NATURE AND PREVALENCE OF READING DIFFICULTIES IN THE THIRD GRADE: LUSAKA RURAL AND URBAN SCHOOLS.

BY

BEATRICE MATAFWALI

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APRIL , 2005

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A DISSERTATION SUBMITTED TO THE UNIVERSITY OF ZAMBIA IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF EDUCATION (SPECIAL EDUCATION) DEGREE.

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DECLARATION

I **Beatrice Mukate Matafwali**, do declare that this dissertation is my own work which has not been submitted for a degree at this or any other University.

Signature: .....

Date: 21 · 04 · 2005

DEDICATION

I dedicate this work to my late Mother Prisca Mubanga Matafwali and my late brother Wilbroad Mwansa. Although they have passed on to the unknown worlds, they will always remain my great source of inspiration. My father Mr. Alexander Matafwali and my uncle Mr. William Matafwali, my brothers and sisters, for their encouragement during my studies,

APPROVAL

This dissertation by Beatrice Matafwali is approved as a partial fulfillment of the requirements for the award of the Master of Education (Special Education) degree of the University of Zambia.

Signed: ..... Date: 22/04/05

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Firstly, I am deeply indebted to the entire staff of the Department of Educational Psychology, Sociology and Special Education. In particular, I am sincerely thankful to Dr. D.M. Kalabula my supervisor, for his professional guidance and tireless supervision during the production of this dissertation. Special thanks also go to Dr. K. Muller for his guidance in research methodology, Dr. Jonna Kwiatkowtski of Yale University, for her assistance with statistical analysis.

My earnest thanks go to the University of Zambia for awarding me the scholarship. I particularly, wish to thank Mrs. T. Milapo- Sichilongo (the Staff Development officer) and Mr. J, Mwape (Assistant Staff Development Officer) for their support.

This study would not have been successful without the support of the Head teachers and the grade three teachers of Northmead, Lusaka Girls, Lusaka Boys and Chongwe Basic schools. I am therefore, very grateful to them. Special thanks also go to the 2004 grade three pupils at the above-mentioned schools for *their willingness to participate in the study. Mr. Ebby Mubanga, a second year* student at UNZA, for his voluntary assistance with data collection.

My sincere gratitude goes to my entire family, particularly Bwalya Katuta for the patience and moral support during my studies. I also wish to thank all my friends for their encouragement and support.

To God, be the glory, for giving me the strength and courage to overcome all the obstacles I encountered during my studies, and above all for making it possible for me to attain this goal.

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ACRONYMS

BASAT	Basic Skills Assessment Tool
MOE	Ministry of Education
NBTL	New Break Through to Literacy
PMT	Panga Munthu Test
PRP	Primary Reading Programme
ROC	Read On Course
SACMEQ	Southern Africa Consortium for Monitoring Education Quality
SITE	Step Into English

ABSTRACT

The study aimed at investigating the nature and prevalence of reading difficulties in the third grade of Lusaka rural and urban schools.

A sample comprising 106 pupils selected from Chongwe, Lusaka Boys, Lusaka Girls and Northmead Basic schools participated in this study.

A number of instruments were used to measure requisites and correlates of reading skills. Subtests from the screening instrument known as the Basic Skill Assessment Tool (BASAT) provided most of the individual measures of reading skills. Included among these measures were: the alphabetic principle, phonological awareness, working memory, and reading comprehension. Additionally, the serial rapid naming test comprising objects and numbers was used to assess verbal fluency in children. A spelling test consisting of words was also used to measure the children's spelling and writing skills. A passage story adapted from the grade three readers book was used to measure reading comprehension skills while the Panga Munthu Test (PMT) measured non-verbal cognitive abilities.

Results suggest that, only a small proportion of children were able to read at a comfortable grade level. Performance was found to be generally poor with no significant difference between the rural and urban schools. As expected, the subtests related to reading skills were significantly correlated. Digit Span, a test of working memory, correlated with letter recognition ($r = .30$, $p < .01$), letter-sound knowledge ($r = .22$, $p < .05$), word reading ($r = .24$, $p < .05$), and serial

rapid naming of numbers ($r = .33$, $p < .01$). These results were expected given the association between ability to memorize letters, sounds, and words, and strong working memory skills (Pennington, Van Orden, Kirson, and Haith, 1991; Siegel and Ryan, 1988), as well as fluency and working memory skills (Cutting and Denckla, 2001). The Panga Munthu Test was significantly correlated with sound blending ($r = .22$, $p < .05$) and spelling ability ($r = .25$, $p < .05$). In this case, there is currently no research evidence to suggest the cause of these correlations, and they are therefore considered spurious. It was originally expected that the Panga Munthu Test being a non-verbal cognitive test would be related with reading ability, but that result was not found in this sample.

The following recommendations were made to the Ministry of Education in order to help improve the reading standards in primary schools.

a. Considering the large proportion of grade three pupils experiencing difficulties at reading, a deliberate policy should be put in place to include in the school curriculum, assessment of reading skills in the first grade. This type of assessment will essentially serve two purposes; to initially identify pupils who appear to be at risk for difficulty in acquiring reading skills, and to regularly monitor the progress of children receiving reading instructions.

b. While acknowledging the rich literacy programmes in schools such as the New Break Through to Literacy (NBTL) at grade one level; Step Into English (SITE) at grade two level; and the Read On Course (ROC) at

grade three and subsequent grades, it is also important to realize that even with excellent and intensive instructions in place, some children will fail to make satisfactory progress in reading as documented by the current study. These children will therefore need a different instructional approach that will promote skills (such as alphabetic principle, phonological awareness and fluency) that are known to predict future reading achievement. There is also need to provide these children with an Individualised Educational Programme (IEP) if they are to make progress in reading hence, the need to reduce the teacher- pupil ratio in class.

c. Research has also demonstrated that the process of learning to read is a lengthy one that begins early in the child's life (Torgesen, Wagner and Roshotte, 1994). Based on this, it is highly recommended that children be provided with early childhood educational environments that foster language and literacy development. The Ministry of Education should therefore introduce pre-school classes in basic schools. This will help in reducing the number of children entering school with inadequate literacy skills and above all reducing the magnitude of reading problems that schools are currently facing.

d. Teachers play a critical role in promoting reading skills in children. Based on this, it is highly recommended that the New Primary Reading Programme (PRP) be introduced at pre-service teachers training college level in order to equip teachers with necessary knowledge and skills to teach emergent reading skills in children.

CHAPTER ONE

1.1 INTRODUCTION.

Learning to read is critical to the child's academic development, because reading serves as the foundation skill for all school-based learning. In fact, it is asserted that, the child's success throughout formal education depends in large part on the ability to read (Adams, 1990). Some children will learn to read, no matter what instructional method is employed to teach them. However, research evidence has demonstrated that, learning to read is a formidable challenge to some children inspite of adequate instructional methods, sufficient cognitive abilities and a fair socio-economic background (Gross; 1995).

Development of Reading involves an interaction or application of many levels of cognitive and non-cognitive processing skills (Garner, 1990; Wigfield, 1991). At the core of reading acquisition therefore, there are a number of potential factors that seem to hinder reading development among these children (Shankweiler and Liberman, 1989). Included among these factors are; deficits in phoneme awareness and the development of the alphabetic principle; decoding skills, naming skills and deficits in acquiring reading comprehension skills.

Phonological awareness relates to the awareness that words can be broken into syllables and sounds, and that these sounds can be put together to create new words (Byrne & Fielding-Barnsley, 1991). It also refers to the individual's ability

to manipulate phonemes either by segmenting, blending, deleting, adding or substituting syllables (Catts et. al, 1989). Generally, an awareness of phonemes is necessary to grasp the alphabetic principle that underlies our system of written language or orthography. It is also asserted that, phonological awareness skills help children to learn to use letter-sound knowledge to read and build words (Mann, 1994). Research evidence has further shown that, children who have poor phonological awareness skills at pre-school level are likely to have reading difficulties at primary school and beyond (Shaywitz, 1996).

Another core deficit that impedes reading development in children with reading difficulties involves, inaccurate application of phonological awareness skills to textual reading and lack of automaticity or fluency. Research has demonstrated that children with reading difficulties have problems developing fluency (Vellutino and Scanlon, 1987). Reading in these children is slow and their word identification is hesitant. Consequently, these problems also result into deficits in acquiring reading comprehension skills, which actually is the ultimate goal of reading instructions. (Stanovich; 1986).

1.2 Background to the study

1.2.1 Global Perspective.

At the global level, Prevalence of reading difficulties has been estimated at two to five percent in school -going children (Wong; 1998). The findings from the study that was conducted in the United Kingdom among the English speaking children, revealed that, of the grade two and three children whose reading was assessed, approximately a quarter were functioning at a fairly low level for their grade, and approximately one in twenty, were hardly able to read at all (Gross; 1995, p. 143).

The national assessment of Educational progress conducted in the United States of America in 1994 also revealed low reading levels among children in the lower grades. The study demonstrated that forty four percent of the third and fourth graders read below the basic level. These findings implied that a significant majority of the children who were assessed demonstrated little or no mastery knowledge and skills necessary for reading (Lyon, 1996; Torgesen et al, 1997; Vellutino, Scanlon, Sipay, Small, Prati, Chen, & Denkla, 1996; Juel, 1988). It was also found in this study that, children who did not display good reading skills in the first grade had approximately ninety percent chance of remaining poor readers after three years of schooling. Felton and Wood (1992) further concluded that students experiencing reading difficulties at the end of third grade were not likely to improve in the later grades.

Consequently, the study by the Southern Africa Consortium for Monitoring Educational Quality (SACMEQ) reported very low levels of reading achievement for the grade six pupils in Namibia, Zimbabwe, Mauritius and Zambia (Nkamba and Kanyika, 1998). Among the children from these countries that participated in the SACMEQ study, Zambian and Zimbabwean children showed the poorest performance, with 28 percent of boys and 23.1 percent of girls performing at the minimum level and 5.6 percent of boys and 4.8 percent of girls performing at the desirable level (Nkamba and Kanyika, 1998). Pretorius and Naude (2002) also found unfavourable performance among the black South Africans with regard to literacy skills.

1.2.2 Zambian Perspective

In Zambia, research evidence suggests that reading difficulties are relatively common among school- going children. In the recent past therefore, the Ministry of Education has become increasingly concerned about the appalling standards of reading in primary schools in the country and a number of studies have since been instituted to address the situation. A study conducted by Williams (1993) focused on the reading levels of pupils in grades three, four and five, both in English and in Nyanja, a local Zambian language (Kotze et al. 1999). The study revealed low reading levels in the sampled grades in both the local Zambian language and English. Based on these findings, Williams (1993) asserted that, majority of children in the sampled grades were unlikely to cope with the reading

demands of the educational system or benefit adequately from the prevailing reading instructions.

The National Reading Committee (NRC; 1997) instituted another study in four Lusaka primary schools. This study reported poor levels of reading in the sampled primary schools. It was therefore, estimated from the findings of this study that, approximately sixty percent of pupils leaving school at the end of grade seven had extremely poor reading skills in English and were almost completely illiterate in their local languages (Kotze and Higgins, 1999).

The Southern African Consortium for Monitoring Learning Quality (SACMEQ) report (1998) already alluded to further confirmed poor reading performance at grade six level in the Zambian basic schools (Nkamba and Kanyika: 1998; p.18). The study reported that, in 1995, of the 169,148 grade six pupils in the defined target population, only 28.8 percent had reached the minimum grade level performance while 70 percent of the pupils had not reached the minimum level of mastery in reading. These findings were consistent with those of Namibia, Zimbabwe and Mauritius as already alluded to in the preceding chapter.

The National Assessment report by Kelly and Kanyika (1999) also revealed poor reading levels in grade five of the Zambian schools. A study by Kelly (2000) further verified the low achievement levels in literacy skills. This study demonstrated that, grade six pupils performed considerably below the levels

expected of those in their grade. According to Kelly (2000), the reading level in some grade six pupils fell within the level expected of grade four. This picture was also observed in other grades. For instance, scores of some grade five pupils in both rural and urban areas respectively fell within the performance band expected of grade three pupils. Similarly, the score of some grade four pupils in rural and urban schools fell within the performance band of grade two pupils.

To further reaffirm its commitment to improve the literacy skills in the country, the Ministry of Education policy document (1996) also included a number of significant statements about literacy. For instance, the policy document strongly states that " the fundamental aim of the curriculum for lower and middle basic classes (Grades one to seven) is to enable pupils to read and write clearly, correctly and confidently in a Zambian Language and in English..... the Ministry of Education attaches the highest priority to the attainment of this goal" (MOE, 1996: 34).

The Ministry of Education (MOE) even went a step further in the promotion of literacy skills by introducing the Primary Reading Programme (PRP) with the New Break Through to Literacy (NBTL) as one of its major components. The main purpose of this programme is to improve the reading skills of all Zambian school going children (Kelly, 2000). From 1965 to 1996, English had been used as the medium of instruction in Zambian schools for all subjects from the time the child entered grade one. Research evidence has however suggested that, the

impact of this policy was negative, because it did not succeed in generating reading competence in many children (Kelly, 2000). This new approach of teaching initial literacy through the Primary Reading Programme (PRP) demands that, children in the first grade should be taught reading and writing in a language familiar to them, preferably their mother tongue (Kotze and Higgins, 1999). The programme was piloted in Kasama and was evaluated in 1999. The evaluation report (1999) revealed that Non-NBTL grade two pupils were virtually unable to read while those under NBTL could read. For instance, it was reported that, 18 percent of the Non-NBTL grade two classes scored zero in the reading test. A similar picture was reported in grade three with the average mark of five percent in the reading test.

1.2.3 Theoretical Perspective

In Zambia, like any other country in the world, the ability to read is not only of educational importance to individuals, but also important for the economic development to the country. It has been argued by Perfetti (1985) that, reading serves as the major avenue to learn subjects such as, science, mathematics, history and other content subjects that must be mastered in school. From the foregoing, it can be deduced that, when children do not learn to read at a comfortable grade level, they experience significant difficulties mastering many types of academic content and their chances for occupation success may indeed be limited (Wong, 1998: 368). The report of the National Research Council (2000) in the United States also pointed out that; children who become adults

with low levels of literacy are at an increasing disadvantage in a modern society that is creating ever high demands for effective reading skills within the work place.

Consequently, because of its importance and visibility, particularly during the lower primary grades, difficulties in learning to read may lead to decrease in the excitement for learning that many children have when they enter school. By the end of the third grade for instance, the child's self-esteem and motivation to learn to read might decrease because it may be embarrassing to read slowly and to demonstrate this weakness in front of peers almost on a daily basis (Wong; 1998). These children might therefore, lag far behind in vocabulary development and the acquisition of strategies for understanding what they read, and thus, they frequently avoid reading and other school- work that require reading. According to Stanovich's Mathew affect hypothesis, "the rich get richer (at reading), and the poor (poor readers) get worse"(Stanovich; 1986). In tandem with the Mathew effect, Shaywitz et al. (1995) also reported that children with initial problems in reading did not reach the same end point as those who started out as better readers mainly because, these children were not able to learn effectively across the curriculum. Thus, when children cannot read at a comfortable level, their spelling and writing abilities as well as their vocabulary skills are likely to suffer substantially. By grade seven for instance, their potential for entering high school might have decreased, leaving them with few choices with respect to vocational opportunities (Wong, 1998).

Grade three level of education was particularly selected in the current study because research has demonstrated that, literacy skills tend to unfold or rather begin to take off after a child's third year in the elementary school (Shankweiller and Liberman, 1986). It was therefore, asserted that children who are experiencing difficulties learning to read by third grade are likely to be identified considering the rich literacy programmes like New Break Through to Literacy (NBTL) and the Primary Reading Programme (PRP) in place in our Zambian basic schools.

Special Education provision in Zambia

In Zambia, there are basically six categories of disability that are recognized, these are; the intellectual disabilities; hearing impairment; visual impairment; physical impairment, multiple disabilities; and children with learning disabilities (Kalabula, 1991). In this respect, children with reading difficulties are catered for in the category of learning disabilities. With the current special education provision, children with reading difficulties are placed within the inclusive schooling regardless of the degree of the condition. Due to the nature of the condition, some children with reading difficulties may go unnoticed especially in the early stages of their elementary education. To this effect, it is imperative that children who are experiencing difficulties at reading are identified through various assessment methods so that they benefit from early intervention.

1.3 STATEMENT OF THE PROBLEM

Research has given ample evidence that reading failure constitutes not only an urgent challenge for our schools, but also a national problem. For instance, studies exploring learning to read in Zambian basic schools indicate that reading failure is quite common among school going children (Williams; 1993, SACMEQ; 1998, Kelly and Kanyika, 1999, Kelly, 2000). However, most of the studies cited in this study mainly concentrated on literacy skills in the upper grades, hence the need to investigate the prevalence levels of reading difficulties at grade three level of education.

Part of the problem was that, although a number of studies have been carried out to investigate literacy skills, there are no systematic studies on the cognitive deficit areas in children with reading difficulties in Zambian basic schools. It was therefore worthwhile to identify the major skills that determine reading success in children when they are learning to read.

1.4 Purpose of the Study

The study made an attempt to determine the prevalence level of reading difficulties in grade three. It further sought to investigate the deficit areas in children with reading difficulties.

1.5.0 Objectives of the Study

The following were the objectives that guided the study:

1.5.1 General

- Investigate the prevalence level of reading difficulties in the Third Grade of Lusaka urban and rural schools.
- Identify the cognitive deficit areas in children displaying difficulties at learning to read.

1.5.2 Specific

- Investigate the proportion of pupils displaying an insufficient reading level at grade three.
- Establish whether there are variations in performance between boys and girls.
- Ascertain the role of phonological awareness in the acquisition of reading skills.
- Identify the relevant cognitive skills that determine reading success or failure in children.
- Investigate the underlying relations between variables that are attributed to reading acquisition.

1.6 Research Questions for the Study

The study was guided by the following questions:

- What is the general level of reading performance at grade three?
- How large is the proportion of children experiencing difficulties at reading?

- What are the underlying skills in the acquisition of reading?
- Is phonological awareness the major predictor of reading success or failure?
- Are there variations in performance between rural and the urban schools?

1.7 SIGNIFICANCE OF THE STUDY.

It is hoped the study has revealed the prevalence level of reading difficulties in the third grade and this may in turn help in the early identification of children who are at potential risk of developing reading difficulties.

The findings from the study might also generate new information that may assist in the development of teaching strategies for reading to provide a good educational foundation for the Zambian children.

The findings from the study may also be used in the evaluation of the effectiveness of the Primary Reading Programme (PRP) since the Ministry of Education has so far not conducted any formal evaluation of these programmes other than the Baseline Reading survey (2000).

1.8 DEFINITION OF KEY TERMS IN THE STUDY

The following were the terms used in this study:

Prevalence: Number or percentage of individuals showing a condition at a given time.

Reading: The ability to obtain meaning from print.

Alphabetic principle: Ability to realize that phonemes are the elements of spoken words that the letters of the alphabet usually represent.

Phonology: The domain of language that pertains to the element of speech and the systems that govern the structural relationships among these elements within and across words.

Phonological awareness: An understanding that spoken words and syllables are themselves made up of sequences of elementary speech sounds.

Phonological processing: Formation, retention, and/or use of phonological codes or speech while performing some cognitive or linguistic task or operation such as speaking, listening, remembering, learning, naming, thinking, reading or writing.

Phonological memory: Temporary storage of information in terms of phonological representations.

Phonemes: Smallest units into which speech can be divided.

Syllable: Speech unit consisting of a vowel nucleus that can be preceded and/or followed by a consonant cluster.

Auditory discrimination: Making perceptual distinctions between any kinds of sounds, including tones, music, and environmental noises.

Blending: Putting together speech elements that are presented separately.

Naming: Retrieving the phonological representation and producing the spoken word.

Orthography: The writing system of a language (the way an oral language is represented by visual symbols).

Automaticity: fast, effortless, and unsuppressable operation of a cognitive process that has been well learned.

Comprehension: The ability to decipher meaning from written text.

CHAPTER TWO

2.0 LITERATURE REVIEW

Literature on early reading has revealed that learning to read is a formidable challenge to many children in the lower primary grades (Wong; 1998). To these children, reading is one of the most difficult tasks that they will have to master throughout their schooling. A longitudinal study completed in 1997 by the University of Idaho in the United States of America comprising of a sample of third grade students revealed that 18 to 20 percent of the sampled population were reading below grade level on the Iowa Test of Basic Skills and the Stanford Diagnostic Reading Test (Catts et al. 1997). Similarly, Rogers (1983) examined children in Britain and Northern Ireland. The findings of this study were that, 2.29 percent of the children had scored below the mean for reading achievement. In the Connecticut longitudinal study Shaywitz and Shaywitz (1996) reported that 17.5 percent of the population of the school going children in primary and middle school had reading difficulties. Consequently, the National Centre for Education Statistics (2001) in the USA revealed that thirty seven percent of the fourth grade school children could not read well enough to effectively accomplish grade level work.

Research has also revealed that once students fall behind in the language-based skills of reading, they usually do not catch up or become fluent readers unless, intensive, expert help is available to them. In another longitudinal study

conducted in the USA, it was found that about eighty percent of children who were behind in reading by the end of first grade were significantly behind grade level performance by the fourth grade (Juel, 1994; Lyon and Chabra; 1996). Further, the National Centre for Educational Statistics (1998) in the USA, presented data from its Early Childhood Longitudinal study involving 22,000 children followed from the first grade through fourth grade. The study also revealed that thirty eight percent of third and fourth graders could not read at a basic level, that is, they were unable to read and understand a short paragraph of the type one would find in a simple children's book. To these children, reading becomes unrewarding experience that leads to avoidance and lack of involvement, and certainly to reduced independent reading (Adams, 1990).

Acquisition of reading skills is predetermined by various factors such as the alphabetic principle, phoneme awareness, reading fluency, and reading comprehension. Disruption of any of these developments therefore, increases the possibility that development of reading will be delayed or impeded (Templeton, 1995).

2.1.1 Alphabetic Principle

The foundations of reading skills are the same for all children regardless of their age and gender. There is ample evidence suggesting that understanding of the alphabetic principle is the first step in the reading journey and thus a powerful predictor of early reading success (Foorman et al. 1991). In an English

alphabetic system for instance, the individual letters on the page are abstract and meaningless, in and of themselves. The children must discriminate one letter from another. These letters must eventually be linked to equally abstract sounds called phonemes, then blended together and pronounced as words where meaning is finally derived (Wong; 1998). Thus, when learning to read, the child must figure out the relationship between sounds and letters in order to translate and connect symbols (letter and letter patterns). The reader must also understand that our speech can be segmented or broken into small sounds (phoneme awareness) and that the segmented units of speech can be represented by printed form (phonics). According to Read (1986), the understanding that written spellings systematically represent the phonemes of spoken words (termed the alphabetic principle) is absolutely necessary for the development of accurate and rapid word reading skills.

Foorman et al. (1991) further found that beginning readers who received their letter-sound training mainly from spelling instruction and their reading instruction from a meaning emphasis Programme made progress in learning to read and spell words during the first grade, but their progress was not as great as that of students who received more explicit letter –sound training as part of their reading instruction (Foorman, B., Francis, D., Novy, D., and Liberman, D; 1991: 456-469). Jeffrey and Samuels (1976) and Carnine (1977) also showed that, beginners who can phonologically recode print have a big advantage in reading words. For example, in the Carnine study, pre-reading preschoolers received

either phonics training or whole -word training. The phonics group learned eight letter-sound correspondences, then was taught to sound out and blend eighteen words, and then practiced reading the eighteen words to criterion. The whole-word group was simply taught to read the eighteen words to criterion. The results showed that, phonics subjects read ninety two percent of the words correctly, whereas word-practice subjects only read twenty percent (Ruddel, Ruddel and Singer, 1994: 334). These results verify the advantage of decoding skills and show that readers do not pick up decoding skills simply by learning to read words but by relating them to their letter sounds in a systematic manner. Thus, good readers who understand the alphabetic principle can apply these skills to the development and application of phonics when reading and can accomplish these applications in a fluent and accurate manner (Wagner and Torgeson, 1997).

Children with reading difficulties however exhibit inadequacies in conceptualizing the alphabetic principle as well as phonological awareness skills. In essence, these children have difficulties linking speech sounds to letters and their decoding skills are slow and weak (Yopp, 1992). Another assumption is that, these children are most likely to experience problems "sounding" unknown or unfamiliar words. To these children, reading is hesitant and characterized by multiple mispronunciations. As a consequence, the purpose of reading is nullified because the children are too dysfluent to make sense out of what they read (Shankweiler and Liberman; 1992). Ehri and Wilce (1985) found that, as soon as children master letters and are able to read a few words in isolation, they could

use letter sound relation read sight words. Further, Scott and Ehri (1990) observed that even pre-readers could do phonetic cue reading if they know constituent letters and attend to them during learning (Ruddel, Ruddel and Singer, 1994: 330).

2.1.2. Phonological awareness

Phoneme awareness refers to the conscious recognition of individual phonemes in words (for example, /k/a/t are phonemes of the word 'cat'). Phonemes on the other hand are the smallest units of speech sounds. According to Wong (1998), Phonological awareness is a well-documented predictor of reading achievement. For instance, performance on tasks of rhyming (MacLean, Bryant, & Bradley, 1987), syllable detection (Mann & Liberman, 1984), separating words by onsets and rhymes (Treiman, 1985), and isolating and /or manipulating phonemes (Ball & Blachman, 1991; Lundberg, Olofsson, & Wall, 1980; Stanovich, Cunningham, & Cramer, 1984; Tunmer & Nesdale, 1985) are related to subsequent reading achievement. Research has repeatedly shown that lack of phoneme awareness is the most powerful determinant of the likelihood of failure to learn to read, particularly because of its importance in learning the English alphabet system (Stanovich, 1986, 1993).

To verify this assertion, Adams, Foorman, Lundburg and Beeler (1998) assessed phoneme awareness between high academic achievers (defined as the r*eferenced group*) and at risk children (defined as the *study group*). Participants

in the study were assessed both at home and school using the literacy online assessment. The results were grouped into the following four levels: extreme weakness were given an average score of <75 percent; noticeable weakness had an average score of between 75 percent and 85 percent; scattered got an average score between 85 percent and 95 percent while fluency had an average score of >95 percent. It was found that at risk children on the study demonstrated deficits in phoneme awareness skills. The results of the study group indicated that forty seven percent experienced extreme weaknesses with phoneme awareness activities, while thirty percent displayed noticeable weaknesses, twenty percent of the participants obtained scattered profiles of phoneme awareness and three percent obtained fluency in phoneme awareness activities. On the other hand, 100 percent of the referenced group displayed fluent skills. Poor performance was also observed in reading and spelling of simple and complex multisyllables where thirty percent of the study group displayed extreme weaknesses, seven percent had noticeable weaknesses while thirty seven percent displayed scattered profiles and twenty percent showed fluency.

Like in the phoneme awareness tasks, 100 percent of the referenced group displayed fluent skills when reading simple multisyllable words. Consequently, a high proportion (64 percent) of at risk children exhibited extreme difficulties while reading and spelling complex multisyllable words, twenty three percent had noticeable difficulties, ten percent displayed a scattered profile and only three percent showed fluent skills. The findings in this study have confirmed that

phoneme awareness skills are a strong predictor of success with reading and spelling simple and complex multisyllable words.

Consequently, Blachman (1984), Bradley and Bryant (1983), Fox and Routh (1980), Goldstein (1976), Helfgott (1976), Treiman and Baron (1981) and Vellutino and Scanlon (1987) found the relation of phonological awareness to reading failure (Shankweiler and Liberman (1992). Their findings have also been supported by studies in Swedish by Lundberg and Associates (1980), who established the role of phonological awareness skill in reading after testing two hundred pre-school children. In French, a group of Belgian researchers (Morais, Cluytens, and Alegria 1984) studied six to nine year olds with severe reading disability, it was found that these children were poor on segmenting words into their constituent parts. Shankweiler and Liberman (1992) also conducted two complementary experiments, one with good and poor readers in the third grade and the other with good and poor readers in the adult education classes. All the subjects were given three linguistic awareness tests. Significant difference was found between the good and poor readers at both age levels; with the poor readers exhibiting limited segmental analysis of speech. This inability of children with reading problems to perform well on tasks demanding explicit understanding of phonological structure has also been found by other investigators such as: Byrne and Ledez (1983) in Australia, Marcel (1980) in England, and Read and Ruyter (1985) in the United States.

Liberman et al (1977) further hypothesised that children with varying syllable segmentation abilities perform significantly better on blending tasks and reading in general (Shankweiler and Liberman, 1977). To verify this hypothesis, the phoneme-counting task developed by Liberman et al. (1974) was used to assess each child's ability to segment by phonemes (Ruddell and Ruddell, 1994: 385). Children were asked to tap the number of sounds they heard in a one-, two-, or three-sound utterance. The children were tested on forty-two items individually. It was found that children's segmentation abilities varied widely from four to thirty nine correct out of the forty-two items presented. The following were the categories used in the study to classify children's segmentation abilities: Chance level (zero to nineteen items correct); emerging segmentation ability (twenty to thirty items correct, that is approximately 75 percent of the items correct); and strong segmentation ability (thirty one to forty two items correct). Children strong in phoneme segmentation abilities were the most successful at the sounding and blending reading tasks, followed by children with emerging phoneme-segmentation ability, while children with only chance-level phoneme segmentation ability were the least successful at the tasks. Similar results were found by Yopp (1985) in support of this causal relationship. She found that children with the strongest phoneme segmentation ability learned to perform sounding and blending tasks quite successfully while children with only chance level phoneme segmentation ability were virtually unable to sound and blend novel words.

2.1.3 Difficulties in Fluency.

Reading fluency serves as a performance indicator of overall reading competence. This includes the reader's capacity to process meaningful connections within and between sentences at a comfortable speed (Logan, 1997). Thus the speed with which an individual translates text into spoken words should function as an indicator not only of word recognition skill, but also of comprehension of the given text. Unfortunately, poor readers rely on the conscious-attention mechanism; they expend their capacity in prediction process to aid word recognition. Thus because of this laborious approach to reading, little is left over for integrative comprehension processes (Stanovich, 2000).

2.1.4 Comprehension.

Comprehension is the ability to understand what one is reading which is actually the ultimate goal of reading instructions. This ability appears to be based on several factors; children who comprehend well seem to be able to activate their relevant background when reading (Stanovich, 2000). They are also able to relate what they are reading to what they already know. Good readers also have good vocabularies while poor readers experience difficulties understanding what they are reading or getting the meaning from a text. In a more scientific vein, deficits in reading comprehension are related to: inadequate understanding of the words in the text; inadequate background about the domains represented in the text; a lack of familiarity with the semantic and syntactic structures that can help in understanding the relationship between words and the ability to remember verbal information.

CHAPTER THREE

3.1 METHODOLOGY

The chapter is divided into the following sub-sections: the first section describes the design, population, sampling procedure and research instruments. The last section comprises data collection methods, analysis of data and limitation of the study.

3.2 Research Design

The study employed both qualitative and quantitative research designs.

3.3 Population

The target population comprised grade three pupils from the four randomly selected schools in Lusaka province. The schools from which the sample was drawn were ranked into the following categories: urban and rural areas to provide an equal representation in relation to the social-economic status.

3.4 Sample and Sampling procedure

Selection of the schools was done using random sampling procedure. Lusaka province has four districts; these are Lusaka, Kafue, Chongwe and Luangwa districts respectively. In this study, the districts were defined as follows; Lusaka district being in the city center was described as urban, while Kafue, Chongwe and Luangwa were considered to be rural districts. The following were the schools that participated in the study, from Lusaka district; there were Northmead, Lusaka Girls and Lusaka Boys Basic schools, while the rural districts were represented by Chongwe Basic School.

Hundred and six pupils participated in the study. A simple random sampling technique was employed to select participants from the four schools. There were four grade three classes in the four schools that participated in the study, and each of these classes had an equal chance of participating in the study. At least twenty-five pupils from each school participated in the study. Gender representation was considered during the selection process.

Worth mentioning here is that, all the children that participated in the study had been exposed to the Primary Reading Programme (PRP). This implies that, these children received learning instructions in their local language (Chinyanja, one of the Zambian local Languages) through the New Break Through to Literacy (NBTL) Programme when they were in the first grade; the Step Into English (SITE) Programme in grade two; and were under the Read On Course (ROC) Programme at the time of the study.

3.5 Research Instruments and their Administration.

Subtests from the screening instrument known as the Basic Skill Assessment Tool (BASAT) provided most of the individual measures in this study. BASAT is an individual assessment instrument developed by the Ministry of Education, Zambia, primarily to assess basic reading and writing skills in grades one and two respectively. The instrument was validated in 2003 and it has since been translated into the seven Zambian local languages. It comprises subtests, which assess prerequisites and correlates of beginning reading skills based on findings

from previous research. The following are the subtests measured by the BASAT: alphabetic principle, phonological awareness, working memory and reading comprehension. This test was administered to all the pupils individually and in an assessment set up.

The serial rapid naming test comprising objects and numbers was used to assess naming skills. This test was administered individually and pupils were timed as they named the numbers and objects as fast as they could, beginning at the top and continuining to the bottom. Scoring was based on the average time spent for the two series.

A group administered spelling test consisting of twelve words was used to assess spelling skills. These words were ranked according to the level of complexity ranging from simple to difficult ones. Pupils were first asked to write their name. Each word was read twice before the pupils were asked to write. The words used were drawn from relevant curriculum materials and were grade level appropriate. The scoring system was based on the correct whole words.

In addition to the spelling test, a passage story adapted from the grade three readers book was used to compliment the reading comprehension test in the BASAT. The test was group administered. Children were given the reading passage, which they read as a group with the help of the researcher. Thereafter,

comprehension questions were read out to the pupils one by one and pupils were allowed reasonable time to complete writing.

The Panga Munthu Test (PMT) which literally means 'make a person' was used as a measure of non-verbal cognitive abilities. The test was developed by Professor Robert Serpell (1974), University of Zambia, as a non -verbal cognitive test. The test requires the child to reproduce the human form. Pupils were tested individually. The child was presented with a portion of plasticine (modeling dough) and the examiner gave the following instructions to the child: " I want you to use this clay to make a person. Try to make the best person you can. Tell me when you have finished" (Serpell, 1974). Each item was scored one or zero depending on whether the body part was present or absent from the model. There was no time limit for this test but the time taken by an individual child to complete the model was recorded. The objective was to allow pupils to go as far as they could in demonstrating their non-verbal cognitive abilities.

A semi-structured interview schedule was administered to the teachers to complement the findings obtained from individual tests.

3.6 Data Collection Procedure.

Data collection was scheduled to take place during the first term of the school calendar, which is from January to April. However, the exercise was only

completed in the second term of the school calendar due to some logistical problems.

The participants were tested individually in their respective schools. The total testing time was one hour per participant over three settings: that is reading comprehension and spelling task; followed by the BASAT and the Serial Rapid Naming test. The Panga Munthu Test was the last one to be administered because it provided some stimulation to the pupils.

3.7 Data Analysis

The SPSS computer technique was used to analyse data. Data was then coded according to the variables under investigation and the total score was calculated.

3.8 Data Interpretation

Descriptive analysis was used to present the variables in frequencies and percentages to find out on which variables poor and good readers differed significantly. Correlation analysis was used to investigate the underlying relations between variables, which are attributed to reading acquisition. Multiple analysis of variance (MANOVA) and post Hoc Tukey follow up test was conducted to explore differences in performance between the different schools.

3.9 Ethical concerns

Ethical issues were highly considered in this study. Permission was first sought from the office of the Provincial Education Officer (PEO), Lusaka province, for using the schools in the study. At the school level, the school managers gave

consent for children to participate in the study and the aim of the study was clearly explained to the children before commencement of assessment.

3.10 Study Limitations

The major challenge faced in the field was that, some school managers were reluctant to allow their schools to participate in the study. They perceived the study as an interruption to the children's daily academic activities. Consequently data collection exercise was to some extent prolonged mainly due to financial constraints. Thus instead of completing the exercise in the first term of the school calendar, it was extended to the second term.

3.11 Delimitation of the Study

Some of the assessment instruments used in the study (such as the serial rapid naming test) have not been employed at all or only very rarely in Zambia. Therefore, the validity of some of these instruments for the Zambian population has not yet been sufficiently evaluated.

Secondly, the study only focused on four schools in Lusaka Province. Initially, the researcher intended to include at least one school from each district to have equal representation of the population. Due to financial constraints however, only two districts represented both the urban and rural schools. In this case, generalisability of the findings was limited.

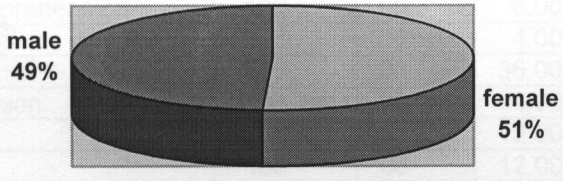
CHAPTER FOUR

4.0 FINDINGS OF THE STUDY

This section presents the findings of the study to establish the prevalence level and nature of reading difficulties. The findings are presented according to the variables under investigation. The following are the headings; sex, age, letter knowledge, letter sound knowledge, syllable segmentation, sound discrimination, blending, textual reading, digit span, pictorial reading comprehension, passage reading, spelling, serial rapid naming and the Panga Munthu. The last sub heading represents the qualitative data mainly dealing with the views of teachers on the reading standards in schools.

4.1 Sex of participants in the study.

Figure 1. Gender distribution in the study



The sample comprised 106 pupils. 49% of these were boys while 51% were girls. An effort was made to have equal gender representation in the study.

Table 1. Age distribution in the study.

Age	7years	8 years	9 years	10 years	11 years	12years	13years
Number	6	35	28	17	12	6	2

N= 106

Participants in the study ranged from the age of seven and thirteen years. The mean age was eight years.

TABLE 2: Overall performance on all subtests

Task	N	Minimum	Maximum	Mean	Std Deviation
Recites Letters of the alphabet	106	.00	26.00	20.85	7.25
Names Letters of the alphabet	106	.00	26.00	21.97	6.33
Identifies Letters of the alphabet	106	.00	26.00	22.13	6.86
Relates Letters to Letter sounds	106	.00	26.00	11.88	10.01
Relates Letter sounds to letters.	106	.00	26.00	14.77	9.15
Syllable segmentation	106	.00	4.00	2.04	1.55
Discriminates initial sounds	106	.00	10.00	8.15	2.57
Discriminates ending sounds	106	.00	10.00	6.46	3.61
Blends sounds into words	106	.00	5.00	2.09	2.01
Reads two letter words	106	.00	8.00	3.96	3.48
Reads one syllable word	106	.00	8.00	3.91	3.36
Reads two syllable words	106	.00	8.00	2.89	3.18
Reads three syllable words	106	.00	8.00	2.48	3.01
Passage Reading comprehension	106	.00	5.00	1.89	1.88
Reads sentences total	106	.00	4.00	1.37	1.60
Reading Total	106	.00	36.00	14.25	13.78
Reading comprehension	106	.00	4.00	1.49	1.66
Spelling Test	106	.00	12.00	3.66	2.72
Digit Span	106	.00	12.00	8.16	1.75
Serial Rapid Naming. Numbers	104	9.00	32.50	16.18	4.50
Serial Rapid Naming test Objects	104	11.70	40.00	20.75	5.70
Panga Munthu Test.	104	4.00	20.00	10.95	3.66

The table indicates minimum performance of zero and maximum performance of twenty-six for the letter knowledge; the ability to recite letters of the alphabet had the mean score of 20.85 (Standard Deviation SD = 7.25); letter naming was 21.97 (SD = 6.33); and the mean score of 22.13 (SD = 6.86) for the ability to

identify letters of the alphabet. A similar pattern of performance was observed on the letter sound knowledge with the mean score of 11.87 (SD = 10.01) for relating letters to their sounds and 14.77 (SD = 9.14) for relating sounds to their letters. Minimum score for syllable segmentation was zero and maximum was four and the mean score was 2.03 (SD = 1.55). Ability to discriminate sounds in words had a minimum score of zero and maximum score of ten. Mean score was 8.15 (SD = 2.56) for discrimination of initial sounds and 6.46 (SD = 3.61) for ending sounds. The minimum score for blending sounds in words was zero and maximum score of five, whereas the mean score was 2.09 (SD = 2.01).

Ability to read words and sentences had the maximum score of thirty- six and minimum total score of zero with the mean score of 14.25 (SD = 13.78). The scores for the reading subtest were distributed as follows: the minimum score for two the ability to read letter words was zero while the maximum of eight, mean score of 3.96 (SD = 3.48); minimum score for one syllable words was zero and maximum eight while the mean score was 3.90 (SD = 3.36); minimum score for syllable words was zero and maximum eight and the mean score of 2.88 (SD = 3.18); mean score for three syllable words was 2.48 (SD = 3.01) while the ability to read sentences had the minimum score of zero and maximum of four, mean score was 1.37 (SD= 1.60). The minimum score for reading comprehension was zero while maximum was four with the mean score of 1.49 (SD = 1.66); on the other hand the passage reading had the minimum score of zero and maximum score of five. The mean score on this subtest was 1.89 (SD =1.88). The spelling

sub test had the minimum score of zero and maximum score of twelve, mean score was 3.66 (SD = 2.71); similarly, the digit span had the minimum score of zero and maximum score of twelve with the mean score of 8.16 (SD = 1.75). The Serial Naming Test had two different sub-tests; the test comprising numbers had the minimum time of nine seconds and maximum of thirty -two seconds. The mean time spent to complete the task was 16.18 (SD= 4. 50), while the subtest comprising objects had minimum time of twelve seconds and maximum of twelve seconds; the mean time spent was 20.74 seconds (SD = 3.56). The minimum score for the Panga Munthu Test (PMT) was four points and maximum of twenty points with the mean score of 10.95 (SD = 3.65)

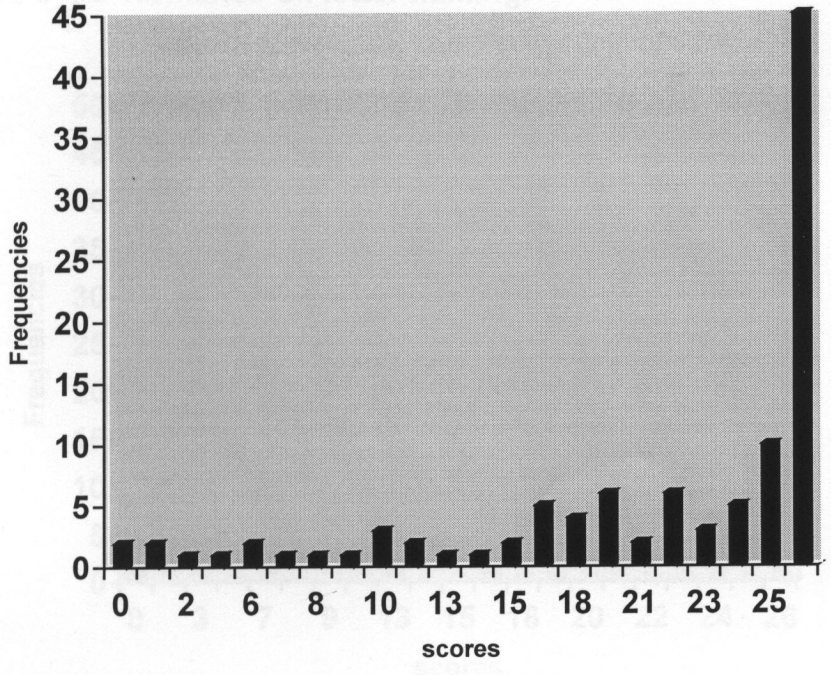
4.2.0 Letter Knowledge.

This task assessed the children's exposure to the letters of the alphabet. Children were required to recite, name and identify the letters of the alphabet. All the 26 letters of the alphabet were coded on each sub- test.

4.2.1 Children's ability to recite letters of the alphabet.

The task required children to recite letters of the alphabet from memory.

Figure 2. Performance on reciting the letters of alphabet.

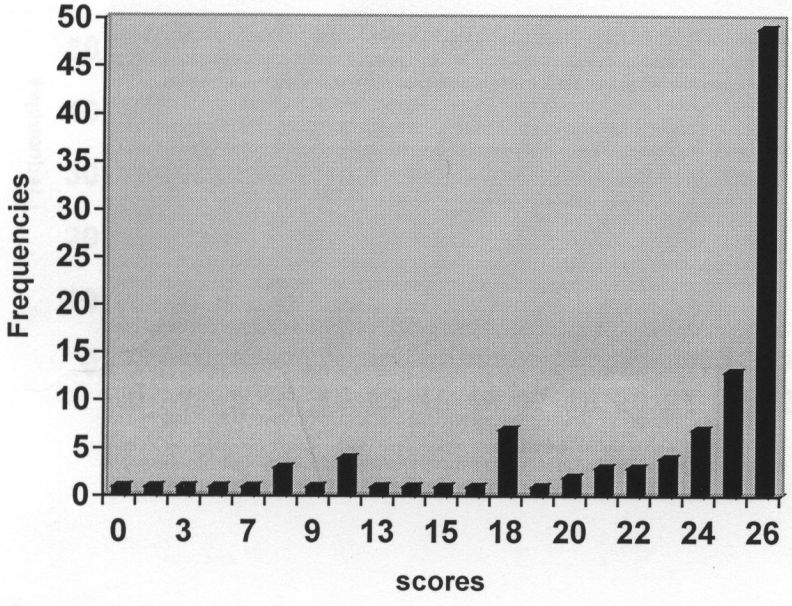


Performance on this task was generally average, 45 (42.5%) children were successfully able to recite all the letters of the alphabet and only 2 (1.9%) could not recite any single letter at all. 10 (9.4%) could recite twenty five letters, 5 (4.7%) were able to recite twenty-four letters while a good number could recite between eight and twenty-three letters respectively. Generally, the graph indicates that a good number of children were able to recite the letters of the alphabet, this might be as a result of their ability to memorise the letters.

4.2.2 Children's ability to name letters of the alphabet.

The task required the child to name letters presented on the letter template.

Figure 3 Performance on letter naming.

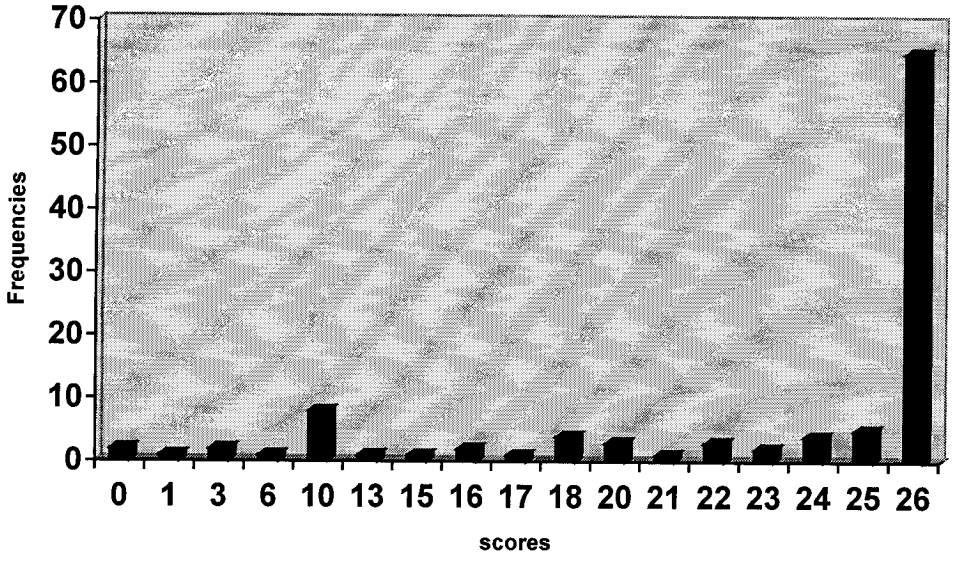


The graph shows that 49 (46.2%) children from the entire population could name the letters of the alphabet and only 1 (0.9%) could not name any single letter at all. Generally, most of the children scored in the range of eight to twenty letters as shown in the graph above. This implies that most of the children demonstrated the ability to name the letters of the alphabet.

4.2.3 Ability to identify letters of the alphabet.

Children were required to identify the letters from the letter template.

Figure 4 Performance on letter identification.

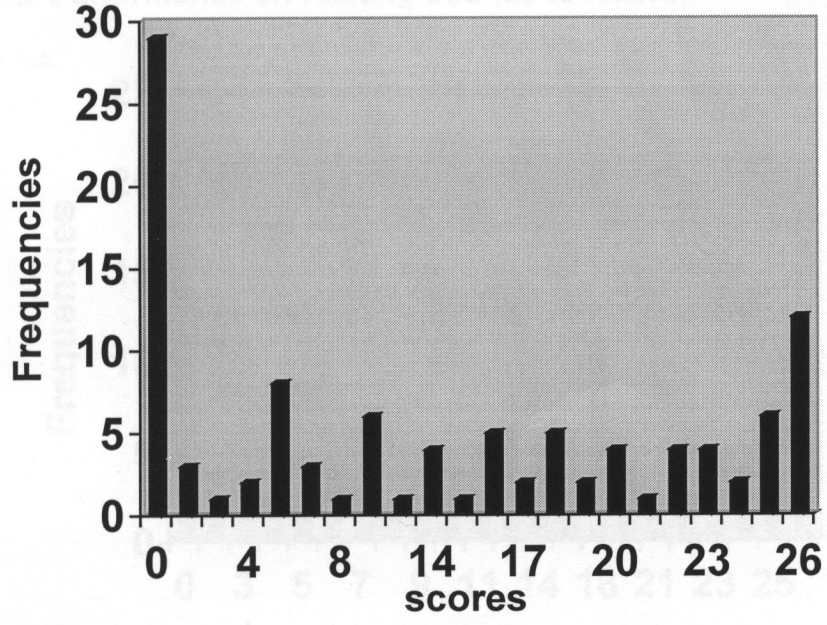


A significant majority 65 (61.3%) of children was able to identify the letters of the alphabet and only a smaller number 2 (1.9%) could not identify at all. The number of children who could adequately identify the letters appeared to be more than those who could recite and name the letters of the alphabet.

4.3.4. Ability relate letters to letter sounds.

The children were required to apply their knowledge of letter sound relations. Children were asked to identify the sounds of each of the letters of the alphabet.

Figure 5. Performance on relating letters to their appropriate sounds.

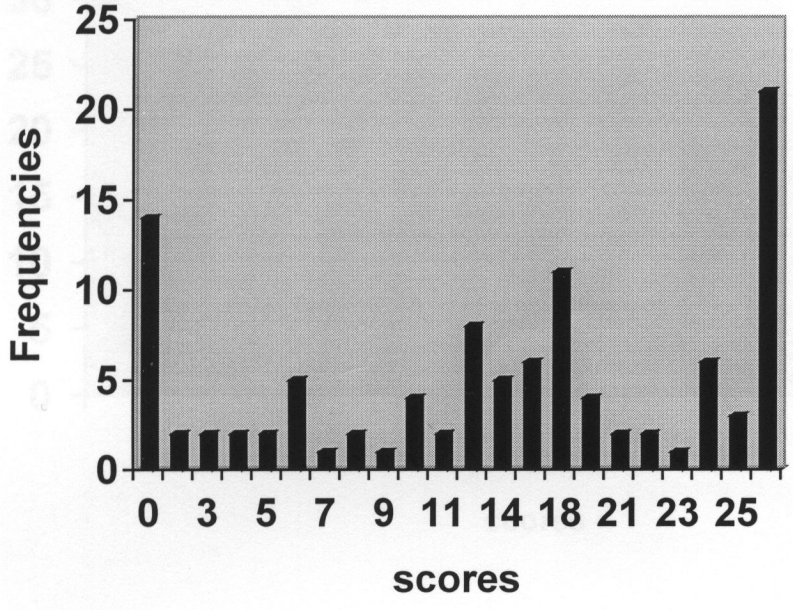


Generally performance on this task was poor. The number 12 (11.3%) of children who could relate letters to their appropriate sounds was less than 29 (27.4%) those who could not show any ability. 6 (5.7%) children could relate twenty-five letters to their sounds, 2 (1.9%) scored twenty-four, 4(3.8%) scored twenty-three and twenty two respectively. The average performance ranged from ten to twenty scores. The mean score was 11.8.

4.3.4. Ability to relate sounds to letters.

This task required children to relate sounds to their letters; children were expected to point at the appropriate letter that produces the sound mentioned by the examiner.

Figure 6. Performance on relating sounds to letters.

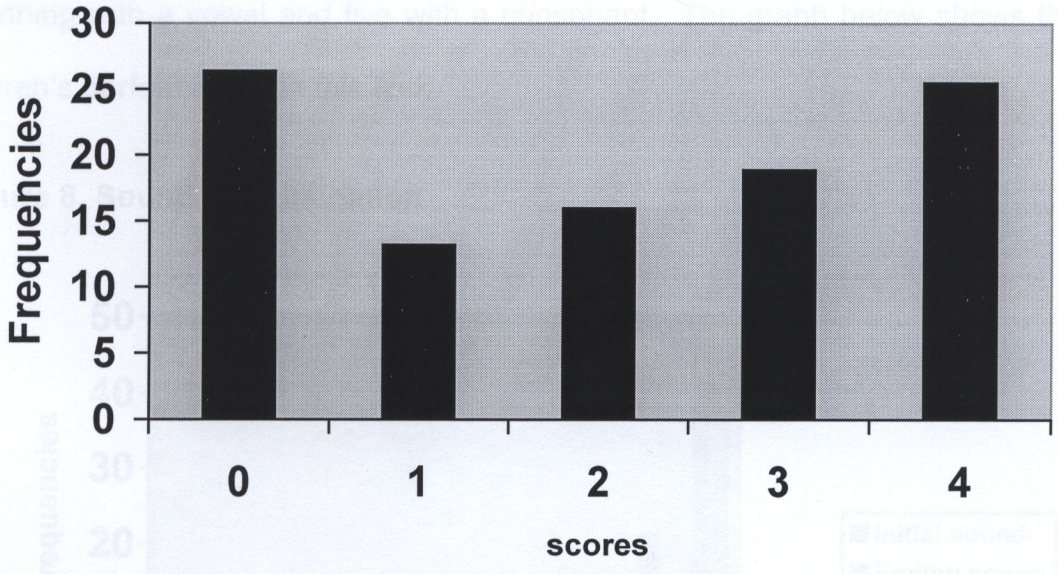


Less success was achieved with regard to the ability to relate sounds to their appropriate letters. 29.2% could relate sounds to their appropriate letters while 14 (13.2%) displayed insufficient letter sound knowledge. The remaining scores were distributed as follows: 11(10.4%) scored eighteen; 6 (5.7%) scored sixteen; 5 (4.7%) scored fourteen; 8 (7.5%) scored twelve; 2 (1.9%) scored eleven; 4 (3.8%) scored ten. The remaining students scored in the range of two to nine scores. The mean score was 14.7.

4.4 Syllable Segmentation

The figure below shows performance on the task that required children to divide words into syllable.

Figure 7. syallable segmentation

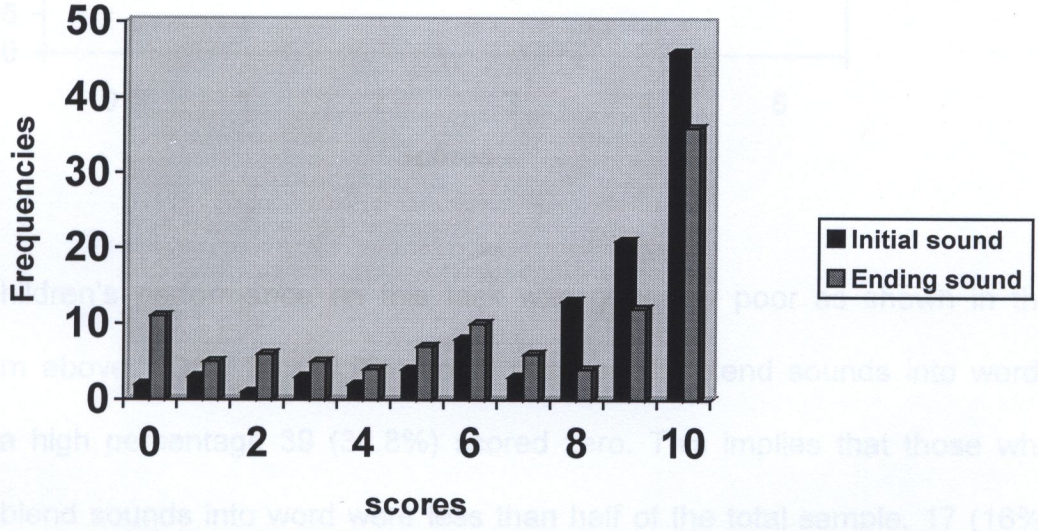


This subtest had four words. The first two comprised of two syllable words, while the last two had three syllable words. Generally, children exhibited poor performance on syllable segmentation as can be seen from the graph above. For instance, out of 106 children tested, 28 (26.4%) displayed inadequate skills at syllable segmentation and only 27 (25.5%) could successfully segment words into syllables. 14(13.2%) scored one; 17(16%) had two scores and 20(18.9%) obtained three scores.

4.5 Sound discrimination.

There were two sub-tests in this task and both comprised ten words. In the first sub-test, children were required to identify the initial sound in a given word while in the second sub-test, children were suppose to identify ending sounds. Words were presented orally. Discrimination of the initial sound consisted of five words beginning with a vowel and five with a consonant. The graph below shows the children's performance on this task.

Figure 8. Sound Discrimination

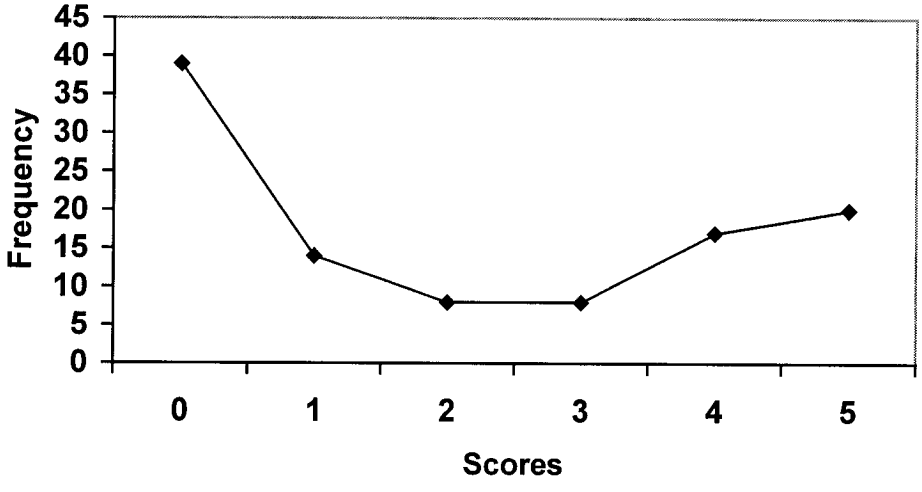


Most of the children could discriminate both initial and ending sounds. The graph however indicates that it was easier for children to discriminate initial sounds than ending sounds. It was observed that, 46 (43.3%) were able to discriminate initial sounds while 36 (34%) were able to discriminate ending sounds.

4.5 Children's ability to blend sounds into words.

The task assessed the child's ability to put individual sounds together to form a word. Flash cards of the alphabet letters were used.

Figure 9. Blending



The children's performance on this task was generally poor as shown in the diagram above. Only 20 (18.9%) could successfully blend sounds into words while a high percentage 39 (36.8%) scored zero. This implies that those who could blend sounds into word were less than half of the total sample. 17 (16%) scored four out of five, 8 (7.5%) scored three and the other eight scored two where as the remaining 14 (13.2%) scored one. Children found it unusual to blend sounds into words.

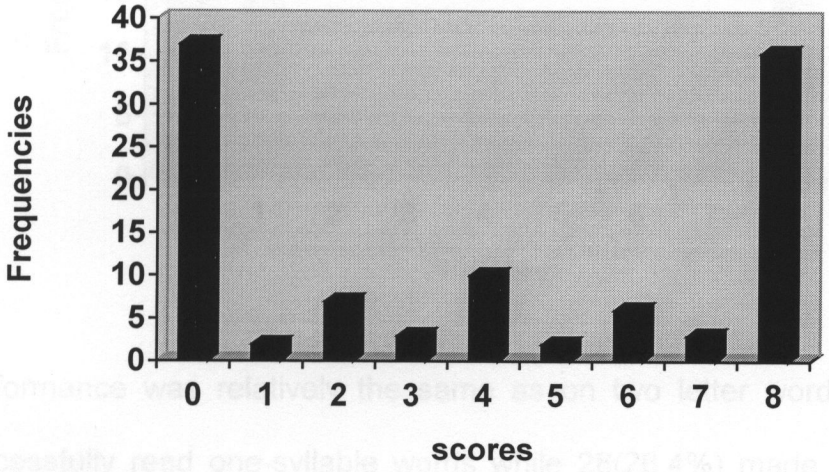
4.7. Reading

The reading subtest assessed the children's reading skills. The child was presented with items to read ranging from; two letter words, one syllable, two

syllable and three syllable words. Additionally, children were required to read sentences. The first three sub-tests carried eight marks while sentence reading had four marks.

4.7.1 Children's ability to read two letter words.

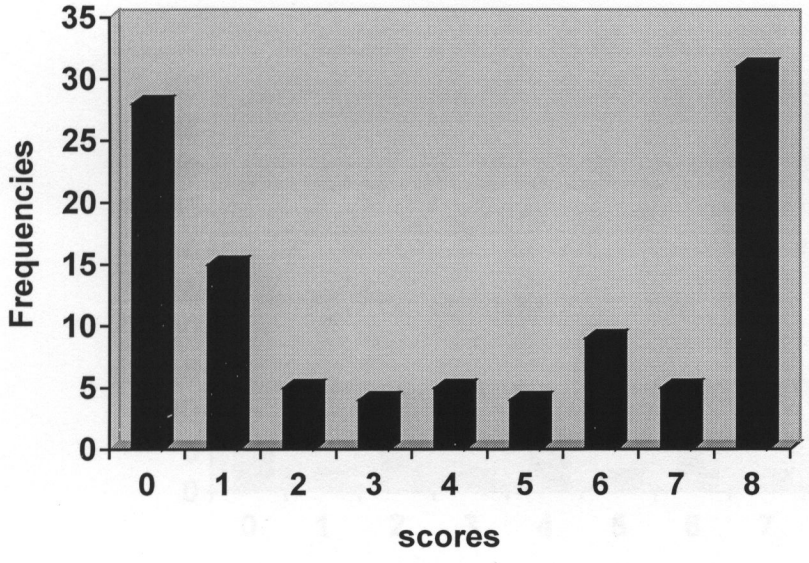
Figure 10. Combining two letters into words.



The graph indicates that the proportion of the non-readers was essentially equivalent to that of good readers with the mean difference of 0.9%. Results indicate that 37 (34.9%) could not read two letter words, while 36 (34%) demonstrated sufficient skills. 3 (2.8%) children scored seven while 6 (5.7%) scored six; 2 (1.9%) children scored five; 10 (9.4%) scored four; 3 (2.8%) scored three; 7 (6.6%) scored two and 2 (1.9%) scored one respectively. The mean score was 3.96.

4.7.2 Children's ability to read one-syllable words.

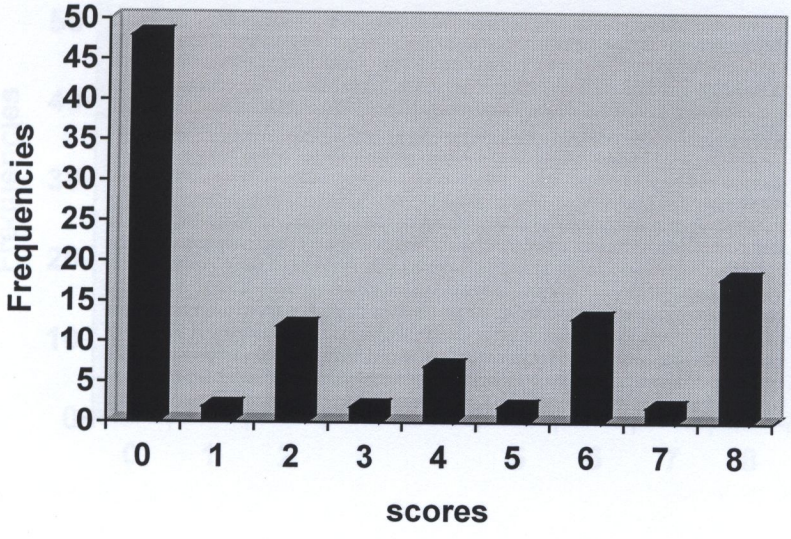
Figure 11. One syllable words



Performance was relatively the same as on two letter words, 31(29%) could successfully read one-syllable words while 28(26.4%) made no attempt at all. 5(4.7%) children scored seven and 9(8.5%) children scored six; 4 (3.8%) children scored five and 5 (4.7%) scored four; 4 (3.8%) children scored three where as 5 (4.7%) scored two. The remaining 15 (14.2%) children scored only one out of eight. The mean score was 3.9. It was noticed that there was an improvement in performance on one-syllable words compared to performance on two letter words as shown in figure 4.7.1.

4.7.3 Children's ability to read two syllable words.

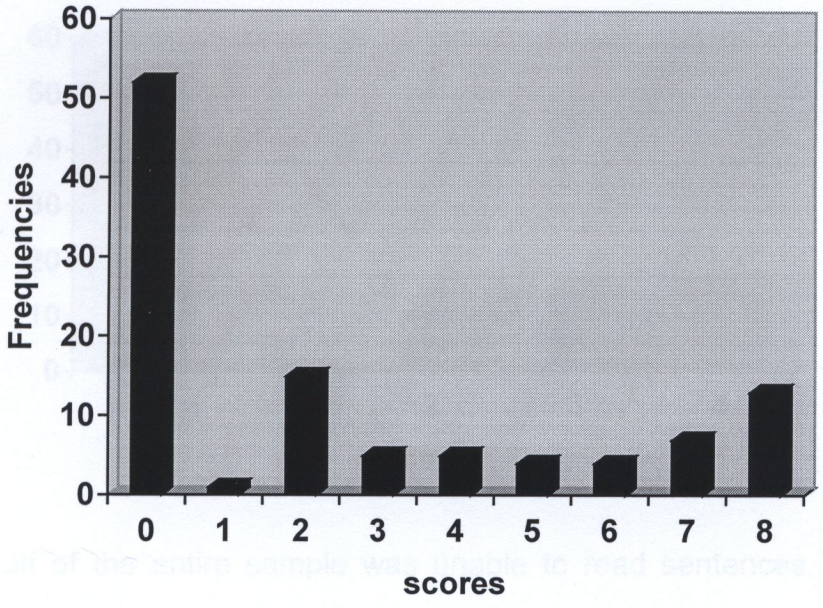
Figure 12. Two syllable words.



There was a steady shift in performance from average to poor performance. 48 (45.3%) children made no attempt at all and only 18 (17.%) could read the words correctly. 2 (1.9%) children scored eight while 13 (12.3%) scored six. Consequently, 2 (1.9%) children scored five and where as 7 (6.6%) scored four. 2(1.9%); 12 (11.3%), 2 (1.9%) scored three, two and one respectively. The mean score was 2.8. It was observed that the number of children in the good performance band steadily dropped by 12.1% as compared to performance on the ability to read one-syllable words.

4.6.5 Children's ability to read three syllable words.

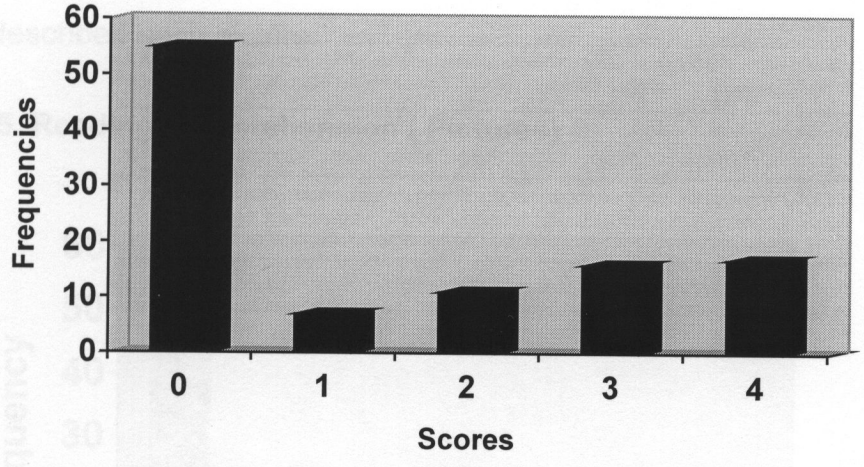
Figure 13. Three syllable words



There was regression in performance as can be seen in the graph above. It was observed that 52 children constituting 49.1% of the entire sample could not read at all and only 13 (12.3%) were able to read the words correctly. 7 (6.6%) scored eight while 4 (3.8%) scored six. The remaining scores were distributed as follows: 4 (3.8%) scored five; 5 (14.2%) scored two and 1 (0.9%) scored one. Like in the two syllable words, the graph shows that a large proportion of the sample fell within performance band of non-readers.

4.7.6. Children's ability to read sentences.

Figure 14. Sentences

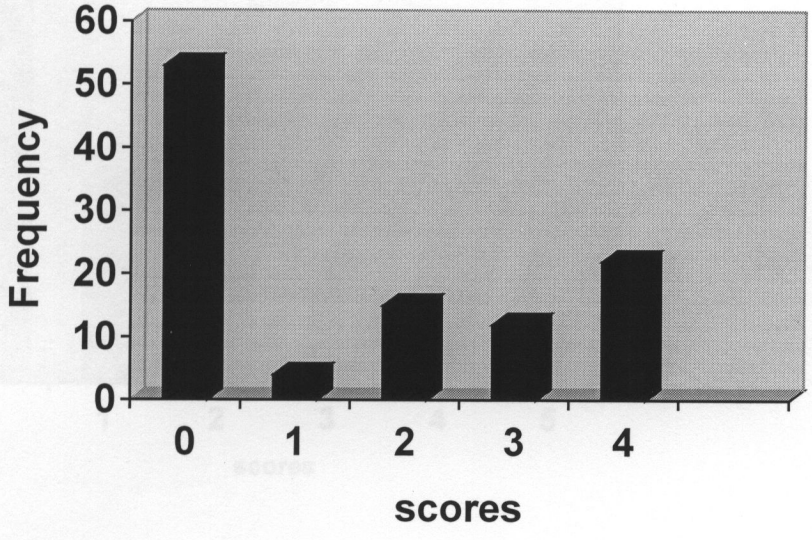


More than half of the entire sample was unable to read sentences. From the graph above, it was noted that a large proportion 62 (57.5%) children could not read any single sentence and only a small proportion 17 (16%) were able to read. Further, 16 (15%) children scored three out of four; and 11 (10.4%) scored two. This clearly shows that, only few children in this study had reached the standard level of reading expected of those in the third grade. The word attack skills in these children were generally poor and consequently the ability to read sentences was found to be poor.

4.8.1 Reading Comprehension (Pictures)

The task assessed the children's ability to understand the meaning of a written text. Children were required to look at the picture and identify the sentence that correctly described each picture.

Figure 15. Reading Comprehension (Pictures)

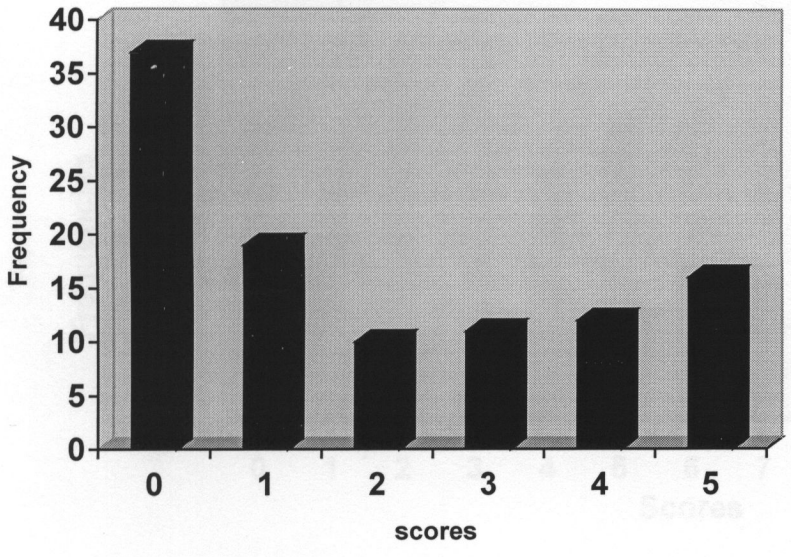


The graph indicates poor performance in reading comprehension. Of the 106 children assessed for instance, 53 (50%) scored zero and only 22 (20.8%) could read all the four sentences correctly. 12 (11.3%) scored three, 15 (14.2%) scored two where as the other 4 (3.8%) children got only one score.

4. 8. 2 Reading comprehension (Passage Reading)

The passage reading was aimed at assessing the children's ability to extract meaning or relevant detail the story.

Figure 16. Passage reading

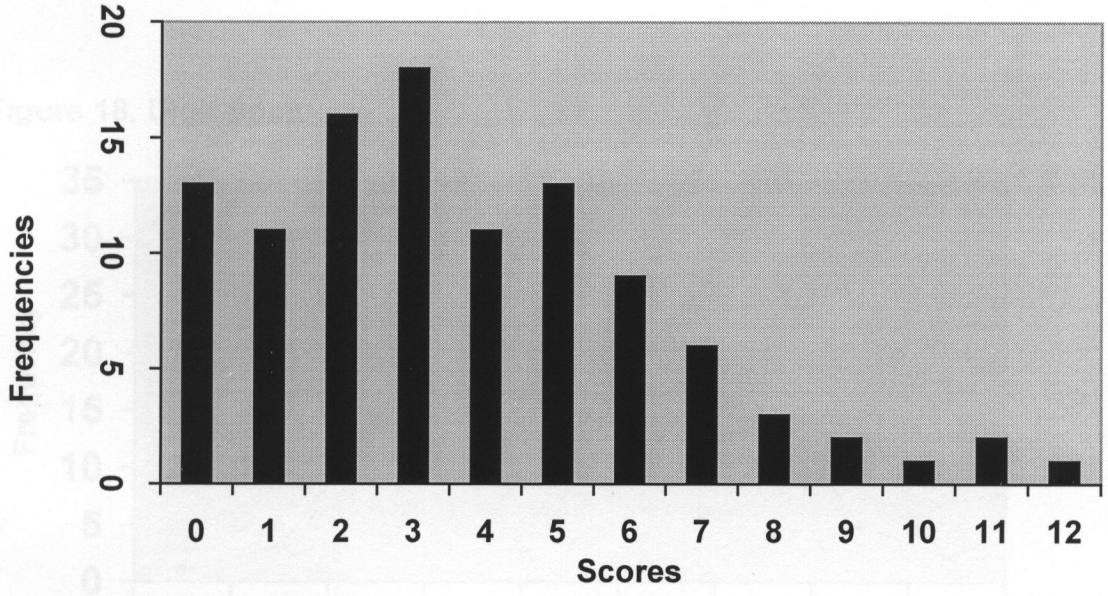


ike in the reading comprehension subtest, a similar pattern of performance is noted in ıe passage reading subtest. The lowest score was zero 37(35.8%) while those who got ıe highest score of five out five were only 16 (15.1%). The remaining scores were istributed as follows: 12 (11.3%) score four, 11 (10.4%) scored three, 10 (9.4%) scored wo and 19 (17.9%) scored one. These results indicate that there was a wider gap etween good and poor performance, which is a particular cause for concern as majority f the children fell within the performance band of poor readers.

.9 Spelling.

welve items were presented to the children. The tasks were arranged according to the vel of complexity ranging from easy to difficult ones.

gure 17. Spelling

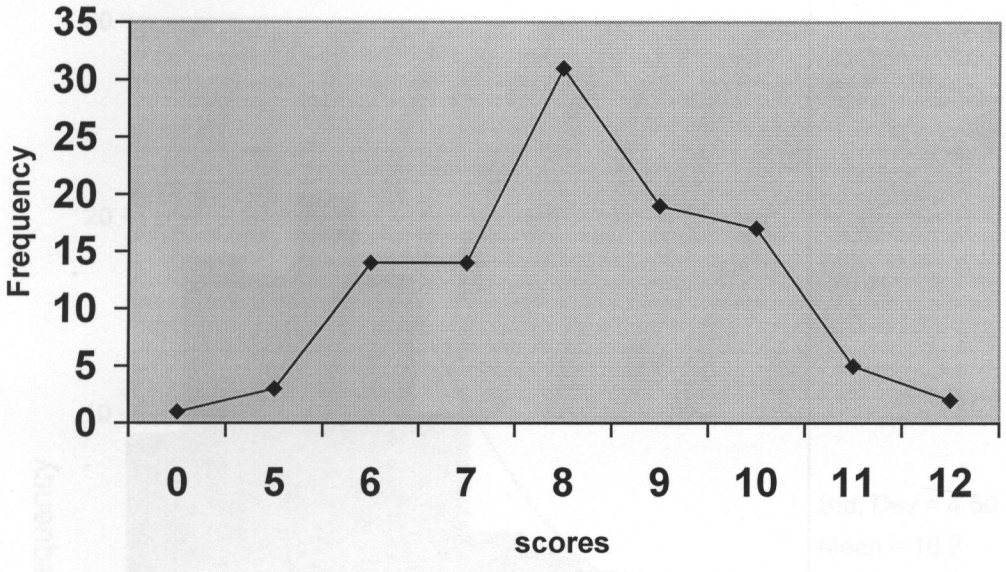


The children's spelling skills seemed to be poor when dealing with complex words. Out of 106 children in the sample, only 1 (0.9%) obtained the highest score of twelve while 13 (12.3%) scored zero. 2 (1.9%) scored eleven; 1 (0.9%) scored ten; 2(1.9%) score nine; 3(2.8%) scored eight; 6(5.7%) scored seven; 9 (8.5%) scored six; 13 (12.3%) scored five; 11 (10.4%) scored four; 18 (17%) scored three; 16 (15.1%) two and 11 (10.4%) scored one. Performance slowly diminished as tasks became more and more challenging.

4.10 Digit Span.

This area assessed the children's ability to keep information in the working memory.

Figure 18. Digit Span

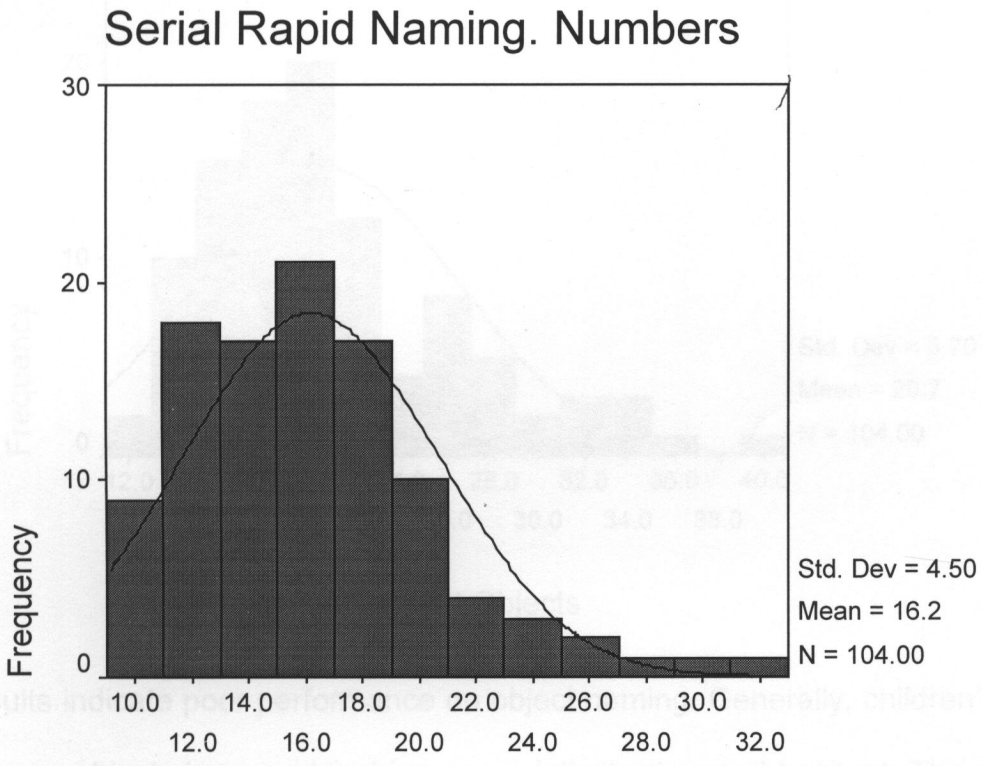


The graph above indicates normal distribution of scores. At least 31 (29.2%) pupils were able to remember two, three, and four to five digits in sequence respectively and only 1 (0.9%) made no attempt at all. Performance appeared to diminish steadily with the increase in information load. The graph shows a steady shift from good performance in the two, three, four and five digits, to poor performance in six and seven digits respectively.

4.11.1 Serial Rapid Naming (SRN) Test

The test required children to name a series of numbers and objects as accurately and as fast as possible.

Figure 18. Serial Rapid Naming (numbers)

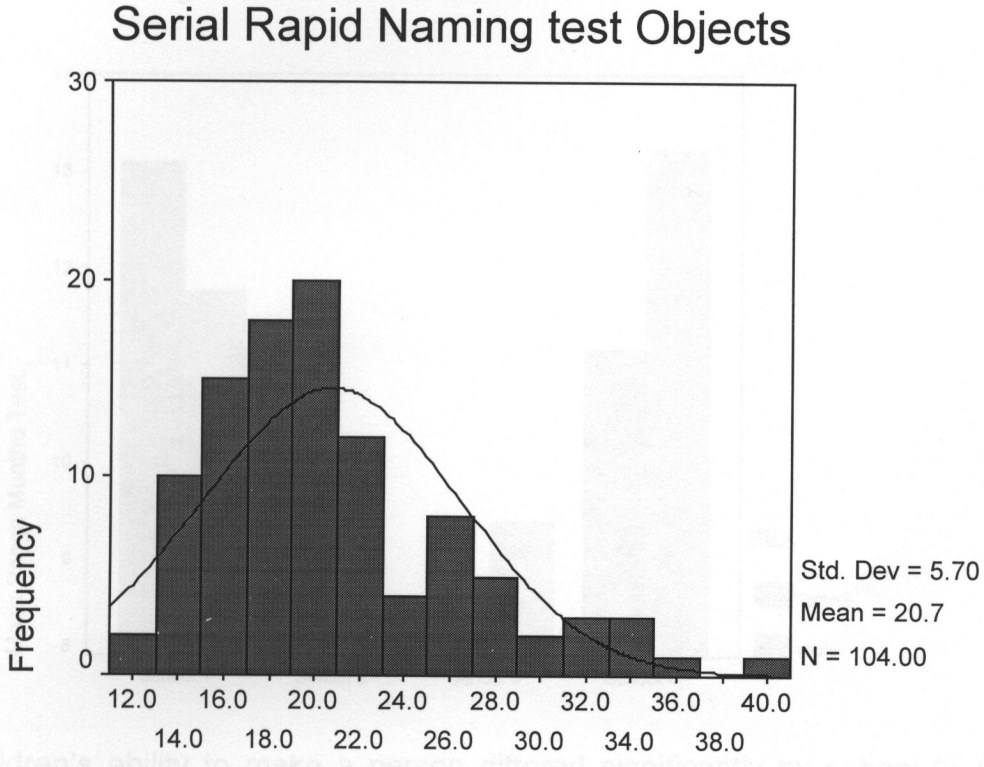


Serial Rapid Naming. Numbers

The graph above indicates average performance. Most of the children assessed exhibited average performance when processing serial numbers. The mean time taken to complete the task was 16.2 seconds within the range of ten to thirty-two seconds.

4. 11.2. Children's performance Serial Rapid Naming (Objects)

Figure 19. Serial Rapid Naming (Objects)



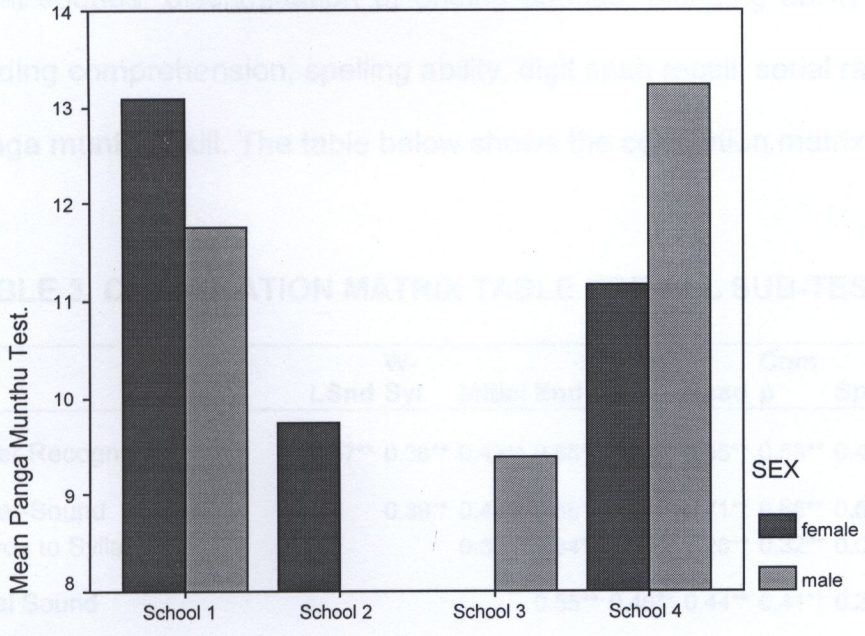
Serial Rapid Naming test Objects

Results indicate poor performance on object naming. Generally, children's ability to name objects in a rapid fashion was relatively slow and hesitant. The shortest time spent on this task was twelve seconds and longest time was forty seconds. The mean time taken to complete the task was 20.7 seconds.

4. 12. Panga Munthu

The subtest required the child to make a person using plasticine.

Figure 20. Panga Munthu Test.



Children's ability to make a person differed significantly by school (F (3, 96)= 3.22, $p < .05$). Significant differences were particularly observed between schools one and school two (Mean Difference = 2. 69, $p < .05$); between school three and school four (Mean Difference = 2. 85, $p < .01$) and between school one and school three (Mean Difference = 3. 05, $p < .01$) respectively. Children in co-education schools surpassed their counterparts in single sex schools as shown in figure 20 above. As expected, the mean scores were not significantly different by gender. However, the mean scores differed significantly by residence with the rural school out-performing the urban school.

4.13. Correlation Analysis

The Pearson correlation coefficient was calculated on the following tasks: letter knowledge, letter sound knowledge, syllable segmentation, discrimination of initial sounds, discrimination of ending sounds, blending ability, reading ability, reading comprehension, spelling ability, digit span recall, serial rapid naming, and panga munthu skill. The table below shows the correlation matrix.

TABLE 3. CORRELATION MATRIX TABLE FOR ALL SUB-TESTS

	LSnd	W-Syl	Initial	End	Blend	Read	Comp	Spell	DigSp	SRN#	SRN O	PMT
Letter Recognition	0.67**	0.38**	0.43**	0.55**	0.52**	0.55**	0.53**	0.45**	0.30**	-0.39**	-0.32**	0.07
Letter-Sound		0.39**	0.44**	0.66**	0.67**	0.71**	0.68**	0.50**	0.22*	-0.36**	-0.33**	0.06
Words to Syllables			0.30**	0.34**	0.28**	0.26**	0.32**	0.08	0.19	-0.13	-0.02	0.09
Initial Sound				0.55**	0.46**	0.44**	0.41**	0.29**	0.14	-0.27**	-0.18	0.12
End Sound					0.70**	0.65**	0.61**	0.47**	0.08	-0.29**	-0.31**	0.12
Sound Blending						0.82**	0.74**	0.59**	0.16	-0.37**	-0.36**	0.22
Word Reading							0.90**	0.71**	0.24*	-0.49**	-0.43**	0.18
Reading Comprehension								0.69**	0.18	-0.50**	-0.46**	0.13
Spelling									0.11	-0.44**	-0.41**	0.25
Digit Span										-0.33**	-0.13	0.12
RapidNaming (Number)											0.59**	-0.15
Rapid Naming (Objects)												-0.04

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

Note: Lsnd = Letter sound Recognition, Initial = Discrimination of initial sound, End = Discrimination of Ending sound, Blend = Blending sounds into words, Read = Reading task, Comp = Comprehension Task, Spell = Spelling Task, Dig sp = Digit Span, SRN# = Serial Rapid Naming (Numbers), SRN O = Serial Rapid Naming (Objects), PMT = Panga Munthu Test.

As expected, the subtests related to reading skills were significantly correlated as indicated in Table 3. Digit Span, a test of working memory, correlated with letter recognition ($r = .30$, $p < .01$), letter-sound knowledge ($r = .22$, $p < .05$), word reading ($r = .24$, $p < .05$), and serial rapid naming of numbers ($r = .33$, $p < .01$). The Panga Munthu Test was significantly correlated with sound blending ($r = .22$, $p < .05$) and spelling ability ($r = .25$, $p < .05$). In this case, there is no research evidence to suggest the cause of these correlations, and they are therefore considered spurious. It was originally expected that the Panga Munthu Test would be related with reading ability, but that result was not found in this sample.

CHAPTER FIVE

5.1. DISCUSSION OF THE RESULTS

This chapter discusses the findings of the study in the same sequence they have been presented in the preceding chapter.

5.2 Alphabetic Principle

The alphabetic principle comprised of two different subtests one being the letter knowledge, which required children to recite, name and identify the letters of the alphabet. The other subtest was the letter sound knowledge; children were required to relate letters to their respective sounds and vice versa. As regards to the letter knowledge, children demonstrated mastery skills of the letters of the alphabet. Results in graph 4.1; graph 4.2 and graph 4.3 respectively, indicate that a good number of children were able to recite, name and identify the letters of the alphabet. A correlation ($r= .30$, $p< .01$) was also found between letter knowledge and working memory. These findings suggest that, children in the third grade have mastered the letters of the alphabet and therefore, could reproduce them from memory. The children for instance were able to process the letters as visual symbols and thus could retain the sequence of letters in a fluent manner (Wong, 1998, p. 321). The underlying reason here could be that, learning of letters of the alphabet is the first classroom instruction children receive at pre-school and first grade. Thus by the time children reach grade three, they have already automatised the decoding skills. Worth noting here also was lack of

significant difference between the rural and urban schools. Performance was consistent both in urban and rural schools.

With regard to letter sound knowledge, performance was generally below the expected level. Most of the children however had difficulties relating letters to their appropriate sounds. Only 11.3 percent could relate the letters to their appropriate sounds while 27.4 percent made no attempt at all. Consistent results were also observed when children were required to relate sounds to their appropriate letters. Although the percentage (19.8 percent) of those who could relate the letters to their appropriate sounds seemed to be higher than those who lacked the skill (13.2 percent), performance was still considered to be essentially below the expected grade level. No significant difference was still observed between the rural and urban schools.

5.2. Phonological Awareness.

Phonological awareness tasks included syllable segmentation, discrimination of initial and ending sound in words and blending sounds into words. Results in graph 4.4, suggest that children demonstrated varying performance on the syllable segmentation task. A good number of children for instance could break the words into syllables and only a small proportion made no attempt at all. No significant difference for school was found. These results are consistent with those of Ruddel and Ruddel (1994) where varying performance on syllable segmentation was observed among the third graders.

As regards to sound discrimination in words, graph 4.5 shows that a large proportion of children were able to detect initial sounds in words such as apple', 'orange,' 'impala. However, discrimination of ending sounds in words such as '', 'dog', 'hat', and 'cup' appeared to be problematic to most of the children in the sample. Consequently, some children had difficulties differentiating between letters and sounds, thus when asked to detect the initial sound in a particular word, they instead mentioned the initial letter in that given word. This performance was expected considering the fact that a good number of children experienced difficulties linking letters to their speech sounds.

Performance on the blending task was generally poor as shown in graph 4.6. Only a small proportion of the sample was able to blend sounds into words while the majority demonstrated weakness at blending. This poor performance could probably be as a result of the children's weakness in letter-sound relationship that has already been alluded to in the preceding chapter. These findings therefore confirm earlier claims by Liberman et al. (1989) on the causal relationship between letter -sound knowledge and blending. Liberman et al. (1977) observed that, children experiencing difficulties linking speech sounds to letters are most likely to face problems on blending tasks because they find difficulties understanding that words can be divided into individual phonemes and that these phonemes can be blended into words.

When Multiple Analysis of Variance (MANOVA) was performed, it was revealed that ability to blend sounds into words (Blending Ability) differed significantly by school ($F(3, 96) = 2.92$, $p < .05$). A Tukey HSD post-hoc test revealed a marginally significant difference between the two single sex schools (Mean Difference = 1.30, $p < .10$) with the girls' school performing relatively better than the boys' school. While the mean difference between the two co-education schools did not reach any statistical significance.

5.3. Reading Task

Children's ability to read two letter words, one -syllable words, two syllable and three syllable words was generally poor. This poor performance also impacted on their ability to read sentences as well as reading comprehension abilities. An interesting observation was particularly made on the task that required children to read two letter words. It appeared children experienced more difficulties when reading two letter words than one-syllable words or two syllable words. Most of the children perceived and read these words as individual letters and not as single words. The reason for this performance could perhaps be that, children paid more attention to content words such as 'water', 'spoon', which were concrete in nature and thus rendered meaning to them as opposed to grammatical words such as 'an' 'so', 'be', which appeared to be abstract in nature. This notion is in line with Piaget's (1967) development sequence theory, which postulates that, concept development in children progresses along a continuum from concrete thinking to abstract thought. These results are also in

line with the findings by Asch and Nerlove (1967) where children's ability to read words was found to occur in a progressive fashion from concrete references to more abstract references.

Like the blending task, ability to read words and sentences also differed significantly by school ($F(3, 96) = 2.73$, $p = .05$) when the multiple analysis of variance (MANOVA) was performed. A marginally significant difference was particularly observed between the girls' school and the boys' school (Mean Difference = 10.8, $p < .05$) while the mean score for the two co-education schools was essentially equal and thus reached no statistical significance.

In relation to reading comprehension, children performed poorly on both comprehension tasks. Only a small proportion of the total sample reached the minimum level of performance while the majority experienced significant difficulties on this subtest. Reading comprehension ability also differed significantly by school ($F(3, 96) = 2.92$, $p = .05$). The analysis further revealed a significant difference between the girls' school and the rural school (Mean Difference = 1. 24, $p < .05$). A discrepancy of mean score distribution was generally observed between the urban schools and the rural school. The urban schools fell within the good and average performance band, while the rural school fell within the poor performance band. This discrepancy in performance between the rural and urban schools could probably be attributed to environmental rather than cognitive factors. The most parsimonious explanation

may be that, young children's background in literacy and oral language lays a foundation for development of reading and other language related skills. It can therefore be postulated that a large proportion of children from the rural school were from homes where parents themselves had limited or no literacy skills, and thus these children might have inadequate exposure to mediated reading experiences due to parental noninvolvement. In support of this notion, Ross and Roe (1990) observed that children from homes where reading and writing are priorities develop literacy skills more readily than do children from homes where literacy is not valued. Heald-Taylor (1987) also concluded that, early exposure to literacy objects promote children's enthusiasm for reading and thus providing a good foundation for learning to read.

5.4 Spelling

Most of the children exhibited poor spelling skills. Graph 4.11 shows that children's performance slowly diminished as they moved from simple words to more complex ones. Spelling results also revealed the common errors committed by the children such as:

'bress' for 'dress'

'shuzi" for "shoes"

'rimemba' for 'remember'

'kichini' for 'kitchen'

It is however important to note that some of the errors outlined above are clear examples of good phonics approximations of the target words. This clearly shows

that, although these children could not write or rather spell the target word correctly, they had considerable knowledge of spelling conventions (Brady, 1991). No significant difference by school was observed; performance was essentially the same in the four schools. It is evident from these results that, the structured teaching strategies in primary schools under the Primary Reading Programme (PRP) in general and the New Break Through to Literacy (NBTL) in particular are heavily phonically based. This could be noted by, children's over reliance on following speech sounds, applying the alphabetic principle when spelling words rather than learning when and where to employ different orthographic conventions. These results are consistent with those by Bryant and Bradley (1985), where heightened phonic awareness was found in children whose instructions were based on phonic concepts at the expense of orthographic rules or spelling rules. In their study, Bryant and Bradley (op.cit) further found that, children with spelling difficulties had significant difficulties making connections between the phonological structure of a word and its visual form. Further, the findings in the current study also confirmed the hypothesis by Foorman, Lundberg and Beeler (1998), that phoneme awareness skills and orthography are strong predictors of success with reading and spelling simple and complex multisyllable words.

5.5 Digit Span

Results on the digit span (a test of working memory) indicate significant correlation with letter recognition ($r = .30$, $p < .01$), letter-sound knowledge ($r = .22$, $p < .05$), word reading ($r = .24$, $p < .05$), and a marginally significant correlation with the serial rapid naming of numbers ($r = .33$, $p < .01$). These results were expected given the association between ability to memorize letters, sounds, and words, and strong working memory skills (Wolf and Bowers 1999), as well as fluency and working memory skills (Muller and Brady, 2001; Pennington, Van Orden, Kirson, and Haith, 1991; Siegel and Ryan, 1988). Spring and Capps, (1974); and Cornwall (1992); Cutting and Denckla (2001) also found the causal relationship between the digit span and serial rapid naming. These findings may therefore, suggest that the skills needed to decode and encode words are more related to repeated experiences with individual words and word families thus indicating a memory component involved in acquiring reading skills.

5.6 Serial Rapid Naming

Speeded naming abilities were somewhat poor. Children were noticeably slow at naming a series of objects (SRN). Significant correlation was observed between serial rapid naming and other reading related skills such as the letter knowledge, letter-sound knowledge, phonological awareness, spelling, comprehension and digit span. Results are shown in table 3. These results are consistent with the findings by Bowers (1997); Golden and Bowers (1993), who both found a significant correlation between the serial rapid naming and reading ability and

phoneme awareness. Consequently, Wolf and Bowers (ibid) suggested that deficits in visual coding of objects and numbers might adversely affect reading and spelling abilities. Wagner and Torgesen (1997) further confirmed that, phonological components such as retrieving and articulating phonological codes are significantly related to serial rapid naming. Cutting and Denckla (2001) also found a significant effect between the serial rapid naming and phonological awareness as well as memory span.

Panga Munthu Test

Results on the Panga Munthu, a non-verbal cognitive test were essentially below average. Children's abilities to model a human form were generally poor. Results indicate that only a small proportion included necessary details required for a complete human form. Performance differed significantly by school, with the two co-education schools performing better than the single sex schools. The two single sex schools mainly had children coming from the low-density areas thus the discrepancy observed in the results could partially be attributed to residence. However, there were no significant effects for sex as shown in figure 20. The results in this study are therefore consistent with earlier findings on the Panga Munthu Test by Serpell and Kathuria (1998, p. 234) where no significant correlation was found with gender. However, the significant difference by residence in this study is a deviation from the earlier findings by Serpell (1998) where no significant difference by residence was found. Results in this study indicate that children from Chongwe and Northmead basic schools performed

relatively better than their counterparts at Lusaka girls and Lusaka boys basic schools. The reason for this disparity in performance could probably be attributed to lack of exposure. Children particularly from Chongwe basic school come from the rural compounds hence they are used to modeling using clay. In fact, most of these children included relevant details for a complete human form. Northmead basic on the other hand comprised of a large proportion of children mainly from Ngombe and garden townships, which are high-density areas. Therefore, it was assumed that these children's daily experiences are not very different from the children at Chongwe basic school. However, children at Lusaka girls and Lusaka boys basic schools are mainly from low density areas such as Rhodes park, Longacres and woodlands, these children are mainly exposed to modern toys, thus the idea of modeling a human form using plasticine might have been unfamiliar to them. Despite the poor performance by the two single sex schools, an interesting observation was however made, children from Lusaka girls and Lusaka boys basic schools appeared to be very creative, they frequently included a lot of extra items such as; *shoes, hat, sun glasses, belt, hair braids, wrist watch, back pack* and *gun* to mention but a few. Unfortunately, these extra items could only earn them one point. Table 3. also shows a correlation between the panga munthu test and sound blending, and correlation with spelling ability. Currently, there is no research to explain this causal relationship, thus the relationship might have been due to chance alone. However, the magnitude of the relationship is relatively small. This confirms results by Muller and Brady

(2001) where the relationship between non verbal measures of cognitive ability and reading were found to be traditionally low.

Generally, the study has demonstrated that a large proportion (26 percent) of children are experiencing difficulties acquiring grade level reading skills. The classroom teachers also confirmed this low reading performance among the grade three pupils. They reported that, majority of the children have difficulties acquiring adequate reading skills despite having gone through the New Breakthrough to Literacy Programme, few of them have actually managed to reach the minimum grade level performance. The teachers also noted that, although the aim of the Primary Reading Programme (PRP) is to provide child centered classroom instructions, it has been difficult for them to achieve this goal considering the number of children in a classroom. Some classrooms for instance had at least fifty pupils thus making it difficult for the teacher to provide individualized education to children experiencing learning difficulties.

CHAPTER 6

6.0 SUMMARY AND RECOMMENDATIONS.

6.1 Summary

The purpose of the study was first to investigate the prevalence level of reading difficulties in the third grade. Secondly, it was designed to establish the nature of reading difficulties in the sampled schools. The summary of the most significant findings is presented below:

a. Despite the sample being small, results of this study have demonstrated that reading difficulties are quite common among the third graders. No significant difference was found between the urban and rural schools. Performance in the four schools was essentially below the expected grade level. In fact what these findings imply is that, a certain percentage of pupils is unlikely to reach the level of reading competence that would be expected of their grade.

b. The study also revealed that children showed significant weaknesses in phonological awareness; word reading; reading comprehension; spelling skills; digit span (a test of the working memory); and serial rapid naming.

c. Results also confirmed earlier claims on the strong relationship between phonological awareness and development of reading skills. It was found that, variations in phoneme awareness strongly correlated with variations in several measures of reading and spelling abilities. These findings therefore suggest that, phoneme awareness is particularly important for

the development to use letter-sound correspondences in learning to read and spell words.

d. Another important conclusion drawn from this study is that of the relevance of the Basic Skill Assessment Tool (BASAT) at grade three level. Originally, the BASAT was developed to assess reading and writing skills in the first and second grades. The study has however demonstrated that, the instrument can also be of great benefit to children in the third grade.

6.1. Recommendations

Based on the findings of this study, the following recommendations were made to the Ministry of Education in an effort to help improve the reading standards in the lower grades.

a. Considering the large proportion of grade three pupils experiencing difficulties at reading, a deliberate policy should be put in place to include in the school curriculum, assessment of reading skills in the first grade. This type of assessment will essentially serve two purposes; to initially identify pupils who appear to be at risk for difficulty in acquiring reading skills, and to regularly monitor the progress of children receiving reading instructions.

b. While acknowledging the rich literacy programmes in schools such as the New Break Through to Literacy (NBTL) at grade one level; Step Into English (SITE) at grade two level; and the Read On Course (ROC) at

grade three and subsequent grades, it is also important to realize that even with excellent and intensive instructions in place, some children will fail to make satisfactory progress in reading as documented by the current study. These children will therefore need a different instructional approach that will promote skills (such as alphabetic principle, phonological awareness and fluency) that are known to predict future reading achievement. There is also need to provide these children with an Individualised Educational Programme (IEP) if they are to make progress in reading hence, the need to reduce the teacher- pupil ratio in class.

c. Research has also demonstrated that the process of learning to read is a lengthy one that begins early in the child's life (Torgesen, Wagner and Roshotte, 1994). Based on this, it is highly recommended that children be provided with early childhood educational environments that foster language and literacy development. The Ministry of Education should therefore introduce pre-school classes in basic schools. This will help in reducing the number of children entering school with inadequate literacy skills and above all reducing the magnitude of reading problems that schools are currently facing.

d. Teachers play a critical role in promoting reading skills in children. Based on this, it is highly recommended that the New Primary Reading Programme (PRP) be introduced at pre-service teachers training college level in order to equip teachers with necessary knowledge and skills to teach emergent reading skills in children.

Suggestions for future research.

For further research in this area, it would be worthwhile to investigate the effectiveness of the New Primary Reading Programme (PRP) and the difference in performance between boys and girls.

For the Panga Munthu Test, it would be important to undertake a comparative study between rural and urban children. This will help explain the reasons for the differences by residence in this study as opposed to the earlier findings by Serpell (1974) where no significant difference by residence was found.

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APPENDIX A

SPELLING TEST.

1. **Cat**
2. **Pot**
3. **Dog**
4. **Fish**
5. **Tree**
6. **Chair**
7. **Dress**
8. **Shoes**
9. **Clean**
10. **Kitchen**
11. **Playing**
12. **Remember**

APPENDIX B

READING COMPREHENSION- PASSAGE STORY

The Dog and the Well.

Once there was a dog. His name was Luka. Luka was a brown dog. He lived in a big village. In the village was a well. It was a very big well. The people in the village fetched their water from the well.

The water in the well was clean. There was a river near the village but the water was very dirty. The people in the village did not fetch their water from the river. They did not want to drink dirty water. They fetched their water from the well.

One day, Luka wanted to drink some water. He went to the river. He looked at the water in the river. The water was very dirty. Luka did not want to drink it. He went to the well. He looked at the water in the well.

'Look at the water in the well,' he said. 'This water is clean. I want to drink clean water. I do not want to drink dirty water. I want to drink the clean water in the well. What can I do? How do I get clean water in the well?"

QUESTIONS

1. What colour was Luka?
2. Where did he live?
3. Where did people in village fetch their water?
4. Why didn't Luka want to drink the water in the river?
5. Where did Luka go?

APPENDIX C

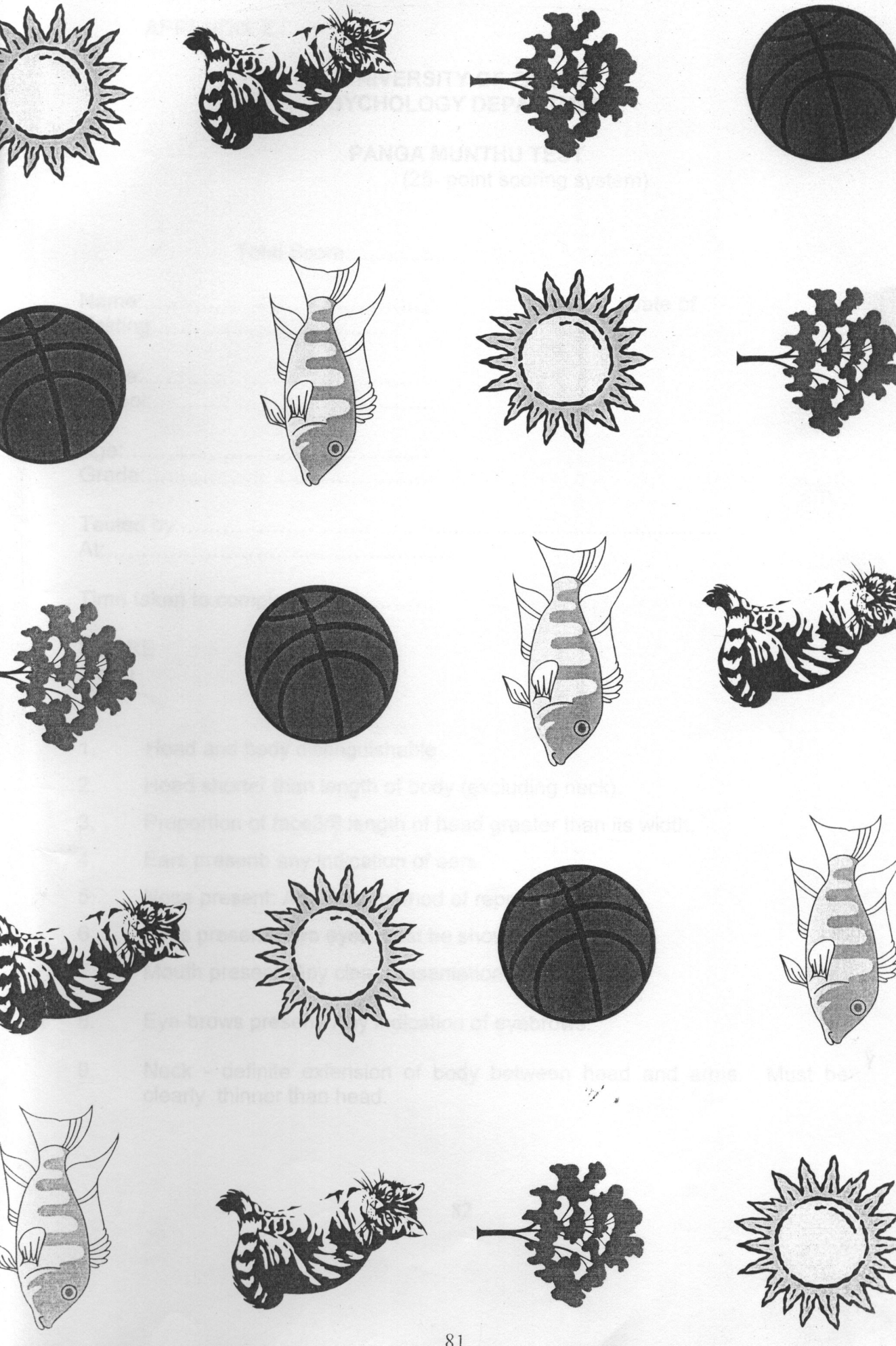
SERIAL RAPID NAMING – NUMBERS

5 1 3 4 2 5 2 1 4 3

2 3 5 2 4 1 1 3 5 4

APPENDIX D

SERIAL RAPID NAMING- OBJECTS



APPENDIX E

UNIVERSITY OF ZAMBIA
PSYCHOLOGY DEPARTMENT

PANGA MUNTHU TEST
(25- point scoring system)

Total Score: .....

Name:..... Date of Testing.....

Home:.....
School:.....

Age:.....
Grade:.....

Tested by:.....
At:.....

Time taken to complete:.....

SCORE
1 or 0

1. Head and body distinguishable..
2. Head shorter than length of body (excluding neck).
3. Proportion of face3/8 length of head greater than its width.
4. Ears present: any indication of ears.
5. Nose present: Any dear method of representation.
6. Eyes present: Two eyes must be shown.
7. Mouth present: Any clear presentation.
8. Eye-brows present: Any indication of eyebrows.
9. Neck - definite extension of body between head and arms. Must be clearly thinner than head.

10. Proportion of trunk - length of trunk must be greater than breadth.
11. Umbilicus: any clear presentation.

12. Arms. Two arms at opposite side of the body.

13. Proportion of arms -arms at least equal to the trunk in length. Tips of hands extended to the middle of hip but not to knee.

14. Shoulders: definite angle below neck where arms join trunk.

15. Elbows, second definite angle in arms

16. Hands: either 3rd definite angle in arms, or some shaping to differentiate hands from forearms.

17. Fingers present: Any indication of fingers.

18. Two legs - at opposite end of body from head.

19. Proportion of legs: length of the legs not less than vertical measurement of trunk nor greater than twice the measurement.

20. Knees.. definite angle in legs.

21. Feet: definite angle in legs, in opposite direction from knee angle.

22. Proportion of feet: the length of the foot must not be greater than its height from knee angle.

23. Toes present: Any clear presentation of toes.

24. Any extra items or details

.....

.....

.....

.....

APPENDIX F

BASIC SKILLS ASSESSMENT TOOL (BASAT)
Reading and Writing Skills – Grades 1 and 2

Name:_____

School:_____

Grade:_____

Teacher: _____

	Year	Month	Day
Date			
Date of birth			
Age			

Examiner: _____ Province:_____ District:_____

Sex: Female Male Time begun_____ Time ended_____

1. Has the child got any of the following impairments? Tick where appropriate	
a. Physical impairment	
b. Visual impairment	
c. Hearing impairment	
d. Intellectual disabilities	
e. Speech/language impairment	

3. Summary of the BASAT (Fill in this table after completing the assessment)	
Area	Score and Skill Level
A. Letter knowledge	
B. Letter-sound knowledge	
C. Phonological tasks: 1.Syllable segmentation	
2. Initial Sound Identification	
3. End Sound Identification	
4. Sound blending	
D. Reading	
E. Writing	
F. Reading comprehension	
G. Digit Span	

A. Letter knowledge Indicate and count the letters the child knows and estimate the average number of letters the child knows which means that the child can write, name and identify them. Indicate the letters the child knows here		Average Number of Letters Known
1. Writes letters.		
2. Names letters.		
3. Identifies letters.		

B. Letter-sound knowledge Indicate and count the letter-sound relations the child knows and estimate the average number of letter-sound relations the child knows which means that the child can relate the letters to the sound and the sound to the letter Indicate Letter-sound relations here		Average Number of Letter-Sound-Relations Known
1. Relates letters to letter sounds.		
2. Relates letter sounds to letters.		

C. Phonological tasks:
For each item in section C, mark "1" if the child answers the item correctly otherwise mark "0". Calculate the total score for each section!

C1. Segments words into syllables: (e.g. un-der, re-mem-ber):

		Score
a. Teacher (teach-er)	c. September (sep-tem-ber)	
b. Answer (an-swer)	d. Everyone (eve-ry-one)	
TOTAL SCORE: SYLLABLE SEGMENTATION (max.4)		

C2. Discriminates initial sounds in Words:	Score	**C3. Discriminates ending sounds in words:**	Score
a. **a**pple		a. do**g**	
b. **i**mpala		b. pe**n**	
c. **e**ggs		c. to**m**	
d. **u**se		d. ha**t**	
e. **o**range		e. cu**p**	
f. **s**un		f. bu**s**	
g. **b**ox		g. wor**k**	
h. **m**oney		h. re**d**	
i. **p**ipe		i. mu**ch**	
j. **c**at		j. li**fe**	
TOTAL SCORE: INITIAL SOUNI DISCRIMINATION (max.1C		TOTAL SCORE: END SOUNI DISCRIMINATION (max.1C	

C4. Blends sounds into words:		Score
a. p /o/ t (pot)	d. s /i/ t (sit)	
b. d /i/ g (dig)	e. m /u/ d (mud)	
c. r /a/ t (rat)		

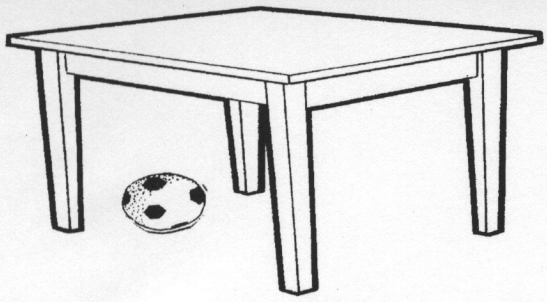
Use additional paper if needed!

D. Reading: For each item mark "2" if the child reads the item perfectly and "1" if the child commits only one minor error, otherwise mark "0". Calculate the total score for the whole reading section!			
	Score		Score
1. Recognises own name.			
2. Combines two letters/sounds/both into a syllable or word:		3. Reads 1-syllable words:	
a. an		a. sit	
b. so		b. run	
c. at		c. old	
d. be		d. spoon	
4. Reads 2-syllable words:		5. Reads 3-syllable words:	
a. water		a. elephant	
b. pencil		b. holiday	
c. yellow		c. happiness	
d. football		d. yesterday	
6. Reads sentences:			
a. Musa and Maria are going to school.			
b. Musa is wearing a blue shirt.			
TOTAL SCORE READING SECTION (max.38)			

E. Digit Span (Working memory): For each item (a and b) Mark "1" if the child remembers the digit sequence correctly otherwise mark "0".Calculate the total score !		Score
1. Remembers two numbers in sequence:	a. 4-3	
	b. 1-5	
1. Remembers three numbers in sequence:	a. 5-6-4	
:	b. 3-1-5	
3. Remembers four numbers in sequence:	a. 4-1-6-2	
	b. 3-6-5-1	
4. Remembers five numbers in sequence:	a. 5-6-3-1-4	
	b. 2-1-4-6-3	
5. Remembers six numbers in sequence:	a. 7-3-5-1-6-2	
	b. 1-5-2-7-4-3	
6. Remembers seven numbers in sequence:	a. 5-8-3-6-1-7-2	
	b. 3-5-2-8-7-1-6	
	TOTAL SCORE DIGIT SPAN (max.12)	

F. Reading Comprehension:

Tick the child's response for each item and calculate the number of items correctly understood !



a. The ball is on the table.

b. The ball is under the table.

c. The ball is under the car.

a. He is standing.

b. He is walking.

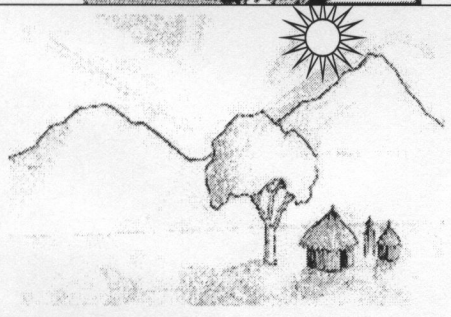
c. He is sleeping.

1.

a. She is drawing a chair.

b. She is drawing a bed.

c. She is making a drum.



a. The sun is not shining.

b. The sun is shining.

c. The moon is shining.

Number of Reading Comprehension items understood correctly (max.4) ☐