his or her head and hands. We will take a fifth portrait photograph that we will give to your child to keep.

In addition, we will measure and weigh your child, take a picture of your child, and collect a sample of saliva. The saliva collection is done by using a brush [show brush] that we sweep on the inside of the cheek. The purpose of collecting the saliva and photographs is to enable us conduct a thorough analysis for learning disabilities. There are no expected risks to your child's participation in this program.

All of your child's answers will be confidential and will not be shared with his / her teachers or the village chiefs. We will use the information your child provides to improve the way students are instructed in schools in Zambia.

If your child is identified as having difficulties with learning, we will return to you and ask for your permission to collect additional information from you and your child. By signing this document, you are also agreeing to allow us to contact you again about additional participation.

Declaration by parent / guardian:

I give my consent for my child to take part in the student learning program. I understand that I am free to withdraw my child from the study at any time.

Name of parent:.....Signature / Mark: .....

For any queries, please contact the University of Zambia, Research Ethics Committee P. O. Box 50110 Ridgeway Campus, Lusaka. Tel: 260-1-256067 Telefax: 260-1-250753 E-mail: unzarec@zamtel.zm