

## **CHAPTER ONE**

### **INTRODUCTION**

This chapter outlines the background to this study. The chapter further presents the statement of the problem, purpose of the study, research objectives, research questions, and significance of the study and definition of key terms used in the study.

#### **1.1: Background to the Study.**

Persons with visual impairments are individuals whose sight is reduced or they are completely not able to see. People with visual impairments do encounter a number of limitations. Due to lack of sight, a person with visual impairments finds it difficult to acquire education. Education or learning in school basically requires that one is able to read and write. A learner with visual impairments cannot use the common and ordinary print in order to acquire knowledge through reading.

During the eighteenth century, a blind person by the name of Louis Braille discovered a method of reading and writing. This form of writing was called Braille, and, it received international recognition in 1932. It became the accepted method of reading for individuals with visual impairments. Braille means raised dots which are embossed on a thick paper by a machine called hand frame or Braille typewriter. The two (left and right) index fingers are used to feel the raised dots which are arranged in a specific manner. The different forms of the dots give meaning of them and culminate into letters, syllables and words.

As a result of the discovery by Louis Braille, individuals with visual impairments depend on Braille to read texts. Braille, therefore replaces ink print which sighted individuals use to communicate with teachers at school. Using Braille, a learner with visual impairments can also acquire education at school. To this effect, in order for a blind child to learn, many educational adaptations have to be made. One of the main adaptations for learners with visual impairments is the ability to learn how to read Braille using finger tips.

In Zambia, children with visual impairments are expected to acquire education like their sighted peers. They attend school in special residential learning institutions for the blind or special units in integrated schools. Learners with visual impairments follow the general

curriculum which is also followed by ordinary learners. Special education teachers adapt the curriculum to the needs of the learners with visual impairments. In this case, the greatest adaptation for these learners is the teaching of 'Braille'.

The Zambian school structure is divided into four different stages as designed by the Ministry of Education (1996). Grades one to seven comprise primary school or lower and middle basic school. Grades eight and nine comprise the upper basic school. Grades ten to twelve comprise high school after which, depending on how the learners performed in their grade twelve examinations, they go to various colleges and universities at tertiary level. In the Zambian school structure, between grade one and four, a child learns how to read. From grades five to seven, the child is expected to demonstrate mastery of reading. Like any other learner, it is expected that by grade five, a learner with visual impairments would be able to read in order to learn and not learning to read. However, it must be mentioned that Braille reading and writing is peculiar. When writing Braille, a common instrument called a "hand frame" is used. It has cells with six dots. The six dots are arranged as follows: three dots high and two dots wide. A special heavy thick paper is placed in between the hand frame. The paper is then clamped. Using a stylus to emboss the dots, writing is done from the right to the left while reading is done from the left to the right. This creates confusion for some Braille readers. The American Foundation of the Blind (AFB) (2010) indicated that the Braille writing and reading confusion makes many Braille readers to get mixed up. It may be said therefore that Braille is a complicated form of reading and writing. The American National Federation of the Blind (ANFB), (2009) estimated that one cell made up of six dots can produce sixty-three different combinations. Some of the combinations are very similar to each other and they create further confusion for some Braille readers. Apart from a hand frame, a special Braille typewriter can also be used to emboss the Braille. With a Braille typewriter, the fastest Braille writer can emboss about two hundred words per minute.

In reading Braille, a reader with visual impairments uses his/her left and right index fingers to read Braille. The fingers feel the dots and interpret the dots into letters, syllables and words. The interpretation of the said dots depends on the position, shape, space and distance between one dot and another (ANFB, 2010). While the right index finger does the duty of feeling and interpreting the various dots and letters, the left index finger follows the right finger a bit and change lines quickly before the right index finger switches to the next line. This helps a

visually impaired reader to read with fewer stoppages and follow lines at a constant speed. The ANFB (2010) estimated that a fast Braille reader can read between two hundred and two hundred and forty words per minute. This is about two or three times slower than the speed of an average sighted reader. Slow reading of any text can affect an individual's ability to understand the text or the comprehension of the facts.

There are many other factors that make Braille reading complicated or sophisticated. For instance, when reading a single dot on top of a cell, it stands for the letter 'a'. The same single dot when placed in the middle of a cell at the end of a word; represents a punctuation mark 'comma'. Yet, the same single dot at the bottom of the cell but in between a word, it would mean a punctuation mark 'apostrophe'. Moreover, Braille uses a lot of abbreviations. These abbreviations are called contractions. Contractions are intended to reduce the voluminous nature of Braille. For instance, a word like 'question' (a seven letter word) would be contracted by dot-5 in one cell, and 'q' in the next cell. So, the word 'question' is reduced into two cells of the hand frame. Through this method, a lot of space is reserved for other words.

## **1.2: Statement of the Problem,**

Many studies have been conducted on reading difficulties experienced by sighted learners (Chall, 2009; Matafwali, 2005; Smith and Sensenbaugh, 1999; Sally et-al 2010). However, there is a striking absence of attention paid to reading difficulties that would exist among readers with visual impairments in Zambia. The reading difficulties found among print readers may not be exactly the same as those experienced by readers with visual impairments. In fact, because of the different combinations of dots in order to form Braille, Braille becomes a more sophisticated form of reading and writing which may present a number of challenges to the reader or writer. Due to these likely challenges, there was need to determine the nature, prevalence, causes and methods used by teachers to correct the reading difficulties which learners with visual impairments at middle basic school would be experiencing.

### **1.3: Purpose of the Study.**

The aim of this research was to investigate the nature, prevalence and causes of reading difficulties among middle basic school learners with visual impairments.

### **1.4: Objectives of the Study.**

This study was guided by the following objectives:

- i) To identify the nature of reading difficulties experienced by learners with visual impairments at middle basic school.
- ii) To determine the prevalence of reading difficulties among learners with visual impairments at middle basic school.
- iii) To find out the causes of reading difficulties among learners with visual impairments at middle basic school.
- iv) To establish methods of teaching used by teachers to correct reading difficulties among learners with visual impairments at middle basic school.

### **1.5: Research Questions.**

The following questions guided the study;

- i) What was the nature of reading difficulties exhibited by learners with visual impairments at middle basic school?
- ii) How prevalent were reading difficulties among basic school learners with visual impairments at middle basic school?
- iii) What were the causes of reading difficulties among learners with visual impairments at middle basic school?
- iv) What methods did basic school teachers use to correct reading difficulties which learners with visual impairments experienced at middle basic school?

## **1.6: Significance of the Study.**

The results of this study may help the Ministry of education (MOE) to understand the reading difficulties that learners with visual impairments have. MOE may consequently use the results of this study to prepare and provide learning materials appropriate to learners with visual impairments. It is also hoped that the Curriculum Development Centre (CDC) may also benefit from the results of this study. As an institution entrusted with the task of providing curriculum guidance to the Ministry of Education and preparation of teaching materials, the study may assist the institution to design acceptable reading materials for learners with visual impairments. The department may also use the study results of this research to advise all affected stakeholders on how to train learners with visual impairments on reading skills.

In the case of the Examination Council of Zambia, this study may help the institution develop acceptable Braille examination materials for pupils. Furthermore, the institution may also use the information from this study to provide the best quality of Braille paper which would be user friendly to learners with visual impairments. Similarly, it is expected that teacher education colleges may use these research findings to design methods of training special education teachers to better teach reading and writing skills to learners with visual impairments in the acquisition of reading skills.

The knowledge about Braille reading difficulties may provoke teachers to refocus their teaching methodologies in order to assist learners with such difficulties. Additionally, the findings of this research may also encourage teachers to use initiative to provide materials that would improve on the reading abilities of their pupils.

Learners with visual impairments may also benefit from this study. For Example, it is hoped that learners may use the information to understand the types and causes of reading difficulties. Such information may assist the learners to avoid certain habits or practices that may affect their reading abilities.

### **1.7: Limitations of the Study.**

Due to inadequate time and resources, only two out of six residential schools for the blind, were sampled. The six special schools for learners with visual impairments are scattered across Zambia. This means that the learning experiences of learners with visual impairments in the different regions may not be the same. The different learning environments and different learning experiences could have provided additional information. This was not possible. Therefore, the results of this study may not be generalized to all schools. In addition, the distances from one school to another made it difficult for the researcher to cover more schools.

### **1.8: Definition of Key Terms;**

The following key terms were used in the study;

**Blindness:** -----total loss of sight or inability to see.

**Braille:** -----an alternative form of reading and writing used by individuals with visual impairments. It has raised dots on a piece of paper and fingers are used to feel the dots in order to interpret the letters and words.

**Contractions:** -----abbreviations used in Braille intended to reduce on the space occupied by words written in full.

**Dyslexia:** ---- a pronounced neurological dysfunction affecting reading abilities.

**Integrated School:** ---- a learning institution which comprises learners with disabilities and able bodied learners.

**Learning disabilities:** -----the various factors that impede the easy acquisition of knowledge.

**Low vision:** -----reduced eye-sight.

**Middle basic school:** -----a level of learning or education in the education hierarchy which includes learners from the fifth grade to the seventh grade.

**Nature of reading difficulties:** -----the different and specific types of reading problems found among sighted individuals or persons with visual impairments.

**Prevalence of reading difficulties:** -----the numbers of people that have the reading difficulties.

**Reading difficulties:** -----the various challenges that individuals have in interpreting written materials whether in Braille or ink.

**Visual acuity:** -----the distance between an individual and an object which is in direct focus of sight and it is measured in meters or feet.

**Visual field:** -----the peripheral vision or sight on the sides whose diameter is measured in degrees.

**Visual impairment:** -----total or partial loss of sight.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

This chapter explores relevant literature on the nature, prevalence and causes of reading difficulties among middle basic school learners with visual impairments. Research findings and conclusions made by other researchers on reading difficulties among learners with visual impairments are presented according to the following themes: nature of reading difficulties; prevalence of reading difficulties; causes of reading difficulties; and methods used by teachers to correct reading difficulties.

#### **2.1 The Nature of Reading Difficulties among Learners with Visual Impairments.**

Reading difficulties vary. They vary in terms of severity, nature and type. Artter (1998), Evans (2008) and Sally et-al (2010) have shown that there are five types of reading difficulties. These types of reading difficulties include visual stress reading difficulties, tactile reading challenges, phonological reading problems, phonemic reading difficulties and poor instructional reading challenges. Each of these reading difficulties may manifest themselves differently in specific individuals at different levels of severity.

Evans (2008) a renowned researcher and professor in vision and dyslexia revealed that one category of reading difficulties was related to visual perception. These visual perception reading difficulties were referred to as 'visual stresses. Arlington (2009) argued that people with visual perception difficulties can sometimes be mistakenly considered to be dyslexic until a thorough diagnosis is done. Visual stress reading difficulties affects the way the nervous system encodes and decodes visual information. Academic and work performance, behavior, attention, ability to sit still and concentrate, can be affected. Individuals with this problem see the printed page differently, although they may not realize that they do.

Wagner (1973) indicated that having visual perception or visual stress keeps many people from reading effectively and efficiently. For instance, such people may not see text clearly. The contrast between black texts on a white background makes the letters appear jumbled, animated or blurred. The classic symptoms in visual stress include: words moving around the page, blurred words, too bright a page so that one cannot see the words clearly, reading



avoidance, skipping lines or words, loses place easily, difficulty understanding or copying text and poor distance judgment

The visual reading difficulties which have been explained above cannot exist among learners with visual impairments because they do not depend on sight to read. Instead, the readers with visual impairments use fingers to read. Therefore, the problems might have been tactile in nature. Researches conducted in Britain by Artter (1998) revealed a number of tactile perceptual difficulties experienced by readers with visual impairments. When a sighted individual is reading, one focuses his-her eyes on the stimulus. The eye transmits the graphs or printed shapes to the brain. Subsequently, the brain interprets the different shapes into letters and words. Susan (2009) explained that like eyes, finger tips have sensitive nerves at the tip. With training, the finger tip transmits whatever it could be feeling on some surface to the brain. The brain interprets the touchable materials. Like eyes, finger tips can transmit the dotted touchable and fellable dots on a piece of paper and the brain interprets the dots into letters and words. Due to the fact that, learners with visual impairments use fingers to read, they may have a problem of poor finger perception. The finger tips may have difficulties perceiving or detecting the dots in their correct positions, distances or shapes. Because of the finger tip perceptual difficulties, an individual with visual impairments may confuse letters and words or sometimes skip lines and words. For Braille readers, left-right hand dominance is also important. The right finger always goes before the left finger to detect letters. For this reason, if a Braille reader had a challenge with hand dominance; he-she may be reading using one finger only. Reading using one finger would make it difficult to detect letters on a Braille paper (Artter, 1998).

The ANFB (2010) stated that for one to read Braille effectively, the right index finger tip should be more sensitive in order to pass on the details of information to the brain for interpretation. In this case, the duty of the left index finger tip is to help in leading the right finger to the next line. Individuals with left hand dominance may possibly present difficulties in this area because if the left finger is used for reading, then, it will be difficult to locate the next line. Certainly, this may not be the case for sighted readers. Whether with one eye or both, the eyes are able to discriminate lines and shift from one word to the next and move from one line to another without establishing the special task of the left eye or the right eye.

Stephens and Paterson (1996) observed that there were two millimeters (mm), between one dot and the next nearest dot in Braille. This gap between the dots is quite small for some finger tips. For accurate Braille reading therefore, the right finger tip should at least cover a letter or two in order to quickly interpret the information. All these aspects are possible forms of reading difficulties for the blind. For this reason, Susan (2009) pointed out that if a finger is too small to cover the required space and perceive the dots accurately which are a stimulus, it is possible to read wrongly. Stephens and Paterson (1996) explained that the tactile acuity and sensitivity of a finger tip therefore ought to be very high in order for any person with visual impairment to read. From the above analysis, it is therefore possible that when Braille is very faint, confusing due to contractions or lack of adequate sensitivity on the right index finger tip, one can have perceptual problems. These tactile perceptions can lead to reading difficulties for an individual with visual impairments. Artter (1998) concluded that individuals with visual impairments whose tactile perception is poor would confuse letters in Braille such as d and f, h and j, e and i. The letters cited here are dotted as opposites of each other.

From the texts and studies presented and analyzed above, it is evident that persons with visual impairments do experience tactile challenges. Nevertheless, all the literature reviewed and studies presented were done in western countries. Since the teaching of persons with visual impairments began at Magwero in 1905 (Kalabula: 2000), no study has ever been conducted in Zambia to establish tactile challenges experienced by learners with visual impairments. This has severe negative implication on the education of persons with visual impairments. It is not known whether the Zambian learners with visual impairments do experience similar nature of difficulties or probably their challenges are different.

Other forms of reading problems are phonological and phonemic in nature. Phonological awareness refers to the sound production. Wong (1995) described phonemic awareness as being able to identify the smallest unit of sounds in speech. Adam et-al (1998) and Research in Reading (2010) stated that phonemic awareness is a subset of phonological awareness in which listeners are able to hear, identify and manipulate phonemes which can differentiate meaning. Byrne and Fielding-Barnsley, (1991) and Cats et-al (1989) in Matafwali (2005: 2) explained that “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. It also refers to the individual’s ability to manipulate phonemes either by segmenting, blending,

deleting, adding or substituting syllables”. In the case of phonemes, one would require separating the spoken word. For instance, the word “cat” may be separated into three distinct phonemes, /k/, /æ/, and /t/. Additionally, Phonemic Awareness overlaps and is often confused with phonological awareness. Phonological awareness is ability to distinguish distinct sounds. Children without phonological understanding might not have learned to hear the difference between ‘three’ or ‘free’, ‘lice’ or ‘rice’, ‘meat’ or ‘neat’. Similarly, Adam et al (1998) argued that because some people have problems with either phonological or phonemic awareness, they may have difficulties with retrieval of correct sounds from the human in-built sounds’ dictionary. Example, such individuals may have a specific item that they would like to mention. But, they may confuse the production of sounds. For instance, instead of saying, ‘confession’, they may say ‘concession’. Therefore, phonological awareness is a very important prereading skill which also must be learned and practiced. On the other hand, phonemic awareness is needed because it can help determine the intelligence quotient (IQ) of a learner, vocabulary and listening comprehension and how well a child will learn to read (Sensenbaugh, 1999). Phonemic awareness is needed not only for reading but spelling and writing also. If a child has complete phonemic awareness, he would not only be able to read words they have seen before, but also they should be able to spell correctly without memorizing. Writing is another benefit of phonemic awareness; children should be able to express their thoughts using phonemic awareness even if he has never seen the word in print before. This can give a child a great satisfaction and higher self-esteem. The problems of phonological and phonemic awareness affect both ink-print and Braille readers. The Research in Reading (2010) has found that phonemic awareness improves children's word reading and reading comprehension, as well as helping children learn to spell.

The knowledge on phonemes helps learners to relate sounds and graphic symbols on a piece of paper and identify syllables and words. Adam et al (1998) argued that word awareness is the knowledge that words have meaning. Students with word awareness can discriminate individual words in a passage read to them. Beginning readers must have this skill before they can extract meaning from what they read. For example, a learner needs to know that the spoken word dog represents a creature that has four legs and barks before he or she can understand what is meant by the printed word dog.

In summary, people with phonological and phonemic difficulties would display encoding and decoding difficulties. In fact, such individuals may have difficulties with pronunciations, spelling, and retrieval of information from memory, information retention challenges and comprehension problems. Mioduser and Lahav (1999) evidently show that any learner, whether, sighted or visually impaired can have phonemic and phonological difficulties. However, no study has ever been conducted in Zambia to show that learners with visual impairments do experience reading difficulties as a result of phonological and phonemic difficulties. Matafwali (2005) demonstrated that a number of lower primary school learners portrayed phonological and phonemic problems when reading texts. The study under review was conducted in the Zambian context but among sighted learners whose disabilities were not conspicuous. It was therefore inevitable to find out whether these challenges did exist among learners with visual impairments and explain on how they influence the reading abilities of learners with visual impairments.

Some learners display reading difficulties purely because of instructional inadequacies by teachers. Hails (2000) pointed out that there were some pupils whose visual abilities were good, their phonology and phonemic abilities were equally good. However, whenever they were given materials to read, they clearly demonstrated reading difficulties. This indicates that a teacher plays a major role in the developing of good reading abilities in learners. It would therefore be argued that because of poor instructions, a learner may imitate poor pronunciation of words, poor reading mannerisms, inability to read fluently and so on.

## **2.2: Prevalence of Reading Difficulties among learners with Visual Impairments.**

As already alluded to in the section above, reading problems are diverse in nature and form. Their manifestations would not be the same everywhere depending on a number of factors. Research by Kenyon (2003: 6) has revealed that normally a middle basic school learner should be able to read at least ten million words in a particular school year. On the other hand, Lyon (2010: 1) contends that children with reading difficulties read less than one hundred thousand words during the same period. In fact, this longitudinal study found out that there were an extraordinary and unacceptable number of children with reading difficulties. The National Center for Educational Statistics (1998), found that on average, 38% of fourth graders nationally could not read at a basic level – that is, they could not read and understand a short paragraph similar to that in a children’s book. Additionally, Wong

(1995) indicated that at a global level, the prevalence of reading difficulties had been estimated at 2 to 5% in school going children. Unfortunately, reading failure is disproportionately prevalent among children living in poverty. In many low-income urban school districts the percentage of students in the fourth grade who cannot read at basic level approached 70%: (Kenyon, 2003). The educational and public health consequences of this level of reading failure were dire. Of the 10 to 15% of children who would eventually drop out of school, more than 75% reported difficulties in learning to read. Likewise, only two percent of students receiving special or compensatory education for difficulties in learning to read will complete a four-year college program. Despite this rich information on studies in western countries that were intended to establish the number of learners that would fail to complete school because of reading difficulties, in Zambia, the Ministry of Education has never undertaken a deliberate study to verify the studies conducted elsewhere on similar issues especially on learners with visual impairments. However, the Zambia Agency for Persons with Disabilities (ZAPD) (2009) estimated that out of five learners with disabilities, only two of them would reach the twelfth grade. This would represent a progression rate of only about 40%. Nevertheless, ZAPD (2009) did not segment the factors that could have led to such a low progression rate among learners with disabilities. Since reading skills are important for any individual to progress from one grade to another, it is possible that it would play a major role in the reduction of learners with disabilities completing their general education. Failure to learn to read places children's futures and lives at risk for highly deleterious outcomes. For this reason, Lyon (2010) considers reading failure to reflect a national public health problem.

To illustrate the assertions above, Gross (1995) reported that the findings from the study that was conducted in the U.K., among English speaking children, it was revealed, that of the grade two and grade 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 unable to read. The English speaking children in the U.K. are well exposed to literature and they are born in an environment supportive of all reading abilities. Therefore, such research findings ought to be a source of concern, especially, in third world countries where reading training and facilities would be scarce or non-existent. Example, Nkamba and Kanyika (1998) in Daka (2010) stated that the study by the southern Africa consortium for monitoring educational quality (SACMEQ) reported very low levels of reading achievement for grade six pupils in Namibia, Zimbabwe, Mauritius and Zambia. In Zambia for instance,

51.1% of boys and girls who participated in the SACMEQ research demonstrated reading abilities below the minimum levels. The under review concentrated on sighted learners. The study did not include learners with visual impairments. This implies that despite the results being published, a section of learners were not assessed hence living a serious knowledge gap for learners with disabilities.

Mioduser and Lahav (1999) explained that there were pupils whose visual ineffectiveness would disadvantage their reading abilities. According to Evans (1998), 11% of people with reading difficulties had the reading challenges which were caused by visual stress. Such people would have difficulties in word recognition, skipping words and lines, confusing letters and seeing words bleared.

Similarly, in the case of learners with visual impairments, Artter (1998) observed that 10% of the blind pupils demonstrated word recognition difficulties, skipping lines, and word or letter confusion. The said children also had difficulties in hand dominance. The findings by Artter (1998) seem to indicate that the difference between tactile reading difficulties and visual stress reading difficulties are negligible, Evans (2008). These findings confirm the assertions by Susan (2009) who argued that 90% of good Braille readers have very sensitive finger tip nerve cells. This means poorly developed finger tips or poor or faint Braille would lead to problems in transmitting information through the finger tip hence the tactile stress or tactile reading difficulties.

Wong (1995) and Evans (2008) pointed out that pronunciation difficulties, confusing spellings, and difficulties in recalling letters, attention problems and difficulties in understanding texts were of phonological in nature. These difficulties would heavily be neurological and those experiencing the said conditions may have little or no control over their difficulties. Kenyon (2003: 4) stated, "...generally, 80% of people with learning disabilities are learners with various reading difficulties". The reading difficulties referred to here are as a result of so many factors. According to Kenyon (2003) 20% of the underscored reading problems emanate from phonological and phonemic challenges.

In order to illustrate the above information, in a research conducted in Sweden by Idor et-al (2010) on phonological related aspects, it was observed that 60% of immigrants studying Swedish had difficulties in word recognition and pronunciation. The revelations of the said research should be viewed as more realistic. Learning how to read a new language may not be easy. There are many reading difficulties that could emanate from mother tongue influence or failure to adapt to the new language. Some of the reading difficulties which would manifest as a result of language influence are pronunciations, spelling confusions and difficulties in understanding passages. The findings by Idor et-al (2010) in Sweden cannot be dismissed in Zambia. Zambia is basically a Bantu speaking country. Children learn English as a second language. It would therefore be expected that many learners would experience similar difficulties as presented here. In order to explain the underlying factors for phonological reading difficulties, Chomsky in Wrench (2008) pointed out that when a child is born, there is an inert language learning device or commonly referred to as the Language Acquisition Device (LAD). Any child therefore will easily learn the language that is spoken within the environment. The first language which is spoken the first five years would have a greater impact on the child than any other language learnt later. In a similar study, researches by the Ministry of Education in Zambia through the National Reading Committee (1997) on investigating reading difficulties among primary school learners indicated that about 60% of grade seven leavers in the country had not developed good reading abilities. The major underlying factor for the poor reading skills among the Zambia primary readers was mother tongue influence which should have been as a result of poorly developed phonological and phonemic awareness in English.

According to a research conducted by Matafwali (2005) on grade three Zambian learners in phonological competences, it was observed that the majority of the learners had problems with the pronunciations of certain words and frequently mixed up spellings of certain words. Some of the words that were frequently confused in spelling and pronunciation by learners included words such as; 'bress for dress' or 'rimemba for remember'. These researches connote a significant and unavoidable phonological problem experienced by the majority of Zambians. These research findings explain why people who learn how to read texts in a second language would have difficulties with pronunciations, retrieval of words, word recognition and poor spelling abilities.

Wong (1995) admitted that the English phonemes were more complicated than most of the African languages. According to Wong (1995), more than 20% of the reading difficulties experienced by non-English speakers are related to phonemic difficulties. For instance, in most of the Zambian ethnic languages, the syllable creation and spelling follow a certain pattern which is predictable. Any child simply needs to know the rules of the syllable combination. English does not behave the same. Some words are not written the way the sound. Lerner (1993) also admitted that there were many words in English that sound very different from the way they are written or read on a piece of paper: example 'gnash'. A Bantu speaker would be tempted to pronounce the said word as 'g-nash'. As a result of difficulties in predicting sounds and spellings in English, Wong (1995) indicated that 20% of learners with reading difficulties demonstrate phonological difficulties as a result of challenges in spellings. Mouser and Lahav (1999) postulated that the acquisition process of correct spelling by children with visual impairment is affected by factors which can be referred to as cognitive consequences of their physical impairment. Ehri (1980) in Mioduser and Lahav (1999) suggests that a word stored in the long-term memory holds a number of identities, which includes acoustic, visual, syntactic, semantic, contextual, and kinesthetic.

Since visual information plays a central role in the consolidation of linguistic identity, the lessened performance of the visual channel affects negatively the construction process of the syntactical properties of the stored word and consequently, the stored word's value as referential model for correct spelling. And whatever the visual channel gets in incomplete or unclear form, the mind completes by using additional external and internal information. This information confirms that assertion by the Roman Catholic Encyclopedia (2010) which states that a person with visual impairments is 80% more disadvantaged than his peers. The explanation above entails that a child with visual impairments would have a lot of difficulties in spellings. A blind child would be denied visual cues to help complete the spelling of a particular word. Contrary to a sighted friend, a learner with visual impairments will greatly rely on what he heard as being the correct spelling of a particular word. A sighted learner will hear, read and watch that word being presented in many alternative forms. The different presentation of the same word will subsequently strengthen the retrieval chances of that word by a sighted learner.



The ANFB (2009) highlighted that sometimes pupils fail to read effectively because of the 'teacher factor'. Some teachers use poor teaching methods when training their learners to read and write. For instance, lack of individualized teaching approach and failure to develop good relationships with pupils. Susan (2009) a seasoned Braille teacher indicated that 10% of those learning to read are spoiled by the teachers.

In summary, it is evident from the information above that the highest forms of reading difficulties are as a result of visual stress which translate into tactile reading difficulties among learners with visual impairments.

### **2.3: Causes of Reading Difficulties among Learners with Visual Impairments.**

Reading difficulties are numerous and broad. They entail problems or challenges that individuals have in reading. The reading difficulties do not refer to a specific type or nature of reading problem. The causes of reading difficulties are also numerous. Whitehurst (2008) postulated that learning to read is a complex task. It requires coordination of the eye muscles to follow a line of print, spatial orientation to interpret letters and words, visual memory to retain the meaning of letters and sight words, sequencing ability, a grasp of sentence structure and grammar, and the ability to categorize and analyze. In addition, the brain must integrate visual cues with memory and associate them with specific sounds. The sounds must then be associated with specific meanings. Except for the issue of sight, all the complex activities that happen during reading, they need also to be done among persons with visual impairments. Fingers have to transmit information to the brain and pass through all the other brain functions in order for an interpretation to be made. Reading difficulties do occur when any of these processes are disrupted. For that reason, The American psychiatric association (2000) argued that the roots of reading difficulties have proved difficult to isolate, and may be different in different individuals.

Despite the complexity of reading difficulties, the American Psychiatric Association (2000) reported that researchers have found that the condition is at least partially inherited. For instance, Hales (2000) presented that in 1999, the Centre for Reading Research in Norway studied a large family with reading problems. By evaluating the reading and writing abilities

of about 80 family members across four generations, the researchers were able to pinpoint mutations in specific genes that are associated with reading and writing deficits. These researches were concentrating on visual reading abilities. Inheritance implies that specific genes from the parents are passed on to the off-spring. If the genes are deformed and they are passed on to the offspring, the child will behave according to the genetical information received. In this case, it is difficult to admit that reading difficulties found among the parents would be passed on to a child with visual impairments who is using fingers and not eyes to read.

The majority of individuals with visual impairments did not inherit the disability and hence they could not have inherited the reading difficulties. Nevertheless, Wong (1995) and Lerner (1993) admitted that phonological and phonemic difficulties when reading would be largely due to inheritance. Phonology and phonemes are genetically built in the human brain. Hails (2000) explained that the ability to generate and pronounce words through speech is a neurological function. According to mutati (2010) most vision loss is a result of eyeball complexities. It has nothing to do with the brain. It would therefore be concluded that it is highly possible for individuals with visual impairments to manifest phonological and phonemic reading difficulties which are inherited and not vision related reading difficulties. If the reading difficulties are therefore as a result of inheritance, it would only be accepted if the parents or family members had tactile difficulties.

Sadock et-al (2000) stated that it appeared that reading difficulties may also have other causes other than genetic inheritance, as about half the people with these reading difficulties do not come from families with a history of the problem. Many theories suggested that functional problems in specific areas of the brain influence reading difficulties. Given the complicated demands on the human nervous system involved in reading, it is entirely possible that there are several different problems in brain function related to difficulty in learning to read. To exemplify this, Sally et-al (2010) recorded that in one experiment, scientists presented a group of dyslexics and people who read easily with an increasingly difficult series of reading tasks. The researchers used brain-imaging equipment to monitor the level of activity (as indicated by the flow of oxygenated blood) in each subject's brain during the tasks. In proficient readers, as the tasks grew more difficult, new regions of the brain were recruited. This recruitment traveled generally from the rear of the brain toward the front. In contrast, activity in poor readers occurred less in rear portions of the brain and much more in front

portions of the brain than in proficient readers. This research revealed that proficient readers can use extra resources to assist them read difficult tasks. Those with neurological challenges were not able to use the remaining resources. Such readers would be considered dyslexic.

Apart from the above, what is known is that 90% of children diagnosed with reading difficulties have other language deficits, (Sadock, 2000). The first language related reading problem cited by Sadock (2000) is difficulties in decoding what has been read or heard. According to Evans (2008) decoding is the process by which a word is broken into individual phonemes and recognized based on those phonemes. For instance, good readers will easily break a particular word into its constituents and easily understand the meaning. Linguistic scientists have found it difficult to explain this phenomenon. While, others have argued that some people simply require more time to separate sounds.

Hales et-al (2000) presented that people with such difficulties can be identified by trouble sounding out words and recognizing words out of context. Additionally, they demonstrate confusion between letters and the sounds they represent. They may also exhibit slow oral reading rate and they may ignore punctuation

The main purpose of reading texts is to understand the information presented. Many people with reading difficulties may have problems to comprehend passages: (Lerner, 1997). Smith and Sensenbaugh (2010) pointed out that individuals with language problems may have difficulties with comprehension. Comprehension relies on the mastery of decoding the read information. Children who struggle to decode information find it difficult to understand and remember what has been read. Because their efforts to grasp individual words are so exhausting, they have no resources left for understanding. Therefore, they demonstrate confusion about the meaning of words and sentences, inability to connect ideas in a passage and omission of, or glossing over detail. Additionally, they may exhibit lack of concentration during reading

Another language related difficulty demonstrated by readers with reading problems are retention deficits. Retention requires both decoding and comprehending what is written or said. This task relies on high level cognitive skills, including memory and the ability to group and retrieve related ideas. As students progress through grade levels, they are expected to retain more and more of what they read. Jean (2009) explained that from third grade on,

reading to learn is central to classroom work. By the time a learner reaches high school, reading becomes an essential task. Such learners may exhibit trouble remembering or summarizing what is read. They may also demonstrate difficulties connecting what is read to prior knowledge. Chall (2009) further indicated that such readers may also have difficulty applying content of a text to personal experiences and they exhibit problems with phonemes.

All the factors stated above are related to language difficulties. For countries like Zambia, these language difficulties cannot be avoided because English is learnt as a second language. Chomsky (1970) in wrench et-al (2008) postulated that some pupils would demonstrate mother tongue interference while others they may have neurological disorders related to language. These difficulties may not be linked to vision or lack of it. All learners are potentially influenced by the first language.

There are other diverse causes of reading problems. Some writers like whitehurst (2008) warned that some children are considered to have reading problems because of poor instructional background. If teachers do not pay attention to a particular pupil due to many factors, the child may exhibit reading deficits. This assertion cannot be dismissed in developing countries. For instance, the Ministry of Education in Zambia (2008) pointed out that the teacher pupil ratio in urban areas was one to twenty-two pupils while in rural areas it was rated at one teacher to fifteen pupils. This is quite high. Most of the advocates have argued that the best teacher pupil ration should be at least one teacher to ten pupils. When pupils are too many, teacher concentration on pupils reduces. Consequently, the teacher does not take care of the difficulties presented by pupils in class.

Apart from the information illustrated above, the American psychiatric association (2000) added that poor and unstimulating environment can contribute to poor reading. Unstimulating environment would include a home where children are not exposed to any reading or writing activities or at least being able to participate in any play program that would activate reading minds.

In other homes, children are exposed to early reading related programs early in life. Subsequently, such efforts help their child develop good reading skills at an early age. These difficulties would be probably more challenging for parents with a visually impaired child. They may not know how to train his fingers so that he becomes quite sensitive with his index

finger tips. According to Susan (2009) the tip of an index finger is quite sensitive. It can easily feel and send information to the brain for quick interpretation. The nerve endings off a finger tip are electronically charged to enhance feeling. With increased and frequent training of the finger tip would therefore help a learner with visual impairment to easily read Braille. However, The American printing house of the Blind (APHB), (2009) stated that some people have poor sensitivity on the finger tips of their index fingers. Poor sensitivity on the index fingers for any reason would create severe reading difficulties for a blind child.

In summary, it is evident that the main causes for reading difficulties include: inheritance for sighted children. Brain defects for both sighted and visually impaired learners and language difficulties in specific areas of the brain. Additionally, researchers admit that poor instructional background and poor home environment which do not stimulate reading abilities could also be major causes for reading difficulties.

#### **2.4: Teaching Methods to Correct the Braille Reading Difficulties among Learners with Visual Impairments.**

There are several methods that can be used to correct reading problems. Most of the methods were however initially designed to meet the needs of learners with vision. Among the teaching methods used for sighted learners, there are some techniques that can be transferred and be used on learners with visual impairments.

According to Lerner (1997) for teachers to make a meaningful impact on the correction of Braille reading difficulties they need to be trained and skilled in Braille itself.

Susan (2009) explained that in order to help a blind child learn how to read Braille, the child should be helped to know the most sensitive part of his finger tip. After the identification of the sensitive index finger tip, the child should be trained to distinguish textures, shapes, dots and positions of different dots. The Ministry of Education Braille syllabus (2009) was designed to embrace the approach proposed by Susan (2009) and the ANFB (2010). It is clear that using this approach to teach learners with visual impairments would be quite helpful for the acquisition of good reading skills.

The American Psychiatric Association (2008) and Belote (2006) proposed that sound/symbol (phonics)-based teaching method could be used to correct reading problems. In this method, teachers break words down into their smallest visual components: letters and the sounds associated with them. Then, the learner is taught one after another. This method can be adapted to teach visually impaired learners. Braille can be broken into smaller components and teach the fingers to get to feel a particular dot and later build up. The learner may require the understanding of the various positions of the letter and other dots in order for him to develop an understanding about the phonemes, (Artter, 1998).

The ANFB (2010) developed an approach to help visually impaired learners grasp Braille and reduce on reading difficulties. They designed a scheme which identifies the simple Braille symbols. Later, the child is exposed to opposite letter. For instance, letters 'r' and 'f', 'e' and 'i', 'h' and 'j', etc. In Braille, these letters either face each other or they are dotted opposite each other. If pupils are made to learn these differences, the chances would be that they will easily differentiate the letters that confuse them.

Sally et-al (2010) proposed that a multisensory teaching method could be used to help learners read. It was argued that good programs attempt to form and strengthen mental associations among visual, auditory, and kinesthetic channels of stimulation. The pupil simultaneously sees, feels, and says the sound-symbol association. For example, a learner may trace the letter or letter combination with his or her finger while pronouncing a word out loud. While a learner with visual impairments may not use sight, this method can still be used. A blind child can be given words on a piece of paper, using fingers; he should trace a particular word and pronounce it.

Another possible teaching strategy that a teacher can use is called highly structured. In this method, remediation begins at the level of the single letter-sound; works up to digraphs (a pair of letters representing a single speech sound); then syllables; then into words and sentences in a systematic fashion. Repetitive drill and practice serve to form necessary associations between sounds and written symbols, (Chall, 2009). Teachers for learners with visual impairments can easily use this method, especially, when pupils just begin learning Braille or in reception classes. Research by Artter (1998) revealed that using such an approach significantly improved on the Braille reading abilities of many learners with visual

impairments. In Zambia, this method can be of great help especially for children who were born blind.

Gallagher et-al (1998) stated that for prenatal visually impaired children, early intervention would be more helpful. For post-natal blind learners, teachers can build on the strengths possessed by the child. Wrench et-al (2008) pointed out that the task of every teacher is to ensure that his/her learners grasp the intended skills. Some of the corrective teaching methods proposed by different authors in this section include: finger manipulation for learners with visual impairments, repetitive training of particular concepts, individualized teaching approach, remedial work, multi-sensory teaching methods, and the use of a variety of resources in order to help the learner grasp one idea and the practice of reading books.

## **2.5: Chapter Summary.**

Under the nature of reading difficulties, the literature reviewed identified five main types of reading difficulties. These include vision stress, tactile stress, phonological, phonemic reading difficulties and poor instructional reading problems.

Literature reviewed also indicated that on average, there were about 38% of learners nationally who demonstrate reading difficulties. Other linguistic scientists illustrated that about 11% of people with vision related problems in reading fail to detect letters and words in a sentence. Some of the sighted readers with difficulties skip lines and words. Specialists writing about learners with visual impairments argued that similarly about 10% of readers with visual impairments demonstrate difficulties identifying letters and words in a sentence. They skip lines and words and fail to recognize certain letters. The prevalence rates of phonological and phonemic reading difficulties have varied rates. However, many scholars considered that about 20% of people with reading difficulties demonstrated phonological and phonemic reading problems.

The causes of most of the reading difficulties may be quite difficult to isolate. In any case, it was evident that for sighted readers, inheritance plays a role. Other causes included brain dysfunction or neurological mal-functioning. Furthermore, poor teaching background could lead to reading difficulties. In the case of readers with visual impairments, inadequate index finger tip sensitivity would lead to reading difficulties. Some causes were language related.

These included phonological and phonemic difficulties. Sometimes, these language difficulties were exacerbated by the mother tongue interference in children.

Literature has however shown that the various reading difficulties could be corrected. Several methods were proposed by different educationists. For instance, breaking words into small units. Finger manipulation and repetitive practice of Braille reading would help many children improve on their reading abilities. Other methods which were proposed included highly structured reading skills and multi-sensory reading methods.



## **CHAPTER THREE**

### **METHODOLOGY.**

This chapter outlines the methods which were used to collect information for this study. It comprises a section on the research designs used. It also explains the population, the sample, sample size and sampling procedure. Furthermore, the chapter presents the research instruments, data collection methods, data analysis methods. A section on the pilot test was included in this chapter to indicate the reliability and the validity of the research instruments which were used.

#### **3.1: Research Design**

In conducting research, there are two universal research paradigms that can be used to gather information. The two paradigms are quantitative and qualitative. Eric (2009) stated that the two terms were often used to describe the major research approaches to management or organizational research approaches. Other terms used for quantitative research paradigm include functionalist, objectivist or positivist. On the other hand, the interpretive or subjectivist approaches describe the qualitative paradigm.

Cohen et-al (2000) further explained that within management and organizational studies, the quantitative approach is seen as objective that is relating to phenomenon or conditions independent of individual thought and perceptible to all observers, and relying heavily on statistics and figures". On the other hand the qualitative approach is seen as subjective, relating to experience or knowledge as conditioned by personal mental characteristics or states, and preferring language and description. Burke and Christenson (2004) referred to the qualitative mode as an attempt to reduce distance between context and action through interaction between the researcher and the subject. This approach involves the examination of perceptions in order to gain an understanding of social and human activities.

This study used both the quantitative and qualitative paradigms. The qualitative research paradigm was used to triangulate and verify the quantitative research findings. Under quantitative research paradigm, a survey research technique was used to collect the required information from the subjects. A survey research technique is basically a method that samples a larger group of subjects through the use of questionnaires. Some researchers consider

survey research techniques as a broader way of collecting information, (Burke and Christensen, 2004). Under qualitative research paradigm, face to face interviews with teachers were conducted. While, a focus group discussion with learners in grades five, six and seven were held.

### **3.2: Population**

The term population in research refers to a larger group of subjects to which the results can be generalized. Cohen et al (2000) contended that population is the total number of the respondents that ought to participate in the research. However, because of many factors such as distance, finances, time and availability of the research participants, a smaller group out of the entire population is recruited into the research. The chosen smaller group is called 'sample'.

In the case of this research, all learners and all Special Education teachers at middle basic level in the six residential schools for the blind in Zambia formed the population of the study. According to the pupil registers of the six residential schools, there were a total of one hundred and sixteen middle basic school learners and twenty six teachers teaching at middle basic school level. The six residential schools for learners with visual impairments included: Magwero school for the Blind in Chipata, Eastern province, Mpolokoso Basic School for the Blind in Mpolokoso, Northern Province, St. Mary's Basic School in Kawambwa, Luapula Province, Ndola Lions' School for the blind in Ndola, Copper belt Province, Sefula Basic School for the blind in Mongu, Western Province and St. Mulumba Basic School for children with disabilities in Choma, Southern Province.

### **3.3: Sampling.**

The word 'sample' refers to a selected group of subjects or respondents who participate in a given study. Biklen and Bogden (1982) stated that in any research, a small group may be chosen to represent the population to which the results would be generalized. The sample therefore needs to be as representative as possible.

Eric (2004) wrote that there were two main types of sampling: probability and non-probability sampling. Probability sampling is a mathematical method of selecting research participants. The fact that not everyone can participate in a study from a given population,

probability sampling is used to ensure that there is no bias in the selection of participants. Probability sampling therefore is a random selection method in which all members of the population have equal chances of being selected. Simple random sampling and the stratified random sampling method are examples of the random sampling dimension.

Biklen and Bogden (1982) stated that non-probability sampling refers to a method of selecting the study participants with a bias towards certain individuals within the population. The individuals may be selected because of their unique characteristics in the study. This non-probability sampling is also referred to as convenient or purposeful sampling. This study used both random and purposeful sampling methods.

### **3.3.1: Sample Size**

Sample size refers to the total number of subjects selected to participate in a given study (Burke and Christenson, 2004). The sample of this study included thirty-four pupils from Ndola Lions School for the Blind and eleven pupils from Magwero School for the Blind. Out of the thirty-four Ndola Lions pupil respondents, six of them were involved in the Focus Group Discussions.

### **3.3.1 Characteristics of Pupil Respondents.**

#### **3.3.1A: Pupil Respondents by School and Gender.**

A total of 45 learners with visual impairments participated in this study. Out of the said total number, 39 (86.6%) learners with visual impairments answered questionnaires. The remaining 6 (13.3%) pupils participated in the focus group discussion. Table 1 below shows the total number of pupils who participated from the two schools under study. The table shows that there were 19 male and 15 female pupils from Ndola Lion School for the Blind and 9 male pupils and 2 female pupils from Magwero School for the Blind. This means that 34 (75.5%) were learners from Ndola Lions school while Magwero School for the blind contributed 11 (24.4%) of the pupil respondents.

**Table 1: pupil Respondents by school and sex**

Name of school	Sex		Total
	Male	Female	
Ndola Lion School for the Blind	19 (42.2%)	15 (33.3%)	34 (75.5%)
Magwero School for the Blind	9 (20%)	2 (4.4%)	11 (24.4%)
<b>Total</b>	<b>28 (62.2%)</b>	<b>17 (37.7%)</b>	<b>45 (100.0%)</b>

**3.3.1.1B: Gender and Grade Levels of the Pupil Respondents.**

Most of the pupils, 17 (37.7%) came from grade 7 classes. Grades five and six each contributed 14 (31.1%).

**3.3.1.1C: Age and Gender of the Pupil Respondents.**

Table 2 below shows the age and gender of the pupils under study. The table shows that most of the pupils were aged 13 years old constituting 22.2% of all the pupil respondents. Followed by those who were 14 and 15 years old representing 20% for each defined age. The youngest among the pupil respondents were twelve years old and they represented a total of 11.1%. The oldest however were seventeen years old representing 8.8% of the pupil respondents.

**Table 2: Age and sex of respondents**

Age (in years)	Sex		Total
	Male	Female	
12	3 (6.6%)	2 (4.4%)	5 (11.1%)
13	5 (11.1%)	5 (11.1%)	10 (22.2%)
14	2 (4.41%)	6 (13.3%)	8 (17.7%)
15	8 (17.7%)	1 (2.2%)	9 (20%)
16	6 (13.3%)	3 (6.6%)	9 (20%)
17	4 (8.8%)	-	4 (8.8%)
<b>Total</b>	<b>28 (62.2%)</b>	<b>17 (37.7%)</b>	<b>45 (100.0%)</b>

### 3.3.1.1D: Age at Which Pupil Became Blind or Visually Impaired

Pupils were also asked to indicate the age at which they became blind. Table 3 shows their responses. The majority 10 (22.2%) indicated that they lost their sight at the age of nine years. Followed by 8 (17.7%) who lost their sight at the age of ten years. The third highest number of respondents 7 (15.5%) lost their sight at birth.

**Table 3: Age when pupil became blind or visually impaired**

Age (in years)	Sex		Total
	Male	Female	
Since birth	5 (11.1%)	2 (4.4%)	7 (15.5%)
2	2 (4.4%)	3 (6.6%)	5 (11.1%)
5	1 (2.2%)	-	1 (2.2%)
6	1 (2.2%)	2 (4.4%)	3 (6.6%)
8	3 (6.6%)	2 (4.4%)	5 (11.1%)
9	7 (15.5%)	3 (6.6%)	10 (22.2%)
10	4 (8.8%)	4 (8.8%)	8 (17.7%)
12	2 (4.4%)	1 (2.2%)	3 (6.6%)
<b>Total</b>	<b>28 (62.2%)</b>	<b>17 (37.7%)</b>	<b>45 (100.0%)</b>

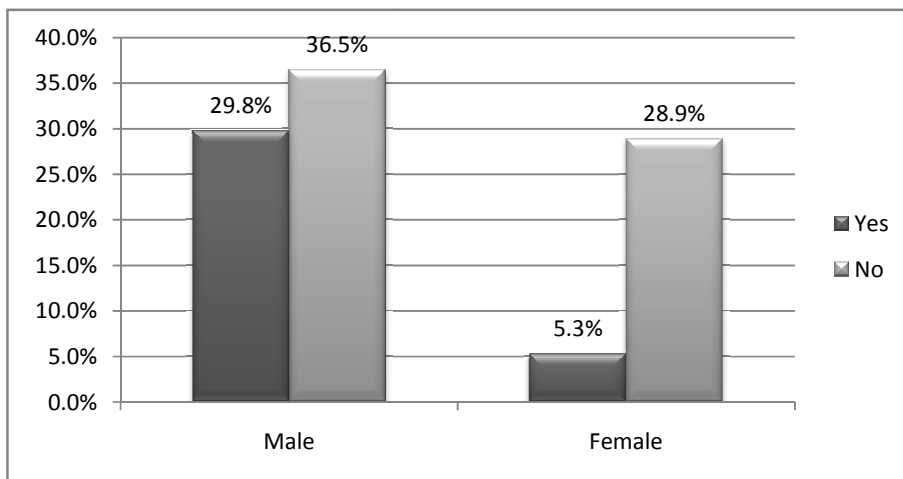
### 3.3.1.1E: Age When Pupil Learnt Braille

Learners with visual impairments were asked to indicate at which age they learnt Braille. The majority of them 10 (22.2%) stated that they learnt how to read Braille at the age of ten years; followed by those who indicated that they learnt how to read Braille at the ages of nine and eleven years. This shows that on average most of the learners with visual impairments learn how to read Braille at a far later stage than their sighted peers. From the pupil responses, only one (2.5%) of them indicated that he/she learnt how to read Braille at the age of five years.

### 3.3.1.1f: Pupil Responses on Whether He-She Was Totally Blind or Not.

Pupils were asked to indicate whether they were totally blind or not. The Figure below shows pupils' responses.

**Figure 1: Whether pupil is totally blind by gender**



As can be seen from the figure above, most of the male, 14 (36.5%) and female, 11 (28.9%) pupils indicated that they were not totally blind. While most male 11 (29.8%) pupils said they were totally blind compared to their female, 2 (5.3%) counterparts. This shows that the majority of pupils respondents were partially sighted constituting 25 (55.5%). while those who were totally blind constituted 14 (36.5%). the remaining 6 (13.3%) did not respond to this question.

### 3.3.1.2: Characteristics of Teacher Respondents

#### 3.3.1.2A: Teacher Respondents by Gender and School.

Fourteen teachers from both schools participated in the study. 7 (50%) teachers from each school were purposefully selected because they taught at middle basic school level. 10 (71.4%) of them were male teachers while 4 (28.5%) of them were female teachers.

### 3.3.1.2b: Teacher Respondents By Gender And Grades Taught.

Table 4: shows the gender of teachers and grade levels they taught. As can be seen from the table, most of the male teachers taught grades 1 and 6; 7 to 12; and 8 to 9 while their female counterparts taught grades 2, 3, 5, 6, 8 and 12.

**Table 4: Teacher Respondents by Grade and Sex**

Grade level	Sex		Total
	Male	Female	
2, 3 and 5	-	2 (14.3%)	2 (14.3%)
1 and 6	2 (14.3%)	-	2 (14.3%)
7 to 12	2 (14.3%)	-	2 (14.3%)
3, 6, 8 and 12	-	2 (14.3%)	2 (14.3%)
7	2 (14.3%)	-	2 (14.3%)
9	2 (14.3%)	-	2 (14.3%)
8 and 9	2 (14.3%)	-	2 (14.3%)
<b>Total</b>	<b>10 (71.4%)</b>	<b>4 (28.6%)</b>	<b>14 (100.0%)</b>

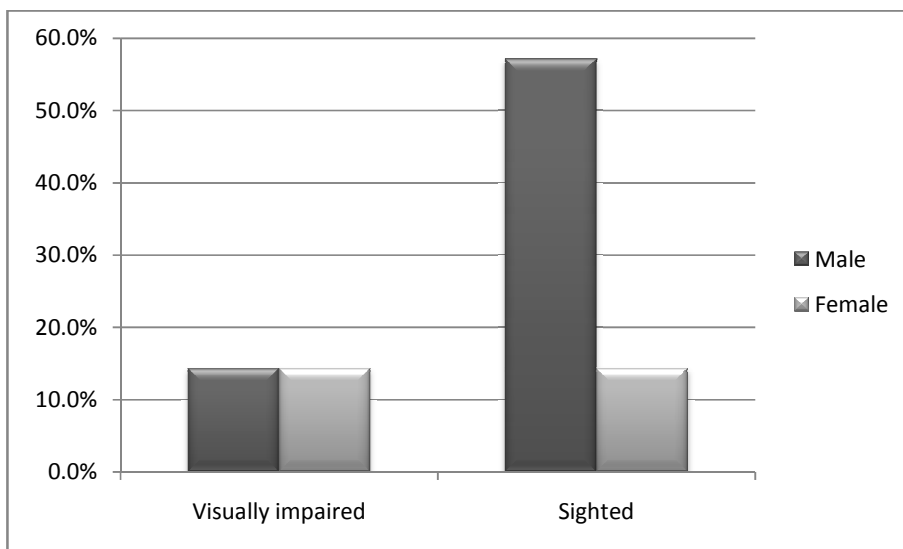
### 3.3.1.2C: Length of Service in Teaching Children with Visual Impairments

The teachers were asked to indicate for how long they had been teaching children with visual impairments. It was observed that most of the male teachers, 4 (26.6%) indicated that they had been teaching children with visual impairments for a period of seven (7) years followed by 3 (21.4%) of them who said they had been teaching such children for two (2) years. On the other hand an equal number of female teachers indicated that they been teaching these children for a period of five (5) and six (6) years representing 2 (14.3%) and 2 (14.3%) respectively. This means that most of them had good experience in teaching learners with visual impairments.

### 3.3.1.2D: Training In Special Education

As regards training in Special Education, 5 (35.7%) male and 2 (14.3%) female indicated that they were not trained in teaching Special Education while 4 (28.6%) male and 2 (14.3%) female teachers said they were trained in teaching Special Education 6 (42.9%). Figure 2 below illustrates their responses.

**Figure 2: Whether respondents were trained Special Education teachers**



### 3.3.1.2E: The Teacher Training Institution Attended.

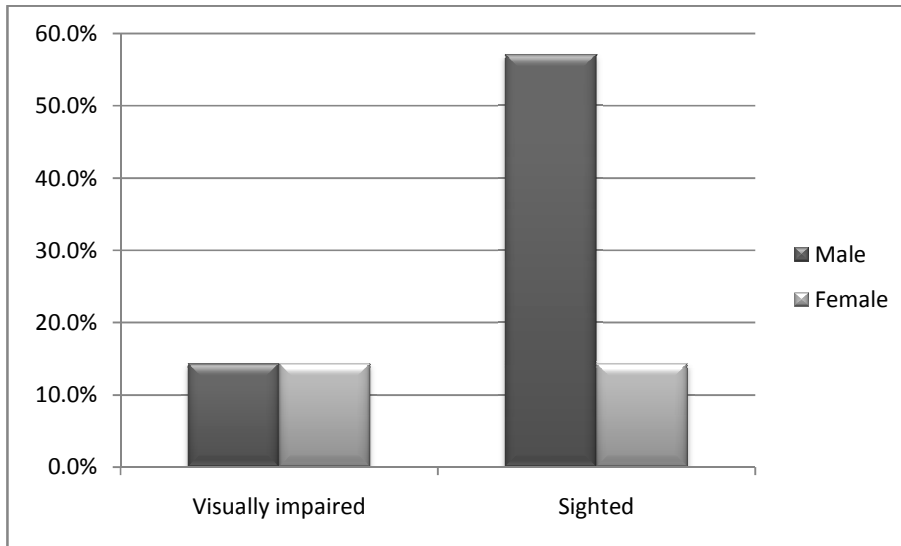
For the respondents who said that they were trained in Special Education, a further question was asked to them to indicate the institution at which they received their training. Out of the 4 males and 2 females who said they were trained in Special Education, only two (2) males indicated that they were trained at the Zambia Institute of Special Education (ZAMISE) while the rest 2 males and 2 females did not respond to the question.

### 3.3.1.2F: Whether Respondents Were Visually Impaired or Sighted



Teachers were asked to indicate whether they were visually impaired or not. Figure 3 below shows their responses. The figure shows that the majority of the teachers, 8 (57.1%) males and 2 (14.3%) female said they were sighted while 2 (14.3%) male and 2 (14.3%) female teachers indicated that they were visually impaired.

**Figure 3: Whether the Teachers Teaching the Visually Impaired Children Were Sighted or Not**



### 3.3.2: Sampling Procedure

The sampling procedure section is an area where a researcher explains on how he-she selected the sample (Burke and Cristenson, 2004). At Ndola Lions School, learners were just returning from their vacation. According to the register and the head teacher’s report, there were a total of forty-eight learners at middle basic school level. However, at the time of the study, only thirty-six learners had already reported. All those who had already reported. Participated in the study in one way or another.

In grade five, twelve learners had reported out of the expected eighteen. Ten of them were randomly selected to answer questionnaires. The remaining two: (one boy and one girl) were asked to participate in a focus group discussion. In grade six, seventeen pupils were expected according to the register, but, only thirteen had reported in class. Three of them (two girls and

one boy) were asked to participate in the focus group discussion. The other ten answered questionnaires. A similar procedure happened in grade seven. Only eleven pupils had reported in school. Ten of them participated in answering questionnaires while one boy participated in the focus group discussion. Ultimately, thirty learners participated in answering questionnaires while six (three boys and three girls) participated in the focus group discussion.

### **3.4: Research Instruments**

Research instruments are pieces of information that may be written, oral, pictorial or symbolic in nature (Kombo and Tromp, 2006). These instruments are also referred to as tools for data collection. A researcher carefully prepares them in order to solicit the required information. This study used three main research tools: questionnaires, face to face interviews and focus group discussions.

#### **3.4.1 Questionnaires**

Questionnaires are a set of questions carefully and thoughtfully prepared by the researcher to solicit for information from the respondents: (Kombo and Tromp, 2006). Questionnaires largely depend on the frankness of the respondents. They provide an opportunity to respondents to think through the questionnaires and answer the questions without coercion. There is very little contact between the researcher and the respondent, (Eric, 2009). Depending on the audience or the subjects, questionnaires may have both open ended and closed ended questions. Cohen et-al (2000) stated that open ended questions are those questions which seek the opinion of the respondent. In such situations, the respondent can freely express himself. While closed ended questions are those questions which are restricted. The respondent is guided on what to choose.

The questionnaires for this study were both open and closed ended. Those meant for pupils were more closed ended. While those meant for teachers were more open ended.

#### **3.4.2 Interviews**

Interviews are a qualitative research tool. They demand for close interaction between the researcher and the respondent. Face to face interviews provide an opportunity for a researcher to discuss with a selected subject. Cohen et al (2006) indicated that during face to face

interviews, a researcher asks the subject questions. As the respondent provides answers, the researcher can make follow up question in order to clarify a point. Furthermore, the researcher makes observations in order to determine whether the respondent is telling the truth or not.

In this study, grade teachers or class masters and mistresses for grades five, six and seven at the two schools for learners with visual impairments were interviewed at different times. The face to face interviews revealed many other issues that were not initially captured in the questionnaires.

### **3.4.3 Focus Group Discussions**

The other tool used in this study was a focus group discussion. Burke and Christenson (2004) explained that focus group discussions were important in researches because the researcher interacts with the respondents. The researcher identifies some participants in the study. He-SHE asks the discussants questions. The respondents, as a group, are free to argue and share their independent views about the subject matter. The researcher can also clarify a number of other issues during the discussion. The researcher guides the discussants.

In the case of this study, focus group discussions were held with six learners at Ndola Lions Basic School. The focus group discussions revealed a number of other issues which were not reflected in the questionnaires.

### **3.5: Data Collection Procedure.**

This section of data collection procedure explains on how the researcher collected information in the two schools. Kombo and Tromp (2006) explained that under this subsection, a researcher needs to show what happened in the process of collecting information. It is important to explain the procedure because it helps anyone evaluating the study to understand what difficulties could have arisen during the research process and whether the challenges could have an effect on the results.

The researcher decided to start with the collection of data at Ndola Lions Basic School with the largest number of middle basic school learners. Three weeks before travelling to Ndola Lions School, a letter was sent to the head teacher. A follow up phone call was made to

confirm receipt of the letter by the administration. On arrival, the researcher was welcomed by the administrators and the researcher was subsequently introduced to the senior teachers who assisted in organizing teachers and learners for the meetings. Grade teachers for grades five, six and seven were brought into the senior teachers' office for face to face interviews. Those who were not comfortable in the office, they opted to use their chosen place. After the face to face interviews with the grade five and six teachers, questionnaires were given to them to respond to. The grade seven teachers decided to first answer the questionnaire before being interviewed.

In the afternoon, the researcher was taken to a grade seven class. The researcher explained clearly to the pupils the purpose of the study and after the sampling procedure, the researcher asked one boy not to participate in the answering of questionnaires. He was asked to participate in the focus group discussion to be arranged later.

The questionnaires were given to the respondents in class. The pupils opted to answer the questionnaires in the presence of the researcher. They felt that this would help them ask questions where necessary. The idea proved very helpful because the respondents had a number of questions which ranged from inability to understand certain terms on the questionnaire and reading difficulties. The approach above was adopted for the other two middle basic school classes. The grade seven took the whole afternoon answering questions from the questionnaires.

A focus group discussion was held with the selected learners with visual impairments. After which, the researcher spent two more days compiling and verifying the responses given by the teachers and learners.

After Ndola Lions, a week later, the researcher went to Magwero School for the Blind in Chipata. The school administrators were already aware of this trip. Therefore, though the head teacher was on leave, the deputy head teacher and a senior teacher welcomed the researcher and helped the researcher to do his work.

The researcher interviewed the grade teachers in the morning. In the afternoon, all the thirteen learners gathered in a grade five classes. The researcher in the company of the senior teacher explained the purpose of his visit. The researcher distributed the Braille

questionnaires to the thirteen middle basic school learners. Pupils asked the researcher to give them time to go and answer the questionnaires on their own. The researcher agreed with the proposal.

On the third day, the researcher collected the answered questionnaires from pupils and teachers. The researcher remained for an extra one day to verify and clarify certain responses.

### **3.6: Data Analysis**

According to Kombo and Tromp (2006) data analysis is the stage when the researcher interprets the information collected from the respondents. This information is systematically presented. The information is coded and presented in order to help readers and the researcher him-herself to easily discuss the findings.

Information collected through questionnaires is usually quantitative. Quantitative information is basically numerical and requires statistics to interpret their meaning. In this study, data from questionnaires was coded and presented using a computer software called Statistical Package for Social Sciences (SPSS). This computer program helped the researcher tabulate the collected information using tables, bar-charts, frequencies and percentages with fewer difficulties. Quantitative information was analyzed using the thematic approach.

Information collected from qualitative information, example: from face to face interviews and focus group discussions is tabulated through different methods. The researcher used descriptions to explain what was said by the respondents. The information is grouped in themes. Simple tables were used to help appreciate percentages and frequencies.

### **3.8: Pilot Test.**

In order to verify the validity and reliability of the research tools, the tools were tested at Munali High School. Kombo and Tromp (2006) defended the practice of pre-testing research tools. Arguing that pilot testing research tools helps the researcher to redesign his tools in case the researcher does not seem to be getting the correct information from the respondents. Pilot testing would also provide an opportunity to the researcher to learn what would be the possible outcome of his-her study if the tools were able to elicit the correct responses.

The researcher used accidental random sampling. Accidental random refers to selecting respondents who are suddenly met. On arrival at school, the Head of the special education unit introduced the researcher to the learners with visual impairments who were in the resource room. The researcher explained the purpose of the researcher's visit and asked the ten pupils to answer the questionnaires which were meant for grades five to seven. The researcher also had interviews with two special education teachers. Three other pupils were organized for a focus group discussion.

After collecting the responses and compiling the information, a number of findings emerged. It was observed that certain questions needed to be adjusted. There was also need to include a question on the levels of visual impairments for those responding to the questionnaires.

The information collected showed that there were a number of difficulties in Braille reading even at a higher level of a secondary school. For instance, 41% of the respondents indicated that they had difficulties in detecting letters and words in a sentence. While 39% of the respondents indicated that they had challenges in spellings.

## CHAPTER FOUR

### PRESENTATION OF FINDINGS

This chapter presents the findings of the study. The findings are presented according to the following themes: nature of reading difficulties, prevalence of reading difficulties, causes of reading difficulties and methods of teaching used by teachers to correct the reading difficulties.

#### 4.1: The Nature of Reading Difficulties.

A questionnaire was administered to pupils on the nature, prevalence and causes of reading difficulties among them. Focus group discussions were also held with them. Their responses are presented in this section.

##### 4.1.1.1: Pupil Responses from the Questionnaire on the Type of Braille they liked Reading.

As regards the type of Braille that pupils liked reading, among the questionnaire respondents, the majority of them, 14 (37.8%) males and 6 (16.2%) females said they liked contracted Braille while 5 (13.5%) males and 5 (13.5%) females said they liked reading uncontracted Braille. Table 5 below shows their responses.

**Table 5: Pupils' Responses on the Type of Braille that they liked reading**

Type of Braille	Sex		Total
	Male	Female	
Contracted	14 (37.8%)	6 (16.2%)	20 (54.1%)
Uncontracted	5 (13.5%)	5 (13.5%)	10 (27.0%)
Semi-contracted	5 (13.5%)	2 (5.4%)	7 (18.9%)
<b>Total</b>	<b>24 (64.9%)</b>	<b>13 (35.1%)</b>	<b>37 (100.0%)</b>

**4.1.1.2: Pupil Responses from the Questionnaires on the Reasons for Choosing a Particular Braille Type.**

Pupils were further asked to say why they liked to read the type of Braille they chose. The majority of them, 15 (42.9%) males and 7 (20.0%) females said it was simple to read followed by 5 (14.3%) males and 3 (8.6%) females. The rest of the responses are shown in Table 6 below.

**Table 6: Pupils’ Responses on the Reasons for Liking the Type of Braille**

Reasons	Sex		Total
	Male	Female	
It is simple to read	15 (42.9%)	7 (20.0%)	
It is good to my sight and its very fast to read	5 (14.3%)	3 (8.6%)	8 (22.9%)
I read faster than grade one Braille	4 (11.4%)	1 (2.9%)	5 (14.3%)
<b>Total</b>	<b>24 (64.9%)</b>	<b>13 (35.1%)</b>	<b>37 (100.0%)</b>

**4.1.1.3: Pupils’ Views from the Focus Group Discussion on the Type of Braille That They Liked Reading.**

The six learners in the focus group discussion were asked to explain which Braille type they liked reading and they were told to state why they liked the Braille type they had chosen. The majority of them indicated that they would prefer contracted Braille to the uncontracted one. A grade six learner (C) explained, “Contracted Braille is good for us because it reduces the volume of the book and makes certain words shorter”. She further stated that reading contracted Braille was a sign that someone was advanced in Braille reading. A grade five boy learner (B) argued that, “while contracted Braille was good and the most preferred, it would sometimes create a challenge for him because many words were similar to the ordinary Braille”. When he was asked to point out some of those contractions, he mentioned the use of dots 2, 3, 4, 6: to mean ‘the’ and yet similar dots in the opposite mean ‘z’. He also mentioned the use of ‘this’ which is the opposite of ‘p’. Learner (F), a grade seven learner however pointed out that whatever the challenges, contracted Braille was the most favored.



#### 4.1.2: Pupils' Responses on the Nature of Braille Reading Difficulties.

Pupils were asked to indicate the nature of reading difficulties which they experienced the most. The responses are shown below.

##### 4.1.2.1: Pupil Responses on a Particular Reading Difficulty they faced.

Respondents were asked to indicate the nature of Braille reading difficulties they experienced the most. Table 7 below shows their responses. The table shows that most of the pupil respondents 25 (64.1%) had difficulties in detecting letters and words in a sentence; followed by 21 (53.8%) pupils who said that they had difficulties in distinguishing contracted and uncontracted Braille. And, then those who said they did not understand what they read. The rest of the responses are as shown in the table.

**Table 7: Pupil Responses on the Nature of Reading Difficulties which they faced.**

<b>Difficulties faced</b>	<b>Frequency</b>	<b>%</b>
Detecting letters and words in a sentence	25	64.1%
Confuse certain letters, e.g. <i>d</i> and <i>f</i> , <i>h</i> and <i>j</i>	17	43.5%
Skip lines	14	35.8%
Skip some words	19	48.7%
Problems with pronunciation of certain words	16	41.0%
Confuse spelling of certain words	20	51.2%
Difficulties in recalling certain letters and words	10	25%
My attention is easily distracted	19	48.7%
Do not understand what I read	20	51.2%
Braille feels faint	10	25%
Difficulties in distinguishing between one contracted Braille symbol and another	21	53.8%

#### **4.1.2.2: Pupils' Views from Focus Group Discussion on the Nature of Reading Difficulties.**

The six discussants in the focus group pointed out a number of reading difficulties which they experienced. For instance, learner (E), a grade six partially sighted learner indicated that she had a problem with detecting letters correctly when she was reading using her partial sight. But, learner (F) said that even him, though he was using fingers to read, he would many times have difficulties in detecting letters. Learner (C) another grade six girl also said that the problem of detecting letters was common not just among the discussants but most of the pupils in school. When asked to mention other types of reading difficulties that they experienced, learner (A) a grade five girl pointed out that, in Bemba: *“limo limo tulakwata ubwafya ubwapusanya ama-letters yamo yamo”*. Meaning; “sometimes we do have problems of differentiating certain letters”. Learner (F) agreed with this but also added that many of his friends would sometimes skip lines or words.

The researcher asked those who had been quiet to share the type of difficulties they had experienced in reading Braille. Learner (B) said, *“ine nshumfwa ifyo mbelenga. Lyonse, nangu nabikako amino, filampita”*. Meaning; “I do not understand what I read. Every time, I do fail to understand.” Learner (D) also added that sometimes he experienced a problem of spellings. No matter how much he could put in, his teacher would not agree with his spellings. Most of the discussants agreed with learner (D) presentation on spellings.

#### **4.1.2.3: Summary of the Pupil Responses from Questionnaire and Focus Group Discussions on the Nature of Reading Difficulties.**

The table combined responses from the focus group discussion (FGD) and those who answered questionnaires. From the table, it can be observed that the majority 29 (64.4%) of learners with visual impairments had problems with detecting letters and words in a sentence. Followed by 24 (53.3%) who indicated that they had problems with spellings of certain words and those who stated that they had difficulties in distinguishing contracted and uncontracted Braille symbols.

The rest of the responses are as shown in the table below.

**Table 8: The Nature of Reading Difficulties Faced by Pupils**

<b>Difficulties faced</b>	<b>FGD</b>	<b>Questionnaire</b>	<b>Accumulated Total.</b>
Detecting letters and words in a sentence	4	25 (64.1%)	29 (64.4%)
Confuse certain letters, e.g. <i>d</i> and <i>f</i> , <i>h</i> and <i>j</i> .	5	17 (43.5%)	22 (48.8%)
Skip lines	5	14 (35.9%)	19 (42.2%)
Skip some words	4	19 (48.7%)	23 (51.1%)
Problems with pronunciation of certain words	2	16 (41.0%)	18 (40.0%)
Confuse spelling of certain words	4	20 (53.8%)	24 (53.3%)
Difficulties in recalling certain letters and words	3	10 (25%)	13 (28.8)
My attention is easily distracted	2	19 (48.7%)	21 (46.6%)
Do not understand what I read	3	20 (51.2%)	23 (51.1%)
Braille feels faint	1	10 (25%)	11 (24.4%)
Difficulties in distinguishing between one contracted Braille symbol and another	3	21 (53.8%)	24 (53.3%)

**4.1.3.1: Teacher responses from questionnaires on the nature of reading difficulties experienced by their learners.**

Teachers were asked to indicate the most common reading difficulties that children with visual impairments faced. The responses are presented in Table 9.

**Table 9: Teachers’ Responses on the Nature of Reading Difficulties experienced by learners.**

<b>Common Reading Difficulties</b>	<b>Frequency</b>	<b>%</b>
Detecting letters and words in a sentence;	14.	100%
Confusing certain letters	12.	85.7%
Skipping lines	11.	78%
Skipping words	11.	78%
Difficulties in pronouncing certain words	4.	28.7%
Confusing spellings	13.	92.8%
Difficulties in recalling letters and words on a piece of paper	8.	57.1%
Easily distracted attention	1.	7.1%
Difficulties in understanding the read material	8.	57.1%
Faint Braille	3.	21.4%
Difficulties in distinguishing contracted Braille and the uncontracted	12.	85.7%

**4.1.3.2: Teachers’ Views on the nature of reading difficulties from individual interviews.**

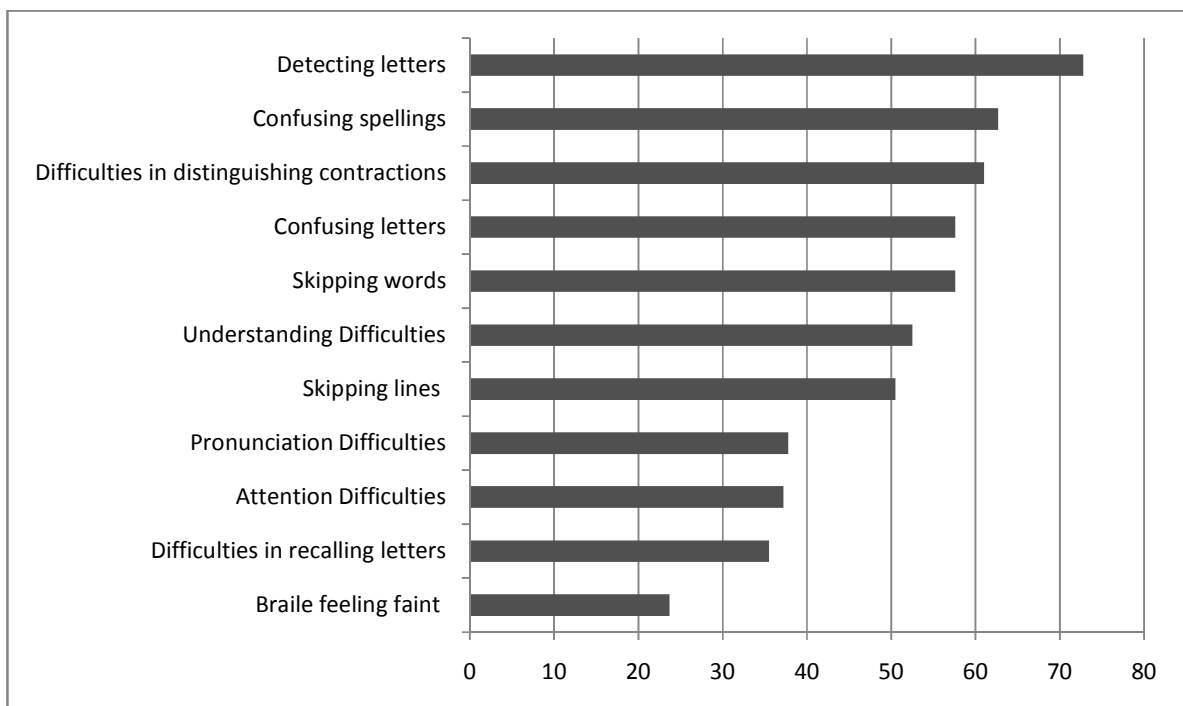
The researcher had separate interviews with the teachers of grades five, six and seven at both Ndola Lions and Magwero schools for the blind respectively. The researcher asked each individual teacher to explain the nature of reading difficulties his-her learners had in class. All the teachers interviewed acknowledged that the majority of their learners had a problem with detecting letters and words when reading. Teacher (A) at Ndola Lions further added that because the learners had difficulties in detecting letters, their spellings were affected. The teacher further said that the pupils would read certain words in vernacular. Teacher (D) at Magwero stated that it was also very common to have his pupils fail to distinguish certain Braille contractions. The pupils would read the letters as opposites of each other. Teachers (B), (C) and (F) agreed in separate interviews that their pupils would sometimes skip words or lines. Teacher (F) categorically said, “These children sometimes do skip lines and words. As a result, they are very slow and inaccurate when reading”. Teacher (F) who was also blind

indicated that those learners experienced most of such problems when reading Braille on a brailion paper.

**4.1.4: Summary of the pupil and Teacher responses from both Questionnaires and Focus Group Discussion on the Nature of Reading Difficulties as Experienced by Learners.**

Figure-4 below shows the summary results of both teacher and pupil responses on the nature of reading difficulties experienced by learners. The figure shows that the majority of the respondents (72.8%) indicated that learners demonstrated difficulties in detecting letters and words in a sentence. While the lowest number of respondents (23.7%) of them showed that learners would feel Braille as being faint. The rest of the summary is shown below.

**Figure 4: The summary of the responses from Teachers and Pupils on the Nature of reading difficulties as experienced by learners.**



## **4.2: Prevalence of Reading Difficulties among Learners with Visual Impairments at Middle Basic School.**

### **4.2.1 Pupils' Response**

#### **4.2.1.1: Pupil Responses from Questionnaires on how often they Experienced Difficulties in Detecting Letters and Words in a Sentence**

Pupil respondents were asked to state how often they experienced difficulties in detecting letters and words in a sentence. Table 10 below shows the responses from the pupils. The table shows that majority of the pupils, 11 (44.0%) males and 9 (36.0%) females said they sometimes faced these difficulties while 1 (4.0%) male and 2 (8.0%) females said they always faced difficulties in detecting letters and words in a sentence. The other two male respondents said they rarely faced problems.

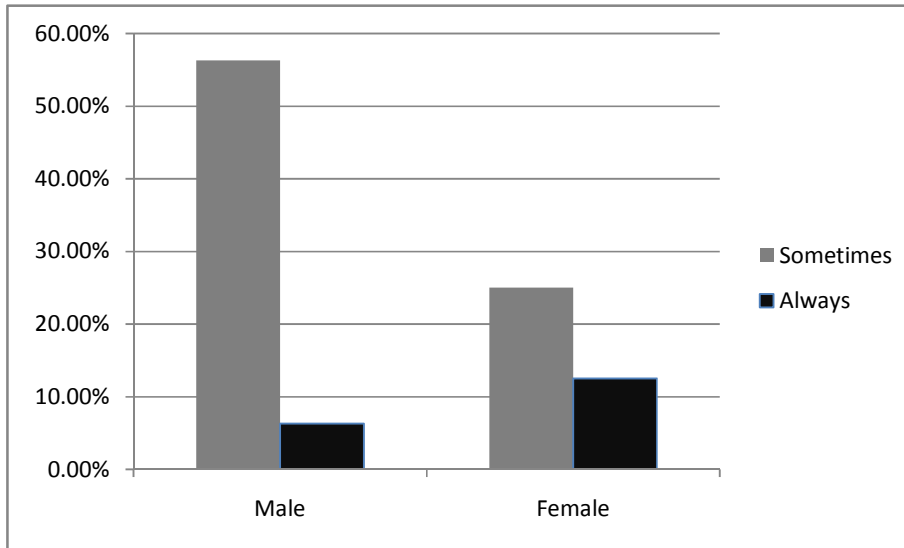
**Table 10: How often Pupils Experienced Difficulties in Detecting Letters and Words in a Sentence**

<b>Frequency at which pupils faced problems in detecting letters and words in a sentence</b>	<b>Sex</b>		<b>Total</b>
	<b>Male</b>	<b>Female</b>	
Sometimes	11 (44.0%)	9 (36.0%)	20 (80.0%)
Always	1 (4.0%)	2 (8.0%)	3 (12.0%)
Rarely	2 (8.0%)	-	2 (8.0%)
Total	14 (56.0%)	11 (44.0%)	25 (100.0%)

#### 4.2.1.2.: Pupils’ Responses from Questionnaires on the Frequency at Which Pupils Confused Letters When Reading (For Instance, 'D' and 'F'; 'H' and 'J'; 'E' And 'I')

As regards how often pupil’s confused letters, the majority of them, 9 (56.3%) males and 4 (25.0%) females said they did that “sometimes” while 1 (6.3%) male and 2 (12.5%) females said “always” Figure 5 below shows their responses.

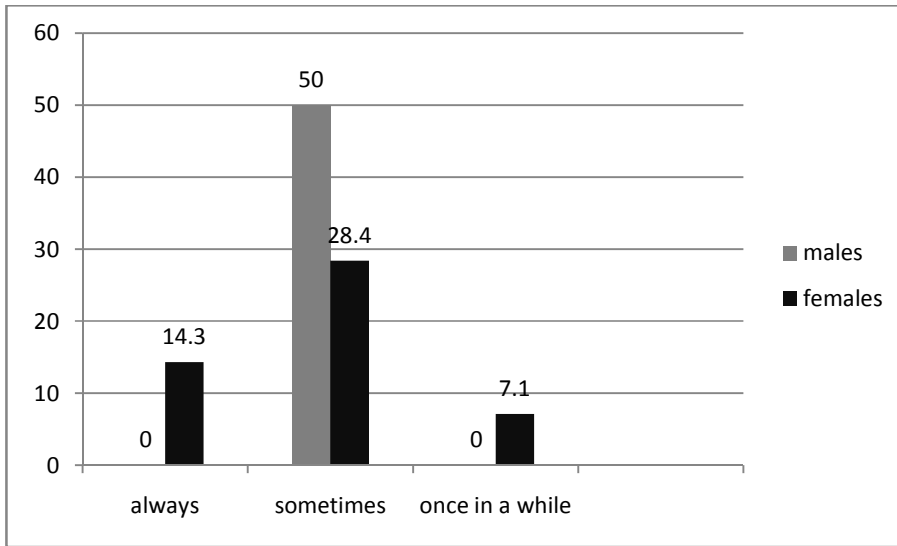
**Figure 5: Frequency at Which Pupil Confuses Letters when Reading**



#### 4.2.1.3: Pupil Responses from Questionnaires on the Frequency at Which Pupils Skipped Lines when Reading

Respondents were asked to indicate the frequency at which they skipped lines when reading. Figure 6 below shows their responses.

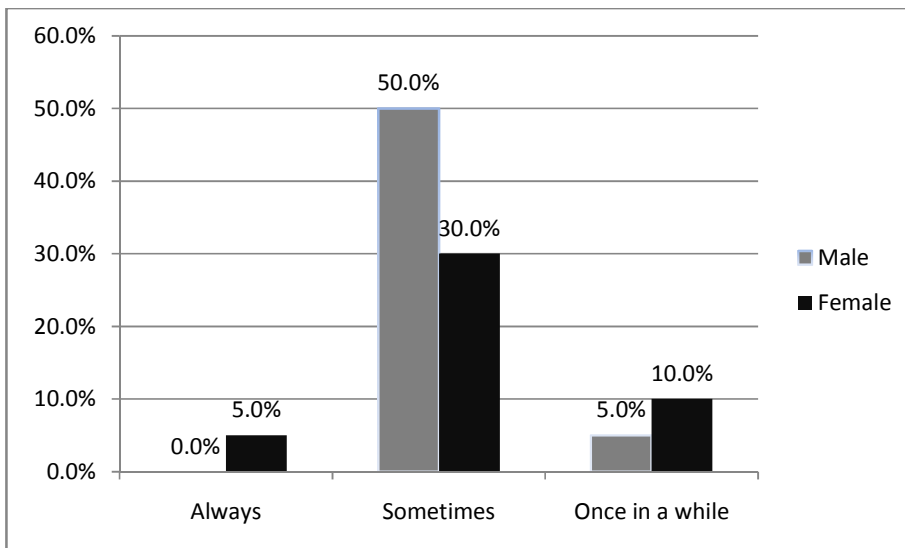
**Figure 6: Frequency at which Pupils Skipped Lines when Reading**



**4.2.1.4: Pupil Responses from Questionnaires on the Frequency at Which Pupils Skipped Words When Reading**

Figure 7 below shows the occurrence of pupil skipping some words when reading. The figure shows that the majority of them, 10 (50.0%) males and 6 (30.0%) females said “sometimes” followed by 1 (5.0%) male and 2 (10.0%) females who said “once in a while”. Only 1 female said “always”.

**Figure 7: Frequency at Which Pupils Skipped Words When Reading**

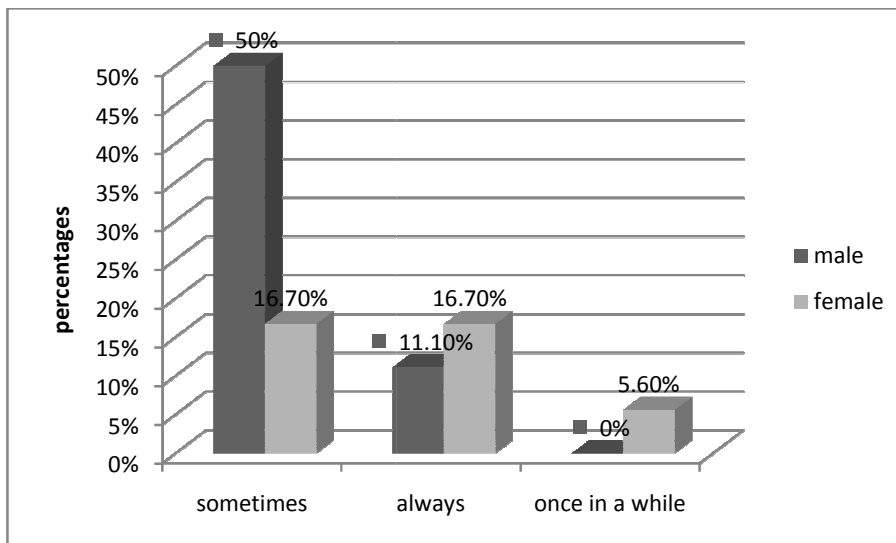




#### 4.2.1.5: Pupil Responses on the Frequency at Which Pupils Had Problems with Pronunciation of Certain Words

Figure 8 below shows the frequency at which pupils had problems with pronouncing certain words. As can be seen from the figure, most pupils, 9 (50.0%) males and 3 (16.7%) females said they sometimes had problems while 2 (11.1%) males and 3 (16.7%) females said they always had problems with pronouncing certain words.

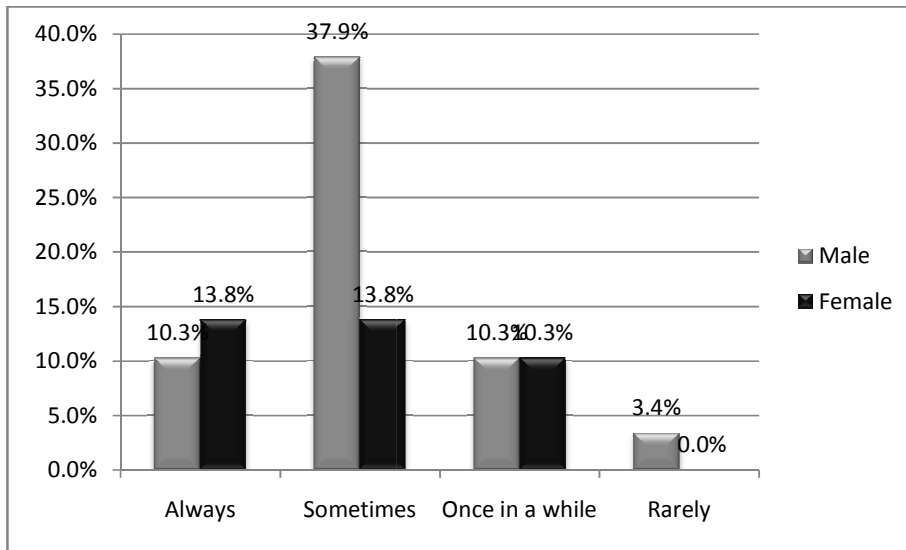
**Figure 8: Frequency at Which Pupils Had Problems with the Pronunciation Of Words**



#### 4.2.1.6: Pupil Responses on the Frequency of Confusing Spellings of Words When Reading.

Pupils were asked to state how frequent they confuse the spellings of certain words when reading. The majority of them, 11 (37.9%) males and 4 (13.8%) females said “sometimes” followed by 3 (10.3%) males and 4 (13.8%) females who said “always”. On the other hand, 3 (10.3%) males and 3 (10.3%) females said “once in a while” while one male pupil said “rarely”. Figure 9 below shows their responses.

**Figure 9: Frequency at which Pupils Confused Spellings of Words.**



#### **4.2.1.7: Pupil Responses from Questionnaires on the Frequency at Which Pupils Had Difficulties In Recalling Certain Letters and Words**

As regards difficulties in recalling certain letters and words when reading, most of the pupils, 4 (36.4%) males and 6 (54.5%) females indicated that they sometimes had difficulties while one female pupil said she always had difficulties in recalling certain letters and words. Figure 10 below shows their responses