UNIVERSITY OF EDUCATION, WINNEBA

TEACHERS' AND PARENTS' PERCEPTIONS AND KNOWLEDGE ON VISION SCREENING FOR CHILDREN IN BASIC SCHOOL IN WINNEBA.

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TEACHERS' AND PARENTS' PERCEPTIONS AND KNOWLEDGE ON VISION SCREENING FOR CHILDREN IN BASIC SCHOOL IN WINNEBA.

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DECLARATION

Student's Declaration

I, Ruth AdjoaAckah, declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Signature:…….....

Date: …….....

Supervisor's Declaration

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of thesis as laid down by the University of Education, Winneba.

Name Of Supervisor: Dr. Daniel Dogbe

Signature:……

Date:……

DEDICATION

To my elder brother Shadrach KofiAckah

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ABSTRACT

The purpose of this study was toexamine teachers' and parents'perceptions and knowledge on vision screening for children in basic school in Winneba. The study design was cross-sectional survey, questionnaire was the main instrument used to collect quantitative data. Simple random sampling and convenient sampling techniques were used to select a sample of 80 teachers and 40 parents to help answer the research questions. Responses were categorized and converted to frequency counts and simple percentages. The findings revealed that 70% of the teachers had negative perceptions about vision screening while 90% of the parents have positive perceptions about vision screening for basic school children. Eighty-seven percent of the teachers confirmed that basic school children have never received any form of vision screening in their schools while 70% of the parents have never taken their children for vision screening. Fifty-seven percent of teachers had knowledge in functional vision assessment while 59% of the teachers had no knowledge in learning media assessment. Few of the teachers (3%) and parents (20%) lacked knowledge on common eye disorders that affect basic school children. Both parents and teachers perceived that public awareness, availability of resources, cost involved, beliefs and cultures, the involvement of schools and parental involvement can influence vision screening and visual assessment for basic school children. Based on the findings, recommendations made included the need for public education on vision screening and visual assessment by the Ghana Health Service in collaboration with the Ministry of Education as well as the media, training of more eye-care providers by nurses and medical schools, in-service training of teachers in basic vision screening by eye care providers, funds for resources for vision screening and visual assessment should be provided by the government, NGOs, and individual philanthropists and each basic school should have special educators to assist in eye screening and visual assessment.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Childhood blindness is a priority of "Vision 2020-the Right to Sight," a global initiative for the elimination of avoidable blindness (World Health Organization, 2007). According to the World Health Organization (WHO, 2004) as cited in Lowe (2013), there are an estimated 1.4 million children with blindness in the world, of whom approximately 300,000 live in Africa. Each year, an estimated half a million children become blind (nearly one per minute), of whom up to 60% die in childhood. About one-half of the estimated 1.4 million cases of blindness in children could have been avoided (WHO, 2007). While the prevalence rate of childhood blindness may not be as high as adult blindness, the number of years one lives with the condition makes childhood blindness a major concern. Research conducted by Abdul-Kabir, Nkansa-Kyeremanteng, Nelson-Ayifahand Nkansah (2018) also indicate that there has been about 40% increase in the number of children with blindness living in sub-Saharan Africa over the last twelve years. The World Health Organization (WHO) estimates that 80% of blindness is preventable but there are more than 400,000 children who are blind in Africa and many more with visual impairment most of which could have been prevented (Abdul-Kabir et al., 2018).

When children with and without decreased visual acuity are compared, those with good visual acuities are significantly more likely to achieve satisfactory academic performance. According to Huston (2012), studies conducted by Shankar, Evans andBobier(2007) suggest that vision disorders including significant uncorrected hyperopia and visual-perceptual problems can have adverse effects on a child's

reading ability. In order to prevent a treatable condition like refractive error from having negative long-term effects on a child's future, early detection is key. Screening and visual assessment can play a critical role in identifying school-aged children with vision problems and helping them to receive treatment as well as modifying lessons to suit how they see.

Vision screening, also called eye test, is a brief examination that looks for potential vision problems and eye disorders. Vision screenings are often done by primary eye-care providers as part of a child's regular medical checkup. Sometimes screenings are provided to children by school nurses (National Institute of Health & U.S. National Library of Medicine, n.d.). Vision screening is not to take the place of comprehensive examination and cannot be used for disease diagnosis or treatment, it can be useful as a quick and easy method of detecting previously undiagnosed disease. Screening consists of a test or tests, generally quick and easy to administer and score, that determine whether a child meets certain criteria considered normal or 'healthy' for his or her age group. Screening does not provide a definitive diagnosis, but determines who should and should not be referred on for a more comprehensive eye examination (Mathers, Keyes, & Wright, 2008).

Vision screening will help to identify individuals with low vision which will lead to their vision being assessed through visual assessment. American Foundations for the Blind (2017) explain that visual assessment helps to assess learners with low vision to know how they use their vision in everyday life and which senses they use most to get information from the environment. Once this is known, decisions can be made about which method or methods the child should use for learning and literacy. For example,

if a child uses his or her sense of touch primarily and most often to explore the environment, it may be recommended that he or she learns braille for reading and writing.

According to Gupta, Gupta, Chauhan and Bhardwaj (2009) school children are easily accessible and schools are the best forum for imparting health education to the children, and schools are also one of the best centres for effectively implementing the comprehensive eye healthcare programme. Vision screening and visual assessment among school children is therefore one of the best modules for early detection and treatment of preventable blindness in children especially at the preschool level which is between the ages of 3 and 5 and or also necessary from 0 to 5 years of age. Even though tests performed at the preschool level are similar to those used in adults, they are slightly modified and tailored to suit the needs and nature of these preschool children. Preschool vision screening is necessary for the identification of ocular conditions that may interfere with the development of normal vision, especially at a time when the visual system is highly flexible to treatment through interventions.

In Ghana, the Disability Act of 2006 states that "the Ministry of Health in collaboration with the Ministries responsible for Education and Social Welfare shall provide for the periodic screening of children in order to detect, prevent and manage disability" (Act 715, section 34).Two of the strategies under the objective three (3) of the Inclusive Educational Policy of Ghana is "to train and deploy more special educational needs resource teachers to all schools to support school heads and teachers to conduct basic eye screening, develop Individualized Educational Plans (IEP), and provide teacher and pupil support in schools". Another strategy is "to train

teachers and School Health Education Programme (SHEP) workers in early detection and referral processes" (Ministry of Education, 2015, p.8).As a measure to ensure proper visual assessment in basic schools in Ghana, the policy also states that "Every child in primary school shall undergo an assessment twice every year.; all schools should undertake early identification, referral and intervention through periodic screening of all learners; at all levels, there should be regular monitoring and periodic assessment aimed at improving the child's circumstances" (Ministry of Education, 2015, p.12, 13). These laws and policies explain that vision screening and visual assessment at the basic school level is not a choice but a must.

The above stated acts and policies intrest the researcher to read oline to know if there are studies on vision screening and visual assessment in Ghana. It was obvious that numerous studies have been conducted in Ghana concerning vision screening for basic schools in the area ofperceptions, knowledge and awareness of parents and teachers as well as prevalence of visual disorders among preschoolers. Theses studies were conducted in Kumasi, Accra, Wa, Cape Coast, Swedru and some towns in Ghana but nothing has been done in Winneba. Also interactions withsome basic school teachers and parents in Winneba indicated some negarive perceptions about vision screening and lack of knowledge on visual assessment. Winneba is located in the central region of Ghana and even though the main occupation of the people is fishing the town has many basic schools which are 42 public and 59 private basic schools. This explains that laws and policies on screening and assessment for basic schools in Ghana also apply to people in Winneba. It is therefore important to know the perceptions and knowledge of the people in Winneba on vision screening and

assessment to know how the implementation of these policies and laws can be effective in Winneba.

Vision screening at basic schoolscannot be effective without the involvement of teachers, school heads and parents. When school heads and teachers have positive perceptions about vision screening and adequate knowledge on visual assessment, they will seek to organize vision screening for basic school children. Parents as primary care givers make decisions on seeking health care service for their children.Understanding parents' perception and knowledgeonvision screening is important in understanding why some parents seek care for their children whereas others do not.This understanding becomes necessary because early detection and intervention serves best when given at an early age (Emedike & Ebeigbe, 2016). This cross-sectional analysis examinedhow teachers and parents perceive vision screening for basic school children, teachers' knowledge on visual assessment for basic school children,teachers and parents' knowledge on common eye disorders that affect basic school children and teachers and parents' perception about factors that influence vision screening and visual assessment for basic school children in Winneba.

1.2 Statement of the Problem

Discussions with some basic school teachers and parents in Winneba appears that basic school teachers and parents have negative perceptions as well as lack knowledge on vision screening and visual assessment. This will make it difficult for the inclusive education policy of Ghana to be implemented in Winneba as well as planning for the realization of goals of VISION 2020, the right to sight initiative will be very difficult. Teachers and parents are part of stakeholders in Education and they

are at the implementation stage which explains that their perception wil either help vision screening and visual assessment in basic schools or not.

Most school children in Ghana are suffering from vision disorders that could be avoided if identified earlier. A study conducted by Boaitey (2014) to find out the prevalence of myopia among students in Sekyere came out that 27% of the students were suffering from myopia. Another study conducted by Ovenseri-Ogbomo (2010) at Agona Swedru also indicated that out of 637 school children selected for the research, only 13.3% had previously had an eye examination and 86.7% had refractive error. This explains that perceptions and knowledge of teachers and parents will influence vision screening and visual assessment in basic schools in Winneba.Studies conducted by Abdul-Kabir et al. (2018) in the New Juaben Municipality indicated that only few (3.4%) of teachers and school authorities ensured that children of preschool age received some form of eye examination. Also, a study conducted by Abdul-Kabir, Ansah andNkasa-Kyerematen (2017) on awareness and knowledge level of preschool vision screening among teachers and eye care providers in a sub-urban municipality in Ghana indicated that the level of awareness of preschool vision screening and assessment among teachers and eye care providers are very low. That is, 66.9% of the teachers had no idea what preschool vision screening and assessment were about.

Even though before enrollment into basic schools it is required of parents to provide weighing cards that entails the child's health information as stated in the inclusive education policy of Ghana, it is also important that schools conduct vision screening and visual assessment periodically for basic school children. This study sought to

investigate teachers' and parents' perceptions and knowledge on vision screening for children in basic schools in Winneba.

1.3 Purpose of the Study

This study aimed at seeking teachers' and parents' perceptions and knowledge on vision screening and visual assessment for children in basic school in Winneba.

1.4 Objectives of the Study

The study sought to find out:

1. Teachers' and parents' perception on vision screening for basic school children in Winneba.
2. Teachers' knowledge on visual assessment for basic school children in Winneba.
3. Teachers' and parents' knowledge on common eye disorders that affect basic school children in Winneba.
4. Teachers' and parents' perceptions about factors that influences vision screening and visual assessment for basic school children in Winneba.

1.5 Research Questions

The following research questions were raised to guide the study:

1. What are teachers' and parents' perceptions on vision screening ofbasic school children in Winneba?
2. What knowledge do teachers have on visual assessment of basic school children in Winneba?
3. What are teachers, and parents' knowledge on common eye disorders that affect basic school children in Winneba?

4. What are teachers' and parents' perception about factors that influence vision screening and visual assessment of basic school children in Winneba?

1.6Significance of the Study

The findings will serve as a guide for effective provision of vision screening and visual assessment in basic schools in Winneba.Also, the outcome of the study will be beneficial to stakeholders when making health decisions for basic school children. Finally, the study will serve as reference material for future research by students and special educators who would like to do further work relating to vision screening and visual assessment in basic schools.

1.7 Delimitations

The study concentrated on 8 basic schools in Winneba: University Practice Primary and Junior High School (North Campus), A. M. E. Zion Primary and Junior High School, Methodist B. Junior High School, Adventist Preparatory Primary and Junior High School and Presbyterian primary school as well as some selected parents.

1.8 Limitations of the Study

Things of this nature that were faced while conducting this study is the refusal of some teachers and parents to return the questionnaires that were given to them.For this reason the researcher did not get all the 120 questionnaires that were given out. On the other hand, this did not affect the result of the study.

1.9 Operational Definition of Terms

Vision Screening: this is an efficient and cost-effective method to identify children with visual impairment or eye conditions that are likely to lead to vision loss.

Visual Assessment: it is an organised procedure for gathering information about the health and function of the vision system.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews some concepts and definitions on vision screening and visual assessment in general.The literature also highlights the childhood eye cere situation in Africa which indicate that most of the causes of blindness in children are mainly preventable and treatable conditions but due to poor practitioner-to-patient ratios, absence of eye-care personnel, inadequate facilities, poor state funding and a lack of educational programmes these conditions are not treated or prevented. The theoretical framework that informed the study is also examined in this chapter. This chapter, therefore, deals with relevant literature which directly or indirectly addresses the research problem and objectives. It also provides a solid background on which the research is founded. In order to do this successfully, the review is done under certain thematic areas including:

1. Theoretical Framework
2. Childhood eye-care in Africa
3. Teachers' and parents' perception on vision screening
4. Visual assessment
5. Teachers' and parents knowledge on common eye disorders that affect basic school children
6. Factors influencing vision screening.

2.1 Theoretical Framework

This study was guided by Vygotskian theory (1896- 1934). Vygotsky's theory relating to the concept of special education underscores the need for assessment of children with special needs so that their individual needs can be catered for through the appropriate strategies. He expressed that in education, there are some learners who have peculiar factors which lead to the inability of the education system to accommodate them (Swart &Pettipher, 2005) cited in (Landsberg & Kruger).

In support of Vygotsky's ideas, many school children have special needs (including vision problems) which are unidentified. Consequently, when the needs of these children are not catered for, they do not achieve their academic potentials. As described by Knowler (1990), visual learning accounts for 80% of the learning process. It therefore follows that when a child has a vision problem, their academic progress will be affected although the teachers and parents may fail to see the connection between poor academic performance and the child's vision. Equally worth noting is that most early signs of visual impairments may be mild and hence they are either ignored or never identified in the first place.

According to Atkinson (1993), signs of possible vision problems among school children include consistently holding a book too close, losing places while reading or using a finger to guide eyes when reading, squinting or tilting the head to see better, frequent eye rubbing, sensitivity to light and/ excessive tearing, closing one eye to read and avoiding activities which require near vision such as reading or homework, complaining of headaches or tired eyes and receiving lower grades than usual. Even though this citation is old the information is very relevant for this study.

Vygotsky argues that assessing children's needs could derive important information about their unique special needs and stresses the importance of developing special strategies to address them. In this study, investigating the perception and knowledge of teachers and parents on vision screening and visual assessment for basic school children was the major concern which aimed at finding out teachers and parents perception about vision screening, teachers knowledge about visual assessment for basic school children, teachers and parents knowledge about common eye disease that affects basic school children and teachers and parents perception about factors that influences vision screening and visual assessment at the basic level.

Vygotsky expresses that special education should be hinged on the individual needs of a child. He further stresses that understanding the special need of a child and working towards alleviating or improving it should be core (Vygotsky, 1995). To back these sentiments, Das (1995) has noted that special education should not be just a diminished version of regular education, but a specially designed setting to assess, detect and exclusively serve the individual needs of the children with special needs. In line with these views, this study investigated the perceptionsand knowledge of teachers and parents about vision screening and visual assessment for basic school children in Winneba. Even though citations in the theoretical framework are very old the information are very relevant for this study.

2.2 Childhood Eye-Care in Africa

In 2010, it was estimated that there were about 1.26 million children who are blind globally and a vast majority of them lived in most poor countries of Asia and Africa (Gilbert & Quinn, 2011). An earlier global estimate made in the 1990s, estimated the

number of children who are blind to be 1.4 million, showing a 10 per cent decrease over the last 10 years (Gilbert & Foster, 2001; Gilbert & Quinn, 2011).

The same declining trend of child blindness globally is not applicable to Africa. In fact there is a relative increase in the number of blind children in Africa. While the percentage of blind children in many parts of the world indicated a decreasing trend, this was not the case for children in sub-Saharan Africa, where a 40 per cent increase in the number of blind children living was reported over the last twelve years; from 300,000 in 1999 to 419,000 in 2010 (Chandna& Gilbert, 2010: 3; Gilbert & Foster, 2001). High fertility rates and the consequent growth of child population and an already overburdened service provision partly explain this increase in the number of blind children in the continent. It should also be emphasised that the prevalence of overall visual impairment in Africa is much greater, since for every blind child there are also many more who suffer impaired vision.

World Health Organisation recommends one paediatric ophthalmic centre/child eye health tertiary facility (CEHTF) per ten million population as a minimum level of service to address children's needs. Sub-Saharan Africa is grossly under-serviced with just 26 centres located across 11 of the 48 countries. An ORBIS report on Planning for Comprehensive Child Eye Health Care in sub-Saharan Africa (2011) provides an overview of current services available in the region as well as implications and need to upscale services in the region and to consolidate existing ophthalmologic centres. National strategies for eye services are influenced by a number of country-specific factors and the challenges and benchmarks for each differ. For example, in the Democratic Republic of Congo (DRC), which covers a landmass the size of Western

Europe, the costs of establishing adequate eye services are immense. The number of health services will also be determined by the population sizes of countries which vary considerably. Population sizes of African countries range from 86,000 in Seychelles to an estimated 145 million in Nigeria (PRB 2010) (Borrel, Dabideen, & Mekonen, 2013).

According to Potter, Debrah, Ashun and Blanchet (2013), eye health services in Ghana appear to be focused in curative services rather than prevention, early detection, or rehabilitation. There may be a number of reasons for this, including lack of resources, the longer timescales and difficulties for advocating for investment in prevention rather than treatment, the influence of organisational structures, and where the National Eye Care Unit (NECU) is located within the Ghana Health Service (GHS), under Institutional Care rather than Public Health.

Potteret al. (2013) explained that prevention, early detection and rehabilitation is part of the role of the eye-care service persons in Ghana. According to them prevention is part of the role of an ophthalmic nurse to create awareness both of good eye health and early treatment for eye conditions. However, by the time patients arrive at health facilities, it may be too late to treat effectively, and more needs to be done at national level to prevent eye conditions from occurring in the first place. For instance, eye injuries are common, and advocacy to improve Health and Safety legislation (e.g. mandatory eye protection for occupations such as welding or handling chemicals) may prevent occupational injuries. They also added that early detection could be better, including further awareness raising, and proactive testing, e.g. through training of Community-based Health Planning and Services (CHPS) and traditional healers,

ensuring equipment is available e.g. to test Intra Ocular Pressure for glaucoma, plus more integration with other existing health services e.g. diabetes, hypertension. Early detection will lead to early treatment which are not only drugs, but also optical aids. Potteret al. (2013) also explained that rehabilitation in Ghana needs more focus and advocacy. There is a fund at District Assembly level (from central government, 2% of the total money sent to the District Assembly) for all categories of disability, and Ghana Federation of the Disabled (GFD can access these funds.

According to Naidoo (2007), the state of eye care in Africa contrasts with that in the rest of the world. Poor practitioner-to-patient ratios, absence of eye-care personnel, inadequate facilities, poor state funding and a lack of educational programmes are the characteristics of eye care in Africa, with preventable and treatable conditions being the leading causes of blindness. Eye diseases causing preventable blindness are often the result of a combination of factors such as poverty, lack of education and inadequate health-care services. The challenge that Vision 2020 has set itself in Africa is enormous. Africa is not a homogenous entity, the inter- and intra-country differences in economic development, prevalence of disease, delivery infrastructure and human resources amplify the challenges of meeting eye-care needs. The successful implementation of Vision 2020 programme will be hindered without the development of a comprehensive, co-ordinated strategy that is cognisant of the differences that exist and the need for comprehensive solutions that are rooted in the economic and political realities of the continent as well as the individual countries and regions within countries. This strategy should recognise the need for economic growth that results in greater state funded eye-care services that focus on health

promotion to ensure the prevention of eye disease, the development of eye clinics in hospitals and health clinics, and the training of the appropriate human resources.

2.3Teachers' and Parents' Perception onVision Screening

Findings of a study conducted by Dudovitz, Izadpanah, Chung and Slusser (2015) came out that teachers, parents and students perceived that visual deficits contributed to poor school performance. The mechanisms cited for how poor vision disrupted a student's ability to function in school varied. Some reported difficulty focusing in class and falling behind because of not being able to see from the board.

A study conducted by Akuffo, Abdul-Kabir, Agyei-Manu, Tsiquaye, Darko and Addo (2020) on assessment of availability, awareness and perception of stakeholders regarding preschool vision screening in Kumasi, the result indicated that more than half of the teachers (59.6%) perceived preschool vision screening to be very important for preschoolers (school children). A greater part of the respondents (60.2%) strongly agreed that preschool vision screening should be implemented in preschools. It is interesting to note that 91.9% of all respondents were willing to consider preschool vision screening as a mandatory aspect of admission processes in schools; 56.6% of these respondents were extremely ready to help in sustaining the preschool vision screening programme in schools.

A study by Tabansi (2007) on evaluation of teachers' knowledge and performance of vision screening in primary school children in Port Harcourt city reveals that the knowledge of eye problems and practice of vision screening amongst school teachers in Port Harcourt City (PHC) was low prior to receiving a 6 hours skill training workshop. Specifically, Only 56.9% of teachers were aware of school entry vision screening for pupils, 8 (6.2%) teachers had heard of the Ishihara color vision chart, and only 14 teachers (10.8%) agreed that that vision problems may cause poor

academic performance. None of the 130 teachers recruited could correctly identify or utilize any of the vision screening charts (Snellen's Alphabet and Tumble E charts, and Ishihara's color vision chart).

A study conducted by Ebeigbe (2016) on factors influencing eye-care seeking behavior of parents for their children in Nigeria found out that most parents had misconceptions about their child wearing spectacle prescriptions, claiming that the child might get too dependent on them and may not be able to function without them. Other parents thought it would 'spoil' the child's eyes if they started wearing glasses so early in life. Some parents were more concerned about the social stigma associated with wearing glasses, especially toward the girl child, claiming they did not look cosmetically appealing.

Akuffo et al. (2020) revealed that most of the teachers and other educationists in the study perceived preschool vision screening and its related programmes/policies to be very important for preschoolers. The perception of these respondents is in line with some studies which highlight the importance of childhood vision screening (thus reporting a significant reduction in the prevalence of childhood vision anomalies, particularly amblyopia and its risk factors). The implementation of childhood vision screening programmes/policies in some countries has lessened the effects of childhood vision anomalies. This view is shared by most respondents in this study. In Canada, some stakeholders perceive that the introduction of public health nurses within schools could facilitate the implementation of school-based vision screenings. It is therefore not surprising that a greater number of respondents in the study were willing to consider preschool vision screening as a mandatory aspect of admission

processes in schools. The introduction of the "Health for All Children" in the United Kingdom, which includes school-based vision screenings as part of primary schools' admission processes, has been an effective vision screening system. Therefore, school-entry vision screening in Ghana will contribute immensely to the overall eye health of preschoolers.

Also, Ebeigbe (2016) found out that some parents (51.4%) said they would prefer drugs to prescription of glasses for their child. A favorite drug among the parents (80.0%) for the treatment of any eye condition was chloramphenicol, an antibiotic eye drop which can be bought over the counter at the chemist or drug store. Some parents (42.9%) were worried that when a child is given glasses too early, the eyes would become 'addicted' to them and cannot function well on their own. Some parents (34.3%) think that certain 'drugs' like vitamin A and vitamin C, as well as carrots and yeast tablet or powder can be used to treat eye problems instead of glasses. When asked if they had any homemade or local treatments for eye conditions, some parents (17.1%) said they had put sugar solution, early morning urine and breast milk, if available, into a child's eye for the treatment of '*apollo*' (conjunctivitis) at one time or another. Others (34.3%) admitted to using water on coconut leaves, cassava water, local roots and herbs to treat one form of eye problem or the other. Some parents (14.3%) used palm wine to wash the eyes when there is measles in the eyes. Other parents (28.6%) had used shea butter, locally called '*orioryor*' for the treatment of '*boil*'. Although they could not vouch for the safety of these practices, they relied on them because the practices had been going on for ages among their forefathers and were deemed effective.

2.3.1 Vision screening

Children's vision screening is a systematic approach to identifying children with potential vision problems. The focus is on detecting conditions that are commonly occurring and can be easily corrected. Typically, traditional vision screening of children assesses distance vision of both eyes (binocular vision) and one eye at a time (monocular vision). Near vision and color vision are additional parameters which may be included as part of a traditional vision screening programme. Alternatively, newer technologies may be employed which can evaluate for focusing problems, eye alignment, and opacities within the eye. Vision screening does not take the place of a complete or comprehensive eye examination which only an eye care professional can provide (Arizona Department of Health Services, 2010).

The development of a child's sense of sight occurs over a period of years and is most sensitive to correction during the first seven to eight years of life (Eliot, 199). As children age, there may be changes in their vision that may impact their learning. Many vision problems in children go undetected by parents, teachers and the children themselves without a formal vision assessment. Vision screening can help detect or identify a problem with a child's eyesight so it can be caught early when treatment can be most effective. If a problem is detected, the child's parents or guardian is notified and the child is referred for further evaluation and treatment if necessary. A well-developed vision screening programme may help identify children aged 3 and older who may require additional follow-up with an eye care professional for a professional examination (Arizona Department of Health Services, 2010).

Visual problems including uncorrected refractive error may hinder learning, and early correction of refractive error allows for better overall performance in school. In studies conducted by Roch-Levecq, Brody, Thomas and Brown (2008); Atkinson, Anker, Nardini, Braddick, Hughes and Rae (2002), children with emmetropia had significantly higher scores on standardized tests of visual-motor integration than their counterparts with significant uncorrected hyperopia. Studies by Shankar, Evans andBobier (2007) and Cornelissen, Bradley, Fowler and Stein (1991) suggest that vision disorders including significant uncorrected hyperopia and visual-perceptual problems can have an adverse effect on a child's reading ability. In order to prevent a treatable condition like refractive error from having negative long-term effects on a child's future, early detection is key. Screening can play a critical role in identifying school-aged children with vision problems and helping them to receive treatment.

According to Huston (2012), a screening test is effective if it is able to appropriately divide the population being screened into those who may have and those who probably do not have the condition for which they are being screened. This can also be thought of in terms of sensitivity and specificity. If the results of a screening test that classifies a child as pass or fail are compared with the results of a gold standard test that classifies a child as pass or fail, the results can be summarized in a simple table. This table can then be used to determine the sensitivity and specificity of the screening test. A test's sensitivity is its ability to identify children with the disease; it is defined as the proportion of children with the disease who test positive. The specificity of a test is its ability to correctly determine subjects who do not have the disease; it is defined as the proportion of subjects without the disease who test negative.

Children are often unaware that they are seeing “less” than they should and often do not complain of visual difficulties. Identifying children who may have issues with vision appears to have substantial benefits in simpler, more effective, and less costly treatment, improvement of developmental outcomes, and enhancement of quality of life (American Association for Pediatric Ophthalmology and Strabismus, 2001) as cited in (Proctor, 2005). If not detected and treated early, vision problems in children can lead to a variety of long-term consequences.Untreated vision problems can lead to permanent loss of vision, difficulty learning, delayed sensory and social-emotional development.

An understanding of the importance of vision screening by teachers and parents is critical to the outcome of a child’s academic success. Vision deficits are a common problem in the preschool and school age population. Early detection and treatment of these deficits will lessen the possibility of any damaging long-term effects and may have a direct impact on each child’s academic performance.

2.4 Visual Assessment

Assessment refers to the process of gathering and analyzing information in order to makeinstructional, administrative and or guidance decisions about or for an individual (Wallace, Larsen&Elksnin, 1992). It is a critically important step in the developmental progress of a visually impaired child. Understanding the child’s abilities and the nature of cognitive, visual or other sensory impairments is foundational knowledge for creating an educational plan. Assessment team can comprise of a special teacher, parents, regular teacher, Orentation and Mobility instructorand psychologist. The assessment can be carried out in an informal and

formal setting; familiar and unfamiliar setting, natural and artificial setting for understanding the training needs of visually impaired child (Abhiyan, n.d.).Visual assessment include functional vision assessment and learning media assessment.

2.4.1 Functional vision assessment

The functional vision assessment is a pivotal assessment for children who have low vision. It is an assessment of how a child uses the vision he or she has in everyday life, so it is usually not done with children who are totally blind or have light perception only. Since a child's visual condition and abilities can change over time, the functional vision assessment needs to be repeated periodically. A functional vision assessment will investigate how a child uses the vision for near tasks, closer than 16 inches; intermediate tasks, 16 inches to 3 feet; and distance tasks, more than 3 feet away (Family Connect, 2016).

This assessment is conducted by the teacher of students with visual impairments or sometimes an orientation and mobility specialist, who uses a combination of formal tests and informal measures, which may differ depending on the child's age. He or she will review the child's records, spend time observing the child as he or she goes through the day, and may interview the parent, the child, and the regular classroom teacher. Formal tests will include tests to assess visual acuity, visual field, contrast sensitivity, color vision and light sensitivity. Informal measures might include observing the child to see what eye he or she prefers to use when looking at materials or if he or she can locate an object in a picture that has a lot of detail (Family Connect, 2016).

Based on the information gathered through these various activities, the teacher of students with visual impairments can make recommendations about ways to help the child to learn how to use his or her vision more effectively. Some of the recommendations may include modifications, or changes to the environment, such as providing additional lighting for certain tasks or seating the child with the glare from the window behind him; areas of specialized instruction for the child, such as learning to use a magnifier to read print; adaptations or materials that may assist the child, such as the use of a black marker to increase the contrast between the letters and the paper being used when he or she writes, or additional time for completing a test. Also, Instructional strategies, such as teaching the child to use his vision to scan all the paint choices at art time, instead of always picking the paint in the container on the right side of the easel because he sees best out of his right eye. Referrals to other professionals, such as an assistive technology specialist or an orientation and mobility instructor, for example, if the child often does not see branches or other objects on his right side that could hurt him. The parent will then receive a copy of the report written by the teacher of students with visual impairments summarizing the information gathered and the recommendations. It is important to review the child's most recent functional vision assessment report before the parent meet with the other members of the child's educational team so that the parent will be ready with any comments or questions the parent want to discuss with them(Family Connect, 2016).

According to Abhiyan (n.d.), functional vision may be improved with low vision devices or by specific instructions to use the vision. A commonly used tool for functional assessment of vision is developed by Jill Keeffe. It is divided into two parts. The first part describes the screening procedures as well as measurement of

distance and near vision acuities and visual field. The second part explains how to observe the effects of low vision and to assess the visual skills used for functional vision and suggestions for effective use of vision. The assessment is carried out in two parts: First is the observation of effects of low vision. The aim of observing is to examine the effects of low vision for each person. The areas to be observed for each person are: how the person feels about his vision, how vision is used, the understanding of low vision and the special needs of the person, the need for modification to the environment such as lighting, contrast and use of colour. The visual skills used for functional vision include the awareness and attention to objects, control of eye movements- tracking and control of eye movements- scanning.

The differences in how people use vision are usually not related to the measures of distance visual acuity or near vision. A person may have very poor vision, not well enough for detailed work such as weaving, carving or reading but may be able to see and avoid objects so that he can move around safely. Functional vision may be improved with training. Many people can learn to make better use of their low vision and can function efficiently with only small amounts of visual information. Objects and print can be recognized when they are blurry or when only parts of them can be seen.

2.4.2 Learning media assessment (LMA)

According to the Perkins School for the Blind (n.d.), learning media assessment is assessment for selecting the appropriate literacy media for students with visual impairments. "Literacy media" refers to the way in which students access the general education curriculum and includes braille, print, auditory strategies, objects, and

pictures. The learning media assessment assesses a student's learning style, or the way in which he or she uses vision, touch, hearing, and other senses, either singularly or in combination, to gain access to information. This is where LMA has often been misunderstood. One of the key things that is assessed is the student's learning style, which is particularly useful when working with young children with visual impairments. The LMA scale should begin no later than age 3, when a child begins the transition to preschool. It should be updated annually and/or as visual functioning changes.

This scale can be used academically for students who are in the general education curriculum and proceeding along an academic track. However, it should also be used with children with more complex disabilities in looking at functional literacy. LMA takes a broad definition of literacy, which includes reading and writing in some form, such as using drawing or expressive communication. Some Teachers of the Visually Impaired (TVIs) only look at the braille/print decision, but the learning media assessment goes much further than that to look at the preferred sensory channels of all students. The primary reason to perform a learning media assessment is to ensure that all children have access to literacy and to education (Perkins school for the blind, n.d.).

2.5Teachers' and Parents' Knowledge on Common Eye disorders That Affect Basic School Children

A study conducted by Ebegibe (2016) found out that most parents (71.4%) were well aware of eye conditions that needed the use of glasses. They said glasses are needed when someone cannot see well at a distance, like recognizing people's faces or seeing

what was written on the blackboard in school and when one has difficulty with reading. Some parents (51.4%) associated poor performance in school to eye problems that might require the wearing of glasses. A few parents (22.9%) associated headaches with eye problems which might require the use of glasses. The eye care practitioners agreed that most parents associated the rubbing of the eyes, difficulty in copying from the blackboard, sitting close to the TV or holding book too close to the face as symptoms of refractive error that require the use of glasses.

According to a study conducted by Tchiakpe, Nartey, Appenteng, Kumah, Ablordeppey, Cofie, andAfoakwah (2016) on perspectives on child eye health among junior high school teachers in LedzokukuKrowor Municipality, respondents were presented with a list of some common eye problems and were asked to indicate whether or not they had heard of or read on them. Most of the participants (89.88%) reported having knowledge on 'red eye' whiles pterygium was the condition least known by the respondents (7.51%). Respondents' knowledge on other ocular conditions include 82.08% had knowledge about refractive error, 32.95% had knowledge on crossed eye, 89.88% knew about red eye 43.93% also knew about cataract while 53.76% knew about low vision and 14.45% had knowledge about corneal ulcer.

A study by Senthilkumar, Balasubramaniam, Kumaran, and Ramani (2013) showed that although most parents were aware of childhood visual disorders, these parents were unaware of amblyopia in their children, and did not understand the causative factors of many pediatric visual anomalies. In a study by Su, Marvin, Wang, Van, Elia, Garza, Salchow, and Foster (2013), 29% of parents were unaware of their

children's vision screening failure, thereby serving as a barrier to follow-up eye care for their children. Parents perceive that there is inadequate vision screening programmes for their children in various schools. It has also been shown that some teachers are unaware of childhood visual anomalies. This may be due to a lack of education on children's eye health. A study by Agrawal, Tyagi and Nagesh (2018) also reported that 96% of teachers were unaware of the age at which vision screening should be conducted for children.

A study conducted by Sukati, Moodley andMashige (2018) showed that ninety-seven (53.1%) parents indicated having no knowledge about childhood eye conditions, and of those who indicated being knowledgeable about childhood eye conditions, 44 (32.8%) reported that they knew about refractive errors and 37 (27.6%) reported that they knew of allergic conjunctivitis. One hundred and four (60.1%) parents reported that they have never taken their children for an eye test.

2.5.1 Common eye disorders among basic school children

Common vision disorders among school children include amblyopia, strabismus, and refractive errors as well as colour blindness. Visual impairment associated with these conditions may result in irreversible vision loss and reduce quality of life, function, and school performance (Institute of Health Economics, 2012) .

2.5.1.1Refractive errors (Myopia, Hyperopia and Astigmatism)

According to National Eye Institute (2017), refractive errors are vision problems that happen when the shape of the eye keeps you from focusing well. The ccause could be the length of the eye ball (longer or shoter), changes in the shapes of the cornea, or aging of the lens. The four common refractive errors are myopia or nearsightedness,

hyperopia, presbyopia, and astigmatism. The most common symptom is blurred vision. Other symptoms may include double vision, haziness, glare or halos around bright lights, squinting , headaches or eye strain. Glasses or contact lenses can usually correct refractive errors and laser eye surgery may also be a possibility.

Atkinson, et al. (2002), explains that screenings often target identification of significant refractive error because it is one of the most common causes of decreased visual acuity in the world. An estimated 153 million people, 12.8 million of them children aged five to fifteen, suffer from visual impairment due to uncorrected refractive error. In a study of Brazilian children, refractive error was the cause of 77% of all visual impairment, and 52% of those who could achieve good or near-good vision did not have the necessary optical correction to do so.

According to Potter, et al. (2013), a recent study in Tema found that refractive error is a major cause of blindness and visual impairment in this population, above cataract and glaucoma. There is some suggestion that glaucoma is more and more affecting younger people in Ghana, but it is difficult to tell whether this is due to increased ascertainment or a shift in pattern of disease. Potter, Debrah, Ashun and Blanchet (2013), also stated that acute eye conditions are in the top 10 causes of outpatient morbidity: in 2008, there were 185,175 (out of a total of 10,639,546) outpatient appointments for “Acute Eye Infection”. According to data collected from eye units by the NECU, the top 5 eye conditions seen (based on number of patients seen in outpatient departments (OPD) are acute red eye; refractive error; cataract; glaucoma; uveitis (eye inflammation).

According to Kemper, Keating, Jackson and Levin (2005), myopia is a type of refractive error that is common in children. Myopia results when the eyeball is too long or the cornea which is the clear front cover of the eye is too curved. As a result, the light entering the eye is not focused correctly and distant objects look blurred. Although not as commonly associated with amblyopia as is hyperopia, some forms of myopia are considered amblyogenic factors. High myopia also increases a child's risk factors for complications including retinal detachment, choroidal neovascularization, and macular degeneration. For preschoolers, the American Association for Pediatric Ophthalmology and Strabismus (AAPOS) Vision Screening Committee has recommended that screening programmes seek to detect children with more than −3.00 dioptres of myopia. In school-aged children, it has been suggested that screening programs identify children with −0.50 dioptres or more of myopia (dioptre is a unit of measurement of the optical power of a lens or curved mirror which is equal to the reciprocal of the focal length measured in metres).

Symptoms associated with myopia, including distance blur, are often more overt than those associated with hyperopia. Unfortunately, uncorrected myopia is still a significant cause of vision impairment, in part because children often do not reliably report vision problems. In one study of visual impairment, 24% of children with good vision initially reported impairment, and 36% of those with impairment initially reported that their vision was good. Because myopia tends to progress during childhood and adolescence and because children are often unable to reliably report vision changes, screenings for school-aged children typically target myopia (Kemper, Keating, Jackson & Levin, 2005).

According to Lyons, Jones, Wallin, Bartolone, Carlson and Karttouf (2004), another specific type of refractive error that is common in children is hyperopia. Hyperopia occurs when the eye is too short for its converging power; the retinal image may not be clear because rays of light converge to a point behind the retina. The prevalence of hyperopia varies with age, peaking in childhood and old age. It also varies by race and ethnicity; studies of preschoolers in America found that Caucasian children and Hispanic children were more likely to be hyperopic than African American children. The reported prevalence of hyperopia for children aged five to 15 ranges from 0.4% to 18.3%, with the highest prevalence among Moroccan children and the lowest among those in Nepal.

Huston (2012) stated that astigmatism is also a common visual disorder among school-aged children. This condition occurs when the optical system of the eye varies from meridian to meridian; in this case the eye is incapable of forming a single point image. Prevalence of astigmatism varies with race and ethnicity; studies of American preschoolers show that astigmatism is more prevalent in Hispanic children than their African American counterparts. In school-aged children, prevalence of astigmatism ranges from 2% to 34% with the largest percentages of those reported found in Native American children.

It is important to detect astigmatism early because uncorrected astigmatism can lead to meridional amblyopia. This visual disorder occurs because a child with uncorrected astigmatism will have focal planes of certain orientations that are consistently out of focus; input for these orientations is consistently degraded, so vision does not develop properly in these specific orientations. Early detection and correction of astigmatism

is critical in order to prevent this type of vision reduction. The AAPOS Vision Screening Committee suggests that screening should target astigmatism of more than 1.50 diopters when oriented at 90 or 180 degrees and of more than 1.00 diopters when oriented obliquely. When screening school-aged children, the Modified Clinical Technique recommends identifying those with astigmatism of 1.00 diopters or more (Huston, 2012).

2.5.1.2 Amblyopia

Amblyopia is a disorder of processing of visual information that manifests as a decrease in visual acuity that is not immediately correctable with glasses and is not attributable to structural or pathological anomalies. It occurs due to a difference in refractive error between the two eyes, a problem with eye alignment, and/or an ocular condition that deprives the eye of stimulus. These conditions, known as amblyogenic factors, must occur during the sensitive period, which many say is between birth and age seven, in order for amblyopia to develop. Amblyopia is a serious condition because it leads to potentially permanent vision loss, which can affect a person's functional abilities and/or choice of profession. Screening for amblyopia is worthwhile because of its prevalence, its effect on society, and the effectiveness of amblyopia treatment. One to five percent of people in developed nations are affected by amblyopia, and amblyopia is the leading cause of monocular vision loss in adults aged 20 to 70. People with amblyopia are also statistically more likely to lose vision in their non-amblyopic eye, which can be devastating to an individual and can place a significant burden on society (Scheiman, Hertle, Beck, Edwards, Birch, Cotter & Al, 2005).

According to Schmucker, Grosselfinger, Riemsma, Antes, Lange, LagrèzeandKleijnen (2009), risk factors associated with amblyopia are strabismus (a misalignment of the eyes) and uncorrected refractive errors, in particular anisometropia (unequal refractive errors between the two eyes). Congenital cataract, congenital ptosis and corneal injury or dystrophy can also cause amblyopia but are less common. In Western countries, the prevalence rate of amblyopia among preschool children ranges between 2% and 5%, depending on the threshold value of visual acuity at a particular age. In a multicenter study, it was shown that anisometropia was the cause of amblyopia in nearly 40% of children aged from three to under seven years. Strabismus was seen in 38% and a combination of anisometropia and strabismus was the etiology in 24% of preschool children treated for amblyopia.

Many amblyopes have little or no stereopsis, the functional significance of which has rarely been reported. Most studies that have investigated this observation have compared performance under monocular and binocular conditions, generally concluding that binocular vision facilitates control of manipulation, reaching, and balance, and that people who lack stereopsis have difficulty performing tasks that rely on three-dimensional visual cues. There are, however, many individuals who perform well on tests of manual dexterity even though their stereopsis is poor, and a recent study of children who had undergone surgery for congenital esotropia (strabismus) showed postoperative improvements in motor performance that did not correlate with measured improvements in stereopsis (Webber, Wood, Gole&Brown, 2008).

According to Scheiman, et al. (2005), if the neurophysiological changes that occur in amblyopia are different under conditions of monocular blur versus oculomotor misalignment, then we might expect differences in performance between amblyopes with a history of strabismus and those without. Alternatively, if resolution is an influencing factor, performance may be limited by the level of VA in the better eye, as this predicts VA under binocular conditions. The presence of hyperopic refractive error, a common finding in children with amblyopia, is associated with mild delays across many aspects of visuocognitive and visuomotor development; therefore, the magnitude of hyperopic refractive error should be considered when investigating the determinants of fine motor skill performance.

According to Visual Effect Eye Clinic (n.d.), symptoms of amblyopia can often be confused with other visual impairments, namely crossed eyes. The crucial time to diagnose amblyopia is during infancy, before the condition becomes severe. Signs of amblyopia include head tilting, an eye that wanders inward or outward, eyes that appear to not work together or difficulties in performing close tasks, poor dept perception (confusion of shapes) and squinting or shutting an eye.

Amblyopia is most treatable when detected early, so much of the effort toward identification of amblyopia through screening has targeted preschool children. Screening for amblyogenic factors in school-aged children is also warranted because amblyopia can be effectively treated into the teenage years and beyond. In order to detect amblyopia, many screening programs use visual acuity determination, while others attempt to detect strabismus, and still others look at stereo acuity, which is often reduced or absent in individuals with amblyopia. The Vision in Preschoolers

(VIP) Study was established in order to identify the best tests for detecting significant vision problems in preschoolers, including amblyopia, strabismus, and significant refractive error (Scheiman, et al., 2005).

2.5.1.3 Strabismus

Strabismus, often called "crossed-eyes" or "wall eyes," is a condition in which the eyes are not properly aligned with each other. One eye is either constantly or intermittently turned in (esotropia) or out (exotropia). This ocular misalignment may be accompanied by abnormal motility of one or both eyes, double vision, decreased vision, ocular discomfort, headaches, or abnormal head posture. Although the exact cause cannot always be determined with reasonable certainty, strabismus is usually attributable to refractive, sensory or organic, anatomic or motor, or innervational causes.Any of these factors alone can result in strabismus; however, strabismus may be the result of multiple factors, which, occurring alone, might not cause the disorder. For some individuals, strabismus can result in permanent vision loss.Young children with strabismus often develop amblyopia (lazy eye) and impaired stereopsis (binocular depth perception). Early identification and treatment of strabismic children may prevent amblyopia. The strabismic child with amblyopia has a significantly higher risk of becoming blind by losing vision in the non-amblyopic eye, due to trauma or disease (American OptometricAssociation, 2011).

According to Cleveland Clinic (2015)there are several forms of strabismus. The 2 most common are accommodative esotropia and intermittent extropia. Accommodative esotropia often occurs in cases of uncorrected farsightedness and a genetic predisposition (family history) for the eyes to turn in. Because the ability to

focus is linked to where the eyes are pointing, the extra focusing effort needed to keep distant objects in clear focus may cause the eyes to turn inward. Symptoms include double vision, closing or covering one eye when looking at something near, and tilting or turning the head. This type of strabismus typically comes on in the first few years of life. This condition is usually treated with glasses, but may also require eye patching and/or surgery on the muscles of one or both eyes. In intermittent exotropia, one eye will fixate (concentrate) on a target while the other eye is pointing outward. Symptoms may include headaches, difficulty in reading, eyestrain, and closing one eye when viewing far away objects or when in bright light. Patients may have no symptoms; the ocular deviation (difference) may be noticed by others. Intermittent exotropia can happen at any age. Treatment may involve glasses, patching, eye exercises, and/or surgery on the muscles of one or both eyes.

Another type of strabismus is called infantile esotropia. This condition is marked by a large amount of inward turning of both eyes in infants that typically starts before 6 months of age. There is usually no farsightedness present (or only a small amount), and glasses do not correct the crossing. Inward turning may start on an irregular basis, but soon becomes constant in nature. It is present when the child is looking far away and up closely. The treatment for this type of strabismus is surgery on the inner or outer eye muscles to correct the alignment (Cleveland Clinic, 2015).

Adults can also experience strabismus. Most commonly, ocular misalignment in adults is due to stroke, but it can also occur from physical trauma or from a childhood strabismus that was not treated or was improperly treated. Strabismus in adults can be

treated in a variety of ways, including observation, patching, prism glasses, and/or surgery.

2.5.1.4Colour blindness

According to Albany-Ward (2015), colour blindness is (usually) an inherited condition affecting people's ability to perceive colours. It is caused by 'faulty' gene-sequencing in the DNA of the X-chromosome. We have 3 types of cone cells in our retinas. Each type is responsible for detecting either red, green or blue light. In colour blindness the faulty sequencing means one type is unable to decipher light wavelengths correctly. Consequently, the brain receives incorrect information and cannot properly interpret colour, so someone with Colour Vision Deficiency (CVD) is not able to distinguish between colours normally. There are rare forms of colour vision deficiency, such as blue blindness and monochromacy, but red and green colour deficiency is very common. Colour blindness can also be acquired as a side effect of some diseases (e.g. diabetes, sickle cell anaemia).

In schools, colour is an important tool, but for colour blind students it can be a nightmare undermining confidence, encouraging basic errors, making them slower to follow instructions, and causing frustration and even anger. When children start school, they are asked to describe the big brown dog, fill in colouring sheets and sing songs about the rainbow. If children do not understand some of what is being said, they cannot learn to full capacity (Albany-Ward, 2015).

According to Colour Blind Awareness (2016), there is a common myth that colour blind people only confuse reds with greens but if you are colour blind most

colourscan be confusing, so CVD can be a major disadvantage in an educational setting. Let's consider how children are instructed in early years' settings. We ask them to pick up the 'red' brick and in advance of reading we ask concentrate on improving ability to sequence by forming colourful patterns with beads. Colour is used in our descriptions of virtually everything, from the big brown dog, to the pretty pink flower and the green door that marks the entrance to the loo. From the moment they arrive in pre-school we ask them to fill in colouring sheets in specific colours and sing songs about the colours of the rainbow. If children are not getting a percentage of what we are saying, they cannot learn to full capacity and this can undermine confidence at an extremely impressionable age and provide a faulty foundation for future learning. As CVD children move up primary school, on to secondary school and into further education the problems they encounter become more complicated, so an understanding of their needs is crucial to ensure they don't miss vital information.

For the average student, colour is an extremely useful tool. For colour-blind students it can be a nightmare not only because it can undermine confidence but because poor use of colour in the classroom can encourage basic errors and cause frustration and even anger. Some children may have a mild form of CVD whilst for others their condition will be severe. It is not possible to find out exactly which colours someone with a less severe condition will be able to see, therefore best practice is to assume that you will have at least one CVD child in every class and also to cater for the most severe forms of colour blindness. On the other hand, to avoid too much of assumption it is advisable to conduct vision screening to know children in your class who are CVD.

2.6 Factors influencing Vision screening in Basic Schools

Factors influencing vision screening and visual assessment in basic schools may include public awareness or education, the involvement of schools, parental involvement, beliefs and cultures, the cost involved and availability of resources.

2.6.1 Public awareness and education

Historically, client's knowledge and awareness on the value of constant eye care is a key player in seeking eye care and eye health education also serves as an aid in preventing blindness. When adequate education is given to parents and teachers, it turns to influence their perception on vision screening and visual assessment which help prevent childhood blindness. It is therefore, imperative for teachers and parents to have requisite knowledge as well as awareness of vision screening and eye care to prevent future visual impairment. In Brazil 20% of parents with children with childhood ocular illness were not knowledgeable and aware about the disease as well as how to start treatment (Salomao, Cinoto& Berezovsky, 2010). Additionally, in their study, only 53% were knowledgeable in the correct time of ophthalmologic evaluation. These findings were relational to their educational background and sources of information obtained from health care providers well as print and electronic media.

Findings of a study conducted by Abdul-Kabir et al. (2017) in New Juaben Municipality showed there is statistically significant associations between highest level of education as well as period of handling preschool children. This proposes that the higher the level of education of teachers in a school, the more likely the school is to patronize preschool vision screening services. Also, teachers who have spent more

time taking care of preschool children are more likely to advocate for vision screening services or expose their wards to them.

Although blindness in the developing world is often curable, most do not receive proper eye care treatment. One recent study found that over 65% of adults over the age of 40, in a rural Indian population with low vision never sought eye care (Chang, Congdon, Baker, Bloem, Savage & Sommer, 2008) cited in Lowe (2013). One reason for this void of care is the lack of awareness about availability of treatments and services. Many people, especially older people, believe that blindness is an inevitable consequence of aging and do not know that there are options to prevent this blindness.

A study by Tchiakpe, Nartey, Appenteng, Kumah, Ablordeppey, CofieandAfoakwah(2016) found out that there was a trend of increasing knowledge with increasing academic qualification. It can thus be seen that education might inform the individuals of some eye conditions as Michielutte et al. stated: “those with higher levels of educational attainment tend to be more knowledgeable about glaucoma”. Pfeiffer, KrieglsteinandWellek(2002) also found a similar trend among University graduates and groups with lower educational attainment. Similar sources of information on eye conditions are reported in the Ovenseri-Ogbomo, Afful, Kio.(2013) study among slum in the Greater Accra Region of Ghana. This finding demonstrates the importance of the role the media has in eye health education.

Fotouhi, Hashemi and Mohammed (2006) reported that the likelihood of seeking eye care in Iran was associated with higher levels of education. This relationship was attributable to greater knowledge and therefore, more reasonable behaviour. It was also presumed to be due to the fact that educated people are members of the higher

socioeconomic class, thus may have greater access to the eye care services and find them more affordable. Kovai, Krishnaiah, Shamanna, Thomas andRoa (2007) found that the majority of rural population studied were illiterate and by definition blind (mainly due to cataract) and did not seek eye care services. This relationship was attributed to their lack knowledge of how to take care of themselves as most did not have higher education or were illiterates.

Better education about prevention of blindness might help to minimize the prevalence of visual impairment. Palagyi, Ramke, du Toit , Brian (2008) cited in Ntsoane andOduntan (2010) reported that knowledge of available eye care services increased the utilization of eye care services. Improving provider-patient interaction and developing public health messages about eye diseases and preventive eye care can facilitate increased use of appropriate eye care services. Muller, Keeffeand Taylor (2007) found that following a public eye health campaign using the metropolitan and regional television, radio and newspaper in Australia, there was an improvement in the utilization of eye care services, especially by the people with diabetes. Health education intervention must be designed specifically to increase awareness of symptomless diseases and to detect them at early stages. Parental education and an enhanced school-based screening programme have been identified as necessary to address the unfilled need for refractive error correction among school-age children in China (Ntsoane&Oduntan, 2010).

2.6.2 Involvement of schools

Screening should take place when the child first enters school and at regular intervals specified by the school district. Students who have vision disorders commonly experience symptoms such as eyestrain, blurring, headaches, and double vision. Academic consequences of vision difficulties include loss of place while reading, failure to recognize letters or words, and difficulty copying from the desk or board, and inability to sustain attention. Identifying those students with vision conditions, particularly at an early age, appears to have substantial benefits in simpler, more effective, and less costly treatment, improvement of developmental outcomes, and enhancement of quality of life. When a school district determines the regular intervals for vision screening, the vision functions to screen, and the equipment to use, they should consider the recommendations of expert organizations (The State of Alaska, 2013).

Schools have a lot to do when it comes to vision screening in basic schools, teachers with in-depth understanding of vision screening can help in observation and referrals as well as working with parents to make the work of eye-care providers easy. This explains that when schools refuse to get involved, vision screening at the basic schools will not be possible. Before the school conducts a vision screening for children they need to inform parents since they have much history of the child. Some parents would not want their children to be screened and such may opt out. Also, it is the responsibility of the school to discuss with parents after screening if a child has difficulty meeting the criteria during screening, they need to notify with a referral to an eye professional, primary care physician or other resource for further examination.

Teachers can also help in preparing children's mind before screening If possible, by talking about the screening in advance and describe and practice what will happen. Young children may play a matching game with the symbols and letters to practice a few days or a week before. Since teachers observe students involved in classroom activities, they play a key role in detecting possible visual problems. A plan for close observation of students by the teacher and referral of students with suspected visual problems to school health personnel might benefit the student's school performance (The University of the State of New York , 2011).

Teacher of Students with Visual Impairments (TSVIs) are trained not only to conduct formal and informal assessments, but to assist other educational professionals in understanding and interpreting testing results. TSVIs therefore participate in the multidisciplinary assessment of infants, children, and youth with visual impairments and assume the primary responsibility to conduct and interpret functional vision assessments; obtain and interpret all ophthalmological, optometric, and functional vision reports and explain the implications of these reports for both distance and near vision in educational and home environments, to families, classroom teachers, and other team members. They also have the responsibility to recommend and collaborate in appropriate specialized evaluations as needed, including clinical low vision, orientation and mobility, physical therapy, occupational therapy, behavioral, physical education, speech and language, augmentative communication, aptitude, and vocational skills assessments (Spungin & Ferrell, 2007).

Training can improve teacher performance, as highlighted in examples from Peru where strategies to increase teacher engagement resulted in higher levels of teacher

involvement and increased confidence in vision screening. Elsewhere, strategies used to increase teacher screening quality and engagement included: involving all class teachers in the vision screening program, as compared with selected teachers; using adequate and structured training to increase knowledge and screening performance; involving ophthalmologists in training to increase motivation; and greater emphasis on accurately measuring visual acuity. Financial incentives may encourage teachers to participate, and were shown to increase spectacle compliance through additional teacher motivation (Anthea, Aryati, Ling, Nina, & Daveena, 2018).

2.6.3 Parental involvement

Parents have a big role to play when it comes to the health of their children and in the case of vision screening and eye-care, schools cannot screen children's eye without the foreknowledge of parents. Parents have a lot of information about how their children behave when it comes to their vision and some of the complaints they usually give. Some parents even try to give a first aid treatment to their children before taken the child to the hospital for vision screening and treatment. These information from parents will be of great help to the eye doctor.

A study by Ebeigbe (2018) reported that parental involvement or family interference can influence vision screening and visual assessment. The findings came out that sometimes, there is disagreement about the decision to seek eye care for a child. A mother might want to seek eye care for a child but the father is not in support of the decision, either because of the cost it might incur or because he does not see the need for the doctor's visit. In communal settings, where the opinion of extended members of the family is sought, if the majority doesnot support the idea of a doctor's visit, it

would probably not happen. This is because one or another member of the family would claim to know a home remedy or traditional medicine that could cure the condition better than the doctor's prescription. Most of the parents agreed that they had used one form of traditional medicine or the other before seeking eye care.

A study conducted by Ebeigbe andEmedike (2017) indicated that the use of local or traditional treatment was common among the parents in treating eye injuries. The study revealed that there was a high patronage of over the counter medications. Self-medication was prevalent among the parents. The commonest and most popular drug used for nearly all eye conditions by the parents was chloramphenicol eye drop, which all the parents agreed they had used at one time or the other, without seeing a doctor. This is in agreement with the study by Ebeigbe and Omokhuaon pattern of self-medication by patients before visiting the eye clinic. They reported that the most frequently used product was chloramphenical eye drop 15.1%. Also most parents tend to treat their children based on the counsel of a grandfather or mother. Sometimes the decision to seek or not seek orthodox care is made by these grandparents, who were usually of the opinion that western medicine was either too costly and a waste of time.

Kansas Department of Health and Environment Bureau for Children, Youth and Families (2004) explained that it is important to keep in mind that vision screening is only the first step in identifying those who need a more thorough examination by an ophthalmologist or an optometrist. While this first step is extremely important, it is of limited value unless those who do not pass the screening are followed to ensure that an examination is done and subsequent examination recommendations are followed. Procuring a professional examination for a child from an ophthalmologist or

optometrist is the responsibility of the parent(s) or lawful custodian. Vision screening personnel, with administrative support, should follow up on every vision screening referral to address any barriers to care and assure every child's access to vision service care. Refusal of the parent(s) to take a child for a professional eye examination should be recorded, after verification, on the child's health record. When vision cannot be corrected to better than 20/70 in either or both eyes, the child should be referred for a school system special education. Special assistance with appropriate accommodations for the child's learning, may be warranted.

2.6.4 Beliefs and cultures

According to Ohene (2012), cultural beliefs can also play a part, as many societies believe that diseases may be caused by non-medical reasons and are 'God's will'. In line with cultural beliefs and non-medical causes, many Ghanaians believe in witchcraft, demons, devils and evil spirits. A Ghanaian reporter recently interviewed 45 medical students and found that 41 of them believe witchcraft was responsible for existing medical problems in their patients (Lowe, 2013). This is due to the culture that these students were raised in. At the center of the issue is the simultaneous battle in their minds between irrationality and rationality and these irrational parts, like witchcraft and superstitions, are very ancient and ingrained in Ghanaian culture. The research by Lowe (2013) explains that with these cultural beliefs, witchcraft ideas will influence most teachers and parents not to ensure vision screening in basic schools.

According to the World Health Organization cited in Courtright (2000), traditional medicine is the sum total of knowledge, skills and practice based on the theories, beliefs and experiences indigenous to different cultures that are used to maintain

health, as well as to prevent, diagnose, improve and treat physical and mental illnesses.Traditional healers play a very important and indispensable role in primary healthcare delivery in Africa. There are healers in almost every village in Africa, with the estimated healer to patient ratio of 1:350. Healers are a respected part of the community because of their acquired knowledge, age and ability to provide answers and treatments that are meaningful to the community, and their position is seen as part of the moral core of the community. Base on the above quote from WHO it explains that because of the respect most parent have for traditional healers, they turn to seek for eye-care treatment for their children from some of these healers.

In Ghana, modern medicine is relatively new while traditional medicine has been practiced for thousands of years. Traditional medicine is not only a part of Ghanaian culture but also severely outnumbers modern medicine. The ratio of medical doctors in Ghana per population is 1:20,000 while the ratio of traditional healers is 1:200 (Tabi, Powell & Hodnicki, 2006).

One of the oldest, most widespread and popular use of traditional medicine in eye care is a surgical practice called couching. This procedure is used to treat mature cataracts that are obstructing vision. A cataract is the clouding of the lens, which is the clear part of the eye that focuses light on the retina (National Institute of Health and National Eye Institute, 2009). When performing couching, a traditional healer inserts a sharp instrument (often not sterilized) into the eye and pushes the clouded lens backwards into the vitreous cavity (Merabet & Wanye, 2008). Studies show that couching results in significantly poorer vision post-operation and is associated with a

much higher rate of complications and blindness in comparison to biomedical cataract surgery (Gilbert, Murthy, Kyari, Imam, Rabiu & Abdull, 2010).

Complete loss of sight has been seen in up to 50% of couching patients and complication such as corneal scarring, retinal detachment, glaucoma and optic nerve atrophy are common (Gilbert et al., 2010). Ophthalmologists have come to the conclusion that couching does more harm than good and is unsafe and inefficient as a treatment for mature cataracts.

2.6.5 The cost involved

Affordability of eye care services is influenced by income levels and cost of the services. Robin Robin, Nirmalayan, Ramasamy, Rengappa, Katz, Tielsch, Ravillaand Friedman (2004) states that, in both the developing and developed nations, finances can definitely influence the utilization of ophthalmic health care. In many rural areas of the world, poverty is a major issue, hence residents are not able to afford the cost of eye care services and therefore conditions which could have been treated at an early stage are not attended to and may result in low vision and blindness.

According to Lowe (2013), another significant obstacle that prevents people from receiving medical attention for their eyes is cost. A study done in Ghana found that 91% of respondents said it was the most important barrier preventing them from having cataract surgery (Gyasi, Amoaku, & Asamany, 2007). In addition to physical currency, there are also hidden costs that prevent people from seeking treatment or surgery. These hidden, unstated costs include lost work income, transportation, food

and cost of medications. This can be especially difficult for women, who are expected to be taking care of the household and children, not traveling to visit a doctor.

According to Pararajasegaram (1999) cited in Naidoo (2007), the current global backlog of needless blindness and its projected doubling by 2020 is a challenge to the whole of society. The prevention of eye disease is also a major challenge. Individuals who, by virtue of their knowledge and skills, can make a major contribution to meet this challenge have not only a professional but also a moral responsibility in this respect. Poverty looms large in countries with the greatest burden of avoidable blindness and this is compounded by the inequity in the quantity and quality of eye-care services available in these countries. This explains that if the cost involved in eye-care is very expensive developing countries like Ghana will find it difficult to provide proper eye-care for basic school children in Ghana.

According to Naidoo et al. (2006) cited in Ntsoane andOduntan (2010), affordability of optometric services should be considered within a broader context than the cost of the spectacle because, even a free pair of spectacles could prove to be unaffordable, if the patient has to return to the clinic many times in order to collect it. Prevalence of visual impairment is high in Ethiopia and eye care services utilization is limited, the main barrier has been attributed to the indirect costs of the services. Habte, Gebre, Zerihunand Assefa (2008) cited in Ntsoane, andOduntan (2010) suggested that indirect cost of surgery was one of the main barriers to uptake of surgical treatment for trachomatous trichiasis in the North of Ethiopia. Similarly, Nedgwa, Karimurio, OkeloandAdala (2005) reported that lack of money was one of the main barriers to eye care use in Kenya; and in the Gambia, the most frequently identified barrier to uptake of cataract surgery was cost.

2.6.6 Availability of resources

According to Potteret al. (2013) nationally there is a lack of human resources for health. Ghana has a relatively low health worker to population ratio (1 doctor per 11,929 population and 1 nurse per 1,213 population in 2009), compounded by an inequitable distribution of HRH between regions, especially between Greater Accra and the rest of the country, and between the north and south of the country, as well as significant 'brain drain' of health professionals.

Studies by Anthea et al. (2018) reported that the lack of facilities and tools, such as appropriate charts for vision screening, was a potential barrier to implementing school-based eye-care programmes. The supply of low-cost spectacles was identified as increasing spectacle acceptance in China, Mexico and Timor-Leste. However, other studies reported that spectacle acceptance may be low with free or low-cost spectacles, which can be linked to parental concerns of poor quality.

For this reason, it is necessary for the government to make eye care facilities available at locations that are convenient to the community. Primary eye care facilities can play a significant role in addressing this need. They can be equipped for basic eye screening and detection of common pediatric eye conditions. These centers can also encourage their communities to ensure that the children are brought in for routine eye examinations as many of these conditions are not self-reported. These centers can be the conduit for providing ongoing continuous care (Sathyan, 2017).

A study by Lowe (2013) indicated that the number of optometrists being produced in Africa is inadequate to effectively meet eye care needs. Only seven of the 53 African

countries conduct optometric training programs (Naidoo, 2007). To make matters worse, the majority of practicing optometrists and ophthalmologist live in urban areas and serve only a fraction of the population (Naidoo, 2007).

According to Merabet and Wanye (2008), in South Africa, only 20 percent of the population is served by the private sector. Approximately 2,500 optometrists provide eye care to a population of 44 million people, which is roughly one optometrist for every 17,600 people (Naidoo, 2007). In comparison to the United Kingdom, which has a ratio of approximately one optometrist for every 5,200 people (Ingram&Culham, 2001). In many instances, eye care services in Africa are put on the shoulders of ophthalmic nurses, general physicians and traditional healers. In Ghana specifically, there are 41 ophthalmologists (26 of which are in the capital city of Accra), 42 optometrists and 250 ophthalmic nurses to serve the eye care needs of over 24 million people.

Vision screening by nurses should be 'more than' and 'better than' screening by paraprofessionals or lay volunteers. Because nurses are licensed health care professionals, it is reasonable to expect that their mastery of the vision screening process should exceed that of non-licensed persons. Therefore, it is important to seek training and updates in vision screening techniques as those nurses who do not rely on outmoded techniques or methods will more effectively identify children in need of care. School nurses are instrumental and are often the key professional involved in program planning for school vision screening. The success of a screening program depends on attention to detail, and the use of a program planning model can facilitate

positive outcomes. The validity of a screening result is dependent on children and screening assistants' preparation for the experience (The State of Alaska, 2013).

Anthea et al. (2018) indicated that an insufficient number of eye-care specialists created barriers to referrals and follow-ups in China, India and Peru. As the availability of eye-care specialists can be limited in school settings, particularly in low- and middle-income countries, studies have investigated the use of teachers, nurses, certified medical assistants and key informants for the provision of screening and basic eye-care for children. Several studies found that training teachers in vision screening enabled the provision of a good-quality and cost–effective service, while facilitating the opportunity to motivate spectacle use among students. Two studies reported that the use of teachers as vision screeners did not create significant burdens on normal workloads, and in fact enhanced rapport with children and parents.

Evidence from Brazil, Nepal and Timor Leste highlighted the benefits of school-based vision screening performed by trained nurses or certified medical assistants. Studies reported that the lack of facilities and tools, such as appropriate charts for vision screening, was a potential barrier to implementing school-based eye-care programmes. The supply of low-cost spectacles was identified as increasing spectacle acceptance in China, Mexico and Timor-Leste. However, other studies reported that spectacle acceptance may be low with free or low-cost spectacles, which can be linked to parental concerns of poor quality.

2.7 Summary of Literature

The study reviewed literature on perceptions of teachers and parents on vision screening, knowledge of teachers on visual assessment , knowledge of teachers and parents on common eye disorders that affects basic school children and factors that influence vision screening and visual assessment in basic schools. The literature reveals negative perceptions and lack of knowledge of parents and teachers on vision screening and assessment in Ghana as well as a number of children suffering from visual disorders. This shows that a lack of childhood eye-care is a problem in Ghana. The causes include lack of education and scarcity of educatedocular health professionals, cultural preference for traditional medicine and poverty or cost. None of these literatures addressed teachers' and parents' perception and knowledge on vision screening in Winneba.Also there was not enough literature on functional visual and learning media assessment because no study had been conducted on visual assessment which has to do with functional visual and learning media assessment. This study therefore sought to investigate teachers' and parents' perception on vision screening and visual assessment for children in basic school in Winneba.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter deals with the research methodology that was used for the study. It describes the research design, population, sample size and sampling techniques, research instruments, validity and reliability of instruments, procedures for data collection and data analysis.

3.1 Research Design

A cross-sectional survey design was used for this study. Cross-sectional survey also known as cross-sectional analysis forms a class of research methods that involve observation of all of a population, or a representative subset, at a defined time. Cross sectional survey aims to provide data on the entire population under study (Torchim, 2006). The choice of this design, therefore afforded the researcher the opportunity to evaluate the perception and knowledge of teachers and parents about vision screeningof basic school children in Winneba.

3.2 Population

The target population of this study was made up of teachers in selected basic schools and parents in Winneba,Central Region. Population is the sum aggregate of phenomena of interest to the researcher. It refers to the complete set of individuals, objects or events having common observable characteristics in which the researcher is interested in studying (Agyedu, Donkor, & Obeng, 2007). Winneba has a population of 68,592 (Ghana Statistical Service, 2014) according to the 2010 population and housing census district analytical report. The Winneba municipality has 42 public

basic schools and 59 private basic schools.Public basic schools are made up of 572 both male and female teachers and 659 for the private schools (GES, Effutu Municipal Education Directorate, number of basic schools and staffing for 2018/2019). The accessible population for the study was therefore 172 of both teachers and parents.

3.3 Sample

The sample of the study was 120 drawn from the accessible population, it comprised 80 teachers selected from 8 basic schools and 40 parents all in the municipality. The reasons the study concentrated on these eight schools in Winneba is because of their proximity to the area of residence of the researcher. The sample for the study was determined using the formula devised by (Glenn, 1992), thus,

$$n = \frac{N}{1 + N(e)^2}$$

Where ***n***is the sample, ***N***is the population and ***e***is the level of precision (0.05). The assumption for the equation is a confidence level of 95%. Using a population size *(**N**)* of 172 in the equation,

$$n = (172) / [(1+172\times (0.05)^2]$$

$$= 120.28$$

3.4 Sampling Technique

The eight (8) schools and parents were conveniently selected for the study. That is, the researcher selected parents of Sevent-day Adventist church for the study some of these parents had their children in the 8 basic schools that were used for the study.

Convenience sampling (also known as Haphazard Sampling or Accidental Sampling) is a type of nonprobability or nonrandom sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study (Dörnyei, 2007). The teachers involved in the study were randomly selected. Random sampling means that every item in the population has an equal chance of being included in the sample. One way to undertake random sampling would be if the researcher was to construct a sampling frame first and then used a random number generation computer programme to pick a sample from the sampling frame (Zikmund, 2003). Probability or random sampling has the greatest freedom from bias but may represent the costliest sample in terms of time (Taherdoost, 2016). During the sampling, yes or no were written on pieces of papers and teachers who picked yes were selected to respond to the questionnaire.Also parents at the Seventh day Adventist church were selected randomly by wrinting yes or no on pieces of paper for the parents to select and those who selected yes were used for the study.

3.5 Instrumentation

The instrument that was used for the data collection is questionnaire. This helped to gather information from teachers of the schools as well as parents to arrive at a conclusion on the study. A questionnaire is a data collection instrument consistent of a series of questions and other prompts for the purpose of gathering information from respondents (Abawi, 2013).Items of the questionnaire were grouped under the perceptions of vision screening, the knowledge of visual assessment, common eye diseases and factors influencing vision screening. Questionnaire for teachers and parents are not the same, the questionnaire for teachers comprised sections “A” - “E”.

Section "A" consisted of personal data of respondents; section "B" consisted of collection of data about teachers'perceptionon vision screening; section "C" sought information from the respondents about teachers knowledge on vision assessment; section "D" concentrated on teachers' knowledge on common eye disorders that affect basic school children and "E" sought views from respondents about teachers perception on factors influencing vision screening and visual assessment. Questionnaire for parents comprised sections "A" - "D". Section "A" consisted of personal data of the respondents; section "B" consisted of collection of data about parents'perception on vision screening; section "C" concentrated on parents' knowledge on common eye diseases and "D" sought views from respondents about parents' perception on factors influencing vision screening and visual assessment.

3.6 Validity

Content validity was determined by research supervisor who is an expert in this field of study. Also, the validity considerations for this study was done by the collection of data through the administration of the questionnaire, critical analysis of views expressed by the respondents was done to reveal the findings. Attempt were made to give clear definitions of the key words and concepts in the questionnaire.

3.7 Reliability

Joppe (2000) defines reliability as extent to which results are consistent over time. According to Creswell (2009) reliability refers to whether scores to items on an instrument are internally consistent, stable over time, and whether there was consistency in test administration and scoring. A reliability test was conducted by determining the Cronbach's alpha.

Cronbach alpha was then used to calculate the coefficient of reliability. In this study, the coefficient for parents and teachers' questionnaire was found to be 0.82. This was then compared with the tabulated coefficient of reliability which according to Ary Jacobs and Razzavieh (2002) for test item instrument which measures intellectual achievement to be accepted, it should have Cronbach alpha Coefficient reliability of not less than 0.72. The test items were therefore considered reliable. The teachers and parents for establishing the reliability of the instrument did not take part in the major study.

3.8 Procedures for Data Collection

Administration of the questionnaire was done in three to seven days for the selected schools and individual parents in Winneba. The researcher sought permission from the head teachers of the targeted schools with an introductory letter from the Department of Special Education and Ghana Education Service. The researcher administered the instrument personally and respondents were educated and assured of their privacy and security after their informed consent. During the questionnaire administration to the parents at Winneba, those who could not read the researcher read and explained it to them with the help of some research assisstants for the parents to understand and respond. It took 3 days for some of the teachers to return their questionnaire while some of the teachers responded to it on that very day. On the side of the parents, majority of them responded to the questionnaire on the same day while others responded to it within a week.

3.9 Procedure for Data Analysis

Data analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. According to Shamoo and Resnik (2003), various analytic procedures provide a way of drawing inductive inferences from data and distinguishing the signal (the phenomenon of interest) from the noise (statistical fluctuations) present in the data (Shamoo & Resnik, 2003). In the analysis, responses to the questionnaire were categorized and later converted it to frequency counts and simple percentages were used to answer the research questions generated in the study

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter deals with the presentation of findings of the study. The results are presented and analyzed to reflect the research questions raised for the study.

4.1 Research Question One

4.1.1 How do teachers and parents perceive vision screening for basic school children in Winneba?

Table 1:Looks at the perceptionof teachers on vision screening

No.	Statement	Agree F (%)	Disagree F(%)	Neutral F(%)
01	Preschool vision screening is only necessary for children above 5 years.	43(61.4)	20(28.6)	7(10)
02	Vision screening at basic schools is necessary for the identification of eye conditions.	45(64)	25(36)	0(0)
03	Periodic vision screening of basic school children is not necessary.	29(41.4)	31(44.3)	10(14.3)
04	When a child has difficulties with literacy and numeracy it calls for vision screening	33(47)	25 (36)	12(17)
05	It is stressful organizing vision screening in basic schools.	49 (70)	21(30)	0(0)

Source: Field Data 2019

In response to questionnaire item 1 which sought to find out if teachers perceive preschool vision screening as only necessary for children above 5 years,out of the 70 items that were received from teachers, forty-three representing 61.4% agreed that preschool vision screening is only necessary for children above 5 years. Twenty representing 28.6% of the respondents disagreed while 7 representing 10% of the

respondents were neutral.Responding to item 2,forty-five representing 60% of the respondents agreed to the fact that vision screening at basic schools is necessary for the identification of ocular conditions, twenty-five representing 36% disagreed while 0 representing 0% of the respondent were neutral. With item 3,twenty-nine representing 41.4% of the respondents agreed to it, thirty-one representing 44.3% disagreed to periodic vision screening of basic school children is not necessary while 10 representing 14.3% of the respondents were neutral.

Item 4 of the questionnaire sought to find out teachers' perception on whether when a child has difficulties with literacy it calls for vision screening. Thirty-three representing 47% of the respondents agreed, twenty-five representing 36% disagreed while twelve representing 17% of the respondents were neutral. Item 5 stated that it is stressful organizing vision screening in basic schools. Forty-nine representing 70% of the respondents agreed, 21 representing 30% of the respondent disagreed while 0 representing 0% were neutral.

Table 2:Looks at teachers' response to organization of vision screening in their schools

No.	Item	Yes F (%)	No F (%)
06	Do children in your school receive some form of vision screening?	9 (13)	61 (87)
07	Is preschool vision screening necessary in basic schools?	67 (96)	3 (4)

Source: Field Data 2019

Item 6 of the questionnaire sought to find out from teachers if children in their schools receive some form of vision screening? Out of the 70, nine representing 13% said yes

while 61 representing 87% said no, children in their schools do not receive any form of vision screening. Item 7 of the questionnaire sought to find out if teachers believed that vision screening at the basic schools is necessary? Sixty seven out of the 70 which represent 97% said yes while 3 representing 4% said no.

Table 3:Discusses parents' perceptionon vision screening

No.	Item	Agree F(%)	Disagree F(%)	Neutral F(%)
01	Children can only go for eye test when they can read.	10(33)	8 (27)	12(40)
02	Wearing eye glasses can impair children's vision	9(30)	8(27)	13(43)
03	Eye test for children can help prevent eye problem.	25(83)	3(10)	2(7)
04	It is the parent's duty to regularly send the child for eye test.	18(60)	7(23)	5(17)
05	Children have to grow into adults before they can have an eye test	13(43)	6(30)	11(37)

Source: Field Data 2019

Parents were asked series of questions to know their perception on eye care and screening. Item 1 stated children can only go for eye test when they can read? Ten out of 30 representing 33% agree, eight representing 27% disagreed while 12 representing 40% were neutral. Item 2 stated wearing eye glasses can impair a child's vision. Nine out of 30 representing 30% agreed, eight representing 27% disagreed while 13 out of 30 representing 43% were neutral.

Item number 3 stated eye test for children can help prevent eye problem. Twenty five out of 30 representing 83% agreed, three representing 10% disagreed while 2 representing 7% were neutral. Item 4 stated that it is the parent's duty to regularly send the child for eye test? Eighteen out of 30 representing 60% agreed, seven out of

30 representing 23% disagreed while 5 representing 17% were neutral if it is the parent's duty to regularly send the child for eye test. Item number 5 stated children have to grow into adults before they can have an eye test. Thirteen out of 30 representing 43% agreed while 6 out of 30 representing 30% disagreed, on the other hand, eleven representing 37% were neutral.

Table 4:Looks at parents' reasons for taking their children for eye test

No.	Item	Agree F(%)	Disagree F(%)	Neutral F(%)
06	When the child complains of vision problem	27(90)	2(7)	1(3)
07	When the child bumps into things frequently when walking	9(30)	8(27)	13(43)
08	When a teacher or health care provider advises	26(87)	1(3)	3(10)
09	Family history	9(30)	7(23)	14 (47)
10	Difficulties with literacy	10(33)	8(27)	12 (40)

Source: Field Data 2019

Reasons for eye test were stated for parents to respond to them.On 1tem 6 of the questionnaire, twenty seven out of 30 representing 90% agreed that they will take the child to the hospital when the child complains of vision problem, two out of 30 representing 7% disagreed while 1 representing 3% was neutral to the statement. Item 7 of the questionnaire stated that when the child bumps into things frequently when walking as one of the reasons that will make a parent to take their children for an eye test. Nine out of 30 representing 30% agreed, eight representing 27% disagreed while 13 out of 30 representing 43% were neutral.

Statement on item 8 sought to find out if when a teacher or health care provider advise is one of the reasons to take a child for an eye test. Twenty six out of 30

representing 87% agreed, 1 representing 3% disagreed while 3 representing 10% were neutral sure if they will take the child for an eye care when a teacher or health care provider advise them. Item 9 stated family history as one of the reasons parents are to take their children for an eye test, nine out of 30 representing 30% agreed, 7 representing 23% disagreed and 14 out of 30 representing 47% were neutral if family history is one of the reasons that parents are to take their children for an eye test. Item 10 stated difficulties with literacy as one of the reasons parents are to take their children for an eye test. Ten out of 30 representing 33% agreed, eight representing 37% disagreed while 12 out of 30 representing 40% were neutral.

Table 5:Looks atparents response to the organization of vision screening

No.	Item	Yes F(%)	No F(%)
11	Has any child in your household had an eye exam by an eye doctor before?	9(30)	21(70)
12	Do you think that children in your household would benefit from an eye exam by an eye doctor?	28(93)	2(7)

Source: Field Data 2019

Item 11finds out if any child in their household has had an eye exam by an eye doctor before. Nine out of 30 representing 30% said yes while 21 representing 70% said no their children have never had an eye test by an eye doctor before. Item 12 finds out if parents think that children in their household would benefit from an eye exam by an eye doctor. Twenty eight out of 30 representing 93% said yes while 2 out of 30 representing 7% said no.

Table 6: Discusses parents' reaction to a sudden trauma to their childrens eye.

No.	Item	Yes F(%)	No F(%)	Not sure F(%)
13	I wash the eyes with water	18(60)	7(23)	5(17)
14	I blow air on the eye	15(50)	6(20)	9(30)
15	I get drugs from the drug store	17(57)	7(23)	6(20)
16	I take the child to the hospital	26(87)	3(10)	1(3)
17	I use herbal medicine	10(33)	6(20)	14(47)

Source: Field Data 2019

Parents were asked what they will do if a child has a sudden trauma to the eye or complains of the eye. Item 13 of the questionnaire stated washing with water as one of the things to do, eighteen out of 30 representing 60% said yes, seven representing 23% said no while 5 out of 30 representing 17% were not sure of what to do. Item 14 of the questionnaire stated blowing air on the eye as one of the things to do when a child has a sudden trauma to the eye or when the child complains of the eye. Out of the 30 respondents 15 representing 50% said yes, six representing 20% said no while nine representing 30% were not sure.

Questionnaire item 15 stated getting drugs from the drug store as one of the things to do when a child has a sudden trauma to the eye or when the child complains of the eye. Seventeen out of 30 representing 57% said yes, seven representing 23% said no while 6 representing 20% were not sure of the actions to tske. Item 16 of the questionnaire stated taking the child to the hospital as one of the things to do when a child has a sudden trauma to the eye or when the child complains of the eye. Twenty six out of the 30 representing 87% said yes, three representing 10% said no and 1 out of 30 representing three percent were not sure on what to do. Item 17 stated using herbal medicine as one of the things to do when a child has a sudden trauma to the

eye or when the child complains of the eye. Ten out of 30 representing 33% said yes, six representing 20% said no while 14 out of 30 which represent 47% were not sure of actions to take.

4.2 Research Question Two

What knowledge do teachers have on visual assessment for basic school children in Winneba?

Table 7: discusses the knowledge teachers have on functional vision assessment

No.	Statements	Agree F(%)	Disagree F(%)	Neutral F(%)
08	This is an assessment of how a child with low vision uses the vision he or she has in everyday life, it is therefore not usually done with children who are totally blind or with light perception only.	39(56)	3(4)	28(40)
09	A functional vision assessment will investigate how your child uses his vision for near tasks, closer than 16 inches; intermediate tasks, 16 inches to 3 feet; and distance tasks, more than 3 feet away.	35(50)	5(7)	30(43)
10	Based on the information gathered through these various activities, the teacher of students with visual impairments can make recommendations about ways to help your child learn to use his vision more effectively thro modifications and adaptations.	40(57)	3(4)	27(39)

Source: Field Data 2019

Item 8 of the teachers' questionnaire stated functional vision assessment as an assessment of how a child uses the vision he or she has in everyday life, it is therefore not usually done with children who are totally blind or with light perception only. Out of the 70 items 39 representing 56% of the respondents agreed to the statement while three out of the 70 representing four percent of the respondents disagreed and 28 out

of the 70 representing 40% of the respondents were neutral to the statement. In response to item 9 of the teachers' questionnaire, thirty-five (35) out of the 70 which represent 50% of the respondent agreed that a functional vision assessment will investigate how your child uses his vision for near tasks, closer than 16 inches; intermediate tasks, 16 inches to 3 feet; and distance tasks, more than 3 feet away. five out of the 70 representing 7% disagreed while 30 out of the 70 representing 43% were neutral.Item 10 stated that based on the information gathered through these various activities, the teacher of students with visual impairments can make recommendations about ways to help your child learn to use his vision more effectively through modifications and adaptations. Forty out of the 70 representing 57% agreed to the statement while 3 out of the 70 representing 4% disagreed. On the other hand, twenty seven out of the 70 which represent 39% were neutral.

Table 8:Discuses teachers knowledge on learning media assessment

No.	Items	Agree F(%)	Disagree F(%)	Neutral F(%)
11	It is used to find out which senses a child uses most to get information from the environment. Once this is known, decisions can be made about which method or methods the child should use for learning and literacy.	29(41)	0(0)	41(59)
12	The term media includes braille, regular print, and regular print with adaptation, large print, digital text, and audio materials.	25(36)	0(0)	45(64)
13	The primary reason to perform a learning media assessment is to ensure that all children have access to literacy and to education.	29(41)	2(3)	39(56)

Source: Field Data 2019

In response to item 11 of the questionnaire, twenty nine out of 70 representing 41% of the respondents agreed that learning media assessment is used to find out which senses a child uses most to get information from the environment. Once this is known,

decisions can be made about which method or methods the child should use for learning and literacy. None of the respondents disagreed, however, 41 representing 59% of the respondents were neutral. Item 12 of the questionnaire stated that the term media includes braille, regular print, and regular print with adaptation, large print, digital text, and audio materials. Twenty five out of 70 representing 36% agreed to the statement, none disagreed but 45 out of the 70 which represents 64% of the respondents were neutral to the statement. In response to item 13 of the questionnaire, 29 out of 70 representing 41% agreed that the primary reason to perform a learning media assessment is to ensure that all children have access to literacy and to education. Two out of 70 representing 3% of the respondents disagreed while 39 out of 70 representing 56% of the respondents were neutral.

4.3 Research Question Three

What are teachers and parents' knowledge on common eye disorders that affect basic school children in Winneba?

Table 9:Looks at teachers'knowledge on signs of refractive error.

No.	Statement	Agree F(%)	Disagree F(%)	Neutral F(%)
15	Squinting	35(50)	8(11)	2(39)
16	Blur Vision	64(91)	4(6)	2(3)
17	Headache	50(71)	5(7)	15(21)
18	Eye strain	60(86)	6(9)	4(6)
19	Haziness/cloudy vision	70(100)	0(0)	0(0)

Source: Field Data 2019

In response to item 15 on the teachers' questionnaire, thirty five(35) out of 70 representing 50% of the respondents agreed to squinting as a sign of refractive error such as myopia, hyperopia and astigmatism. Eight which represent 11% of the

respondents disagreed while 27 out of the 70 representing 39% were neutral. Item 16 of the questionnaire stated blur vision as a sign of refractive error such as myopia, hyperopia and astigmatism. Sixty four out of 70 which represent 91% of the respondents agreed, four representing six percent of the respondents disagreed while two representing three percent of the respondents were neutral. Item 17 of the questionnaire stated headache as a sign of refractive error such as myopia, hyperopia and astigmatism. Fifty out of 70 representing 71% of the respondents agreed to headache as a sign of refractive, five representing seven percent of the respondents disagreed while 15 out of 70 representinh 21% of the respondents were neutral.

In response to questionnaire item 18, sixty out of 70 representing 86% of the respondents disagreed to eye strain as a sign of refractive error such as myopia, hyperopia and astigmatism, six representing nine percent of the respondents agreed. On the other hand, four representing six percent were neutral. Item 19 of the questionnaire stated haziness as a sign of refractive error such as myopia, hyperopia and astigmatism. All the 70 which represent 100% of the respondents agreed to haziness as a sign of refractive error such as myopia, hyperopia and astigmatism.

Table 10:Discusses teachers'knowledge on signs of strabismus

No.	Statement	Agree F(%)	Disagree F(%)	Neutral F(%)
20	Painful eye (ocular discomfort)	70(100)	0(0)	0(0)
21	I cannot see from the board (decreased vision)	56(80)	10(14)	4(6)
22	Difficulty in reading	70(100)	0(0)	0(0)
23	Blurred vision	38(54)	14(20)	18(26)
24	Double vision	43(61)	20(29)	7(10)

Source: Field Data 2019

Item 20 of the questionnaire stated painful eye (ocular discomfort) as one of the signs that could indicate a child may be experiencing an eye disorder called strabismus, all the 70 representing 100% of the respondents agreed that painful eye is a sign that a child may be suffering from strabismus, none of the respondents disagreed or were neutral. Item 21 of the questionnaire sought to find out when a child complains that they cannot see from the board (decreased vision) could indicate that a child may be experiencing an eye disorder called strabismus? Fifty six out of 70 representing 80% of the respondents said yes, ten representing 14% of the respondents said no while 4 representing 6% of the respondent were not sure. Item 22 of the questionnaire stateddifficulty in readingas a sign that a child may be experiencing an eye disorder called strabismus. All the 70 representing 100% of the respondents agreed.

In response to item 23 of the questionnaire 38 out of 70 representing 54% of the respondents agreed to blurred vision as a sign that indicate a child may be experiencing an eye disorder called strabismus while 14 out of 70 representing 20% of the respondents disagreed while 18 representing 26% of the respondent were neutral.Item 24 of the questionnaire stated double vision as one of the signs that indicate a child may be experiencing an eye disorder called strabismus. Forty-three out of 70 representing 61% of the respondents agreed, twenty representing 29% disagreed while 7 representing 10% of the respondent were neutral.

Table 11:Discusses teachers' knowledge on signs of amblyopia and colour blindness

No.	Statement	Agree F(%)	Disagree F(%)	Neutral F(%)
25	Tilting of the head to see	30(43)	15(21)=	25(36)
26	Difficult in performing close tasks	33(47)	20(29)	17(24)
27	Eye ball turning in and out at any time	42(60)	8(11)	20(29)
28	Confusion of shapes	38(54)	33(46)	0(0)
29	Difficulties in identifying colours	70(100)	0(0)	0(0)

Source: Field Data 2019

Item 25 stated tilting of the head to see as a sign that a child might be experiencing amblyopia, thirty-three out of 70 representing 43% of the respondents agreed, fifteen representing 21% disagreed while 25 representing 36% of the respondents were neutral.In response to research question 3, item 26 of the questionnaire stated difficult to performing close tasks as a sign indicating a child maybe experiencing amblyopia. Thirty-three out of 70 representing 47% respondents agreed, twenty representing 29% disagreed while 17 representing 24% of the respondents were neutral. Item 27 of the questionnaire stated eye ball turning in and out at any time is a sign that could indicate a child is experiencing amblyopia.Forty-two out of 70 representing 60% of the respondents agreed, eight representing 11% of the respondent disagreed while 20 out of the 70 representing 29% of the respondents were neutral.

Item 28 stated confusion of shapes as a sign that a child could be experiencing amblyopia. Thirty eight out of 70 which represent 54% of the respondents agreed, thirty-three 33 out of 70 representing 46% of the respondents disagreed and none were neutral. Item 29 stated difficulties in identifyingcoloursas a sign indicating a

child could be experiencing colour blindness, all the 70 representing 100% of the respondents agreed and none disagreed.

Parents' Response to Common Eye Disorders

Table 12:Discusses parents' knowledge on signs of amblyopia, strabismus and colour blindness

No.	Item	Yes F(%)	No F(%)	Not sure F(%)
18	Tilting of the head to see	12(40)	18(60)	0(0)
19	Difficulty in performing close tasks	9(30)	21(70)	0(0)
20	Double vision	13(43)	8(27)	9(30)
21	Pain in the eye	22(73)	8(27)	0(0)
22	Difficulty in identifying colours	0(0)	13(43)	17(57)

Source: Field Data 2019

To answer research question 3, parents were asked some questions to know if any of their children is suffering from either amblyopia, strabismus or colour blindness. Item 18 sought to find out if any child in their house hold tilt their head to see, twelve out of 30 representing 60% of the respondents said yes, eighteen out of 30 representing 60% of the respondent said no while 0% of the respondents were not sure. Item 19 sought to find out if any child in their household find it difficult to perform close task. Out of 30, nine representing 30% of the respondents said yes while 21 out of 30 representing 70% of the respondents said no and 0% of the respondents were not sure.

Item 20 of the questionnaire sought to find out if any child in their household is experiencing double vision. Out of 30, thirteen representing 43% of the respondents said yes children in their household are experiencing double vision while 8 out of 30

representing 27% of the respondents said no and 9 representing 30% of the respondents were not sure. Item 21 sought to find out if any child in their house hold is experiencing pain in the eye, twenty two out of 30 representing 73% of respondents said yes, 5 out of 30 representing 17% respondent said no while 3 representing 10% of the respondents were not sure. Item 22 sought to find out if any child in their house hold has any difficulties in identifying colours, zero out of 30 representing 0% of the respondents said yes, thirteen out of 30 representing 43% of the respondents said no while 17 representing 57% of the respondents were not sure.

Table 13:Discusses parents' knowledge on refractive errors

No	Item	Yes F (%)	No F(%)	Not sure F(%)
23	Squinting	14(47)	6(20)	10(33)
24	Eye strain	18(60)	5(17)	7(23)
25	Distance blur	13(43)	8(27)	9(30)
26	Headache	11(37)	6(20)	13(43)

Source: Field Data 2019

In an attempt to answer research question 3, parents were asked of signs thatindicate a child may be experiencing an eye disorder such as refractive errors which includes myopia, hyperopia and astigmatism.Item 23 sought to find out if squinting is a sign indicating a child may be experiencing an eye disorder such as myopia, hyperopia and astigmatism. Fourteen out of 30 representing 47% of the respondents said yes. six out of 30 representing 20% of the respondents said no while 10 out of 30 representing 33% of the respondents were not sure if squinting is a sign which indicate a child may be experiencing an eye disorder such as myopia, hyperopia and astigmatism.

Item 24 sought to find out from parents if eye strain is a sign which indicate a child may be experiencing an eye disorder such as myopia, hyperopia and astigmatism, eighteen out of 30 representing 60% of the respondents said yes. five out of 30 representing 17% of the respondents said no while 7 out of 30 representing 23% of the respondents were not sure. Item 25 sought to find out from parents if when a child cannot see things from afar (distance blur) is a sign indicating a child may be experiencing an eye disorder such as myopia, hyperopia and astigmatism. Thirteen out of 30 representing 43% respondents said yes, eight out of 30 representing 27% of the respondents said no while 9 out of 30 representing 30% of the respondents were not sure if distance blur is a sign indicating a child may be experiencing an eye disorder such as myopia, hyperopia and astigmatism.

Item 26 sought to find out from parents if headache is a sign which indicate a child may be experiencing an eye disorder such as myopia, hyperopia and astigmatism. 11 out of 30 representing 37% respondents said yes headache is a sign which indicate a child may be experiencing an eye disorder such as myopia, hyperopia and astigmatism, six out of 30 representing 20% respondents said no while 13 out of 30 representing 43% of the respondents were not sure.

4.4 Research Question Four

What are teachers and parents' perception about factors that influence vision screening and visual assessment for basic school children in Winneba?

Table 14:Discusses teachersperception on factors influencing vision screening and visual assessment

No	Statement	Agree F(%)	Disagree F(%)	Neutral F(%)
30	Public awareness is not necessary for vision screening and assessment.	3(4)	65(93)	2(3)
31	Availability of resources has an influence on vision screening and assessment.	67(96)	1(1)	2(3)
32	Vision screening cannot be influenced by cost.	5(7)	57(81)	8(11)
33	Beliefs and cultures can influence vision screening and assessment.	41(59)	9(13)	20(29)
34	The involvement of schools does not influence vision screening and assessment.	10(14)	55(79)	5(7)
35	Parentalinvolvement has influence on vision screening and assessment.	70(100)	0(0)	0(0)

Source: Field Data 2019

Item 30 stated public awareness is not necessary for vision screening and assessment. three out of 70 representing 4% of the respondent agreed, sixty-five representing 93% disagree while 2 representing 3% of the respondents were neutral.Item 31 stated availability of resources has an influence on vision screening and assessment. Sixty seven out of 70 representing 96% of the respondents agreed, one out of 70 representing 1% respondents disagreed while 2 out of 70 representing 3% of the respondents were neutral.Item 32 stated vision screening cannot be influenced by cost. Five out of 30 representing 4% of the respondents agreed to it, fifty-seven representing 81% of the respondents disagreed while 8 representing 11% of the respondents were neutral.

Item 33 stated beliefs and cultures can influence vision screening and assessment. Forty one out of 70 representing 59% of the respondents agreed, nine out of 70 representing 13% of the respondents disagreed while 20 out of 70 representing 29% of the respondents were neutral.Item 34 stated the involvement of schools does not influence vision screening and assessment. Ten out of 70 representing 14% of the respondents agreed, fifty five out of 70 representing 79% of the respondents disagreed while 5 out of 70 representing 7% of the respondents were neutral. Item 35 stated parental involvement has influence on vision screening and assessment. All the 70 representing 100% of the respondents agreed to it, zero representing 0% of the respondent disagreed while zero representing 0% of the respondent were neutral.

Table 15:Discusses parents perceptio on factors influencing vision screening and visual assessment

No	Statement	Agree F(%)	Disagree F(%)	Not sure F(%)
27	Public awareness is not necessary for vision screening and assessment.	2(7)	25(83)	3(10)
28	Availability of resources has an influence on vision screening and assessment.	23(77)	3(10)	4(13)
29	Vision screening cannot be influenced by cost.	1(3)	26 (87)	2(7)
30	Beliefs and cultures can influence vision screening and assessment.	18(60)	7(23)	5(17)
31	The involvement of schools does not influence vision screening and assessment.	6(20)	19(63)	5(17)
32	Parental involvement has influence on vision screening and assessment.	24(80)	3(10)	3(10)

Source: Field Data 2019

Item 27 stated public awareness is not necessary for vision screening and assessment. Two out of 30 representing 7% of the respondents agreed, twenty-five out of 30 representing 83% of the respondents disagreed while 3 out of 30 representing 10%

were not sure.Item 28 stated availability of resources has an influence on vision screening and assessment. Twenty-three out of 30 representing 77% of the respondents agreed, three out of 30 representing 10% of the respondents disagreed while 4 out of 30 representing 13% of the respondents were not sure.Item 29 on the questionnaire stated vision screening cannot be influenced by cost. One out of 30 representing 3% of the respondents agreed, twenty six out of 30 representing 87% of the respondents disagreed while 2 out of 30 representing 7% of the respondents were not sure.

Item 30 of the questionnaire stated beliefs and cultures can influence vision screening and assessment. Eighteen out of 30 representing 60% of the respondents agreed, seven out of 30 representing 23% of the respondents disagreed while 5 out of 30 representing 17% of the respondents were not sure. Item 31 stated the involvement of schools does not influence vision screening and assessment. Six out of 30 representing 20% agreed, nineteen out of 30 representing 63% of the respondents disagreed while 5 out of 30 representing 17% of the respondents were not sure. Item 32 stated Parental involvement has influence on vision screening and assessment. Twenty-four out of 30 representing 80% of the respondents agreed. Out of 30, three representing 10% of the respondents disagreed while 3 out of 30 representing 10% of the respondents were not sure.

CHAPTER FIVE

DISCUSSIONS OF FINDINGS

5.0 Introduction

This part of the study discusses the results obtained from the study. The main focus that guided the discussion were the four (4) research questions that were raised. The questions sought to find answers to teachers' and parents'perceptions on vision screening of basic school children in Winneba, teachers' knowledge on visual assessment, teachers' and parents'knowledge on common eye disorders that affect basic school children in Winneba and parents' and teachers' perception onfactors that influence vision screeningof basic school children in Winneba.

5.1 What are Teachers' and Parents' Perceptions on Vision Screening of Basic School Children in Winneba?

Research question one sought to find out how teachers and parents perceive vision screening for basic school children. Responses to research question one shows that teachers' negative and positive perceptions about vision screening for basic school children are very moderate. Sixty-one percent of the teachers perceived that preschool vision screening is only necessary for children above five years. This explains that a teacher with such perception would not encourage vision screening services for children below five years specifically children at the preschool level. Seventy percent of teachers perceived organising vision screening for basic school children is very stressful. Teachers as well as head teachers with such perception would not see the need to put in effort to organise vision screening for basic school children periodically as stated in the inclusive education policy of Ghana. This could explain why basic schools in Ghana do not have vision screening services for basic

school children. These negative perceptions among teachers maybe that teachers do not understand or are not aware of vision screening and its importance for basic school children especially those at the preschool level.

This confirms with the findings of a study conducted by Abdul-Kabir, Ansah and Nkasa-Kyerematen (2017) in New Juaben municipality on awareness and knowledge of preschool vision screening among teachers and eye care providers in a sub-urban municipality in Ghana and the result showed that 66.9% of the teachers were not aware of preschool vision screening. It also confirms with a study conducted by Tabansi (2007) on evaluation of teachers' knowledge and performance of vision screening in primary school children in Port Harcourt city which showed that the knowledge of eye problems and practice of vision screening amongst school teachers in Port Harcourt City (PHC) was low prior to receiving six hours skill training workshop. Specifically, Only 56.9% of teachers were aware of school entry vision screening for pupils, 8 (6.2%) teachers had heard of the Ishihara color vision chart, and only 14 teachers (10.8%) agreed that vision problems may cause poor academic performance.

On the other hand, 64% of the teachers have the perception that vision screening at basic schools is necessary for the identification of ocular conditions. Ocular conditions such as myopia, hyperopia, astigmatism can affect children's vision and since children usually think how they see is normal may not be able to tell of vision disorders such as refractive errors. Delay in identifying such conditions may lead to childhood blindness. Forty seven percent of the teachers also had the perception that when a child has difficulties with literacy it calls for vision screening services. This

confirms a study conducted by Akuffo et al. (2020) which revealed that most of the teachers and other educationists in the study perceived preschool vision screening and its related programmes/policies to be very important for preschoolers. The perception of these respondents is in line with some studies which highlight the importance of childhood vision screening (thus reporting a significant reduction in the prevalence of childhood vision anomalies, particularly amblyopia and its risk factors). The implementation of childhood vision screening programmes/policies in some countries has lessened the effects of childhood vision anomalies. This view is shared by most respondents in this study. Akuffo et al. (2020) also explained that in Canada, some stakeholders perceive that the introduction of public health nurses within schools could facilitate the implementation of school-based vision screenings. It is therefore not surprising that a greater number of respondents in the study were willing to consider preschool vision screening as a mandatory aspect of admission processes in schools.

For teachers to have high positive perceptions about vision screening for basic schools, it is very important for them to be educated on vision screening services in basic schools. Teachers' lack of knowledge on vision screening for basic school children will not encourage schools to plan for periodic vision screening as stated in the inclusive education policy of Ghana or even advise parents to seek eye test for their children. According to Unite for Sight (2015), it is important to ensure that all students in school have a basic visual acuity screening which is cost-effective and useful for early detection of possible vision problem.

Again, from this study only 13% of the teachers stated that their school children received some form of eye screening. Even though 96% of the teachers agreed that vision screening is very important in basic schools, they have not made any effort to organize vision screening for basic school children in their various schools. A study conducted by Akuffo et al. (2020) concluded that in the assessment of the availability of preschool vision screening programmes and/or policies, majority of the respondents (73.8%) reported that routine preschool vision screening programmes were not organized in preschools. Although 25.3% of the total respondents reported that disability assessment formed part of the admission processes in schools, 69.4% of these respondents further reported that vision assessment was excluded from the disability assessment programmes in these schools. Three hundred and ten out of the three hundred and forty four respondents (90.1%) reported that no written policies for preschool vision screening are available in schools. According to theMinistry of EducationGhana, (2015) on inclusive educational policy, all schools should undertake early identification, referral and intervention through periodic screening of all learners. This explains that teachers' perceptions about vision screening at the basic schools are very important, they will only be encouraged to organized vision screening services for basic school children as stated by the Ghana Education Services in the inclusive educational policy if they have in-depth education on vision screening. The Inclusive education policy also states that the Ghana Education Services shall collaborate with the Ghana Health Service to conduct training for health staff in the implementation of the inclusive education. This training I believe will help health workers to educate classroom teachers on basic vision screening to encourage vision screening in basic schools.

Responses from parents also indicate that they have high positive perception about vision screening for basic school children. Eighty-three percent of the parents have the perception that eye test can help prevent eye problems, 60% have the perception that it is the parents' duty to regularly send the child for an eye test, 87% of the parents also have the perception that a child can be taken for an eye test when a teacher or health care provider advises as well as 90% of the parents have the perception that when a child complains of a vision problem he or she should be sent for an eye test. These perceptions of parents will help them to seek vision screening services for the child at the early stage which will help to improve a child's vision and also avoid childhood blindness. When parents were asked what they will do in case of a sudden trauma to the eye, 87% of the parents accepted to take their children for an eye care in case of a sudden trauma to the eye. This is very encouraging and shows a much greater trust in modern medicine. Other responses to how they would react to an eye trauma included washing the eye with water, blowing air on it and buying medicine from the drug store. While none of these responses was wrong, they would not result in the child's best interest and the greatest outcome for long-term sight and eye health.

On the other hand, some parents have negative perceptions about vision screening for basic school children. Forty three percent of the parents had the perception that a child has to grow into adulthood before he or she can go for an eye test. A parent with such perception will not seek for vision screening for his or her child at the younger stage, which is not good since eye disorder can affect a person at any time in life and also children at the younger age cannot tell if they see well or not. It can only be detected through vision screening. Thirty percent have the perception that wearing of eye

glasses can impair childrens' vision, 33% have the perception that children can only get an eye test only when they can read. These perceptions agrees with a study conducted by Ebeigbe (2016) on factors influencing eye-care seeking behavior of parents for their children in Nigeria which found out that most parents had misconceptions about their child wearing prescribed spectacle, claiming that the child might get too dependent on them and may not be able to function without them. Other parents thought it would 'spoil' the child's eyes if they started wearing glasses so early in life. Some parents were more concerned about the social stigma associated with wearing glasses, especially toward the girl child, claiming they did not look cosmetically appealing. This could explain why most children suffer from eye problems that could have been treated earlier or avoided.However, due to negative perceptions about vision screening on the side of parents such children are not getting the needed eye-care attention from their parent. Even though there is no literature that tells the number of children in Winneba that are suffering from vision problems it does not erase the fact that there are children in Winneba who are experiencing vision problems. On the other hand, the result of this study indicated that about 69% of the teachers get complains from school children concerning ocular discomfort or painful eye. Also, 73% of the parents responded that some of their children complain of pain in the eye. These complains from the children could be that they are either suffering from amblyopia or strabismus.

The result also reveals that 70% of parents had never taken their children for an eye test even though 93% of the parents believed that vision screening for children is very important in childhood eye-care. This confirms with a study conducted by Sukati, Moodley andMashige (2018) which showed that 104 (60.1%) parents reported that

they had never taken their children for an eye test. There are still parents (20%) in this modern world who would resort to herbal medicine to treat an eye injury in children, 47% of them will either resort to an herbal medicine treatment or don't even know what to do. According to Courtright (2000), most Africans have respect for traditional healers because of their acquired knowledge, age and ability to provide answers and treatments that are meaningful to the community, and their position is seen as part of the moral core of the community. This could be the reason why some parents will resort to traditional herbal medicine in treating a child's vision instead of taking the child to the hospital for vision screening.

The study therefore indicates that both teachers and parents perceive that vision screening at the basic schools is very important. This agrees with a study conducted by Akuffo, et al. (2020) on assessment of availability, awareness and perception of stakeholders regarding preschool vision screening in Kumasi, the result indicated that more than half of the respondents (59.6%) perceived preschool vision screening to be very important for preschoolers (school children). A greater part of the respondents (60.2%) strongly agreed that preschool vision screening should be implemented in preschools. It is interesting to note that 91.9% of all respondents were willing to consider preschool vision screening as a mandatory aspect of admission processes in schools and 56.6% of these respondents were even extremely ready to help in sustaining the preschool vision screening programme in schools.

On the other hand, the level of perception among teachers and parents shows that teachers level of positive perception is moderate while parents level of positive perception is high. This is in contrast with a study conducted by Tchiakpe, et al.

(2016) which found out that there was a trend of increasing knowledge with increasing academic qualification. It can thus be seen that education might inform the individuals of some eye conditions as Michielutte et al. stated: “those with higher levels of educational attainment tend to be more knowledgeable about glaucoma”. Pfeiffer, KrieglsteinandWellek (2002) also found a similar trend among University graduates and groups with lower educational attainment.

5.2 What knowledge do teachers have on visual Assessment of Basic School Children in Winneba?

Research question two sought to find out teachers’ knowledge on visual assessment. The results of the findings indicate that teachers do not have much knowledge on visual assessment. When asked of their knowledge on functional vision assessment, 56% of the teachers know that functional vision assessment is an assessment of how a child uses the vision he or she has in everyday life, it is therefore not usually done with children who are totally blind or with light perception only.Fifty percent also had the knowledge that a functional vision assessment will investigate how your child uses his vision for near tasks, closer than 16 inches; intermediate tasks, 16 inches to 3 feet; and distance tasks, more than 3 feet away. This teachers’ positive knowledge on functional vision assessment will encourage them to assess the vision of children in their class to know how best they use their vision. Fifty-seven of the teachers have the knowledge that based on the information gathered through these various activities (functional vision assessment), the teacher of students with visual impairments can make recommendations about ways to help your child learn to use his vision more effectively through modifications and adaptations. With this knowledge a child with

visual impairment such as low vision in the classroom will not be left out in teaching and learning.

On the other hand, when teachers were asked of their knowledge on learning media assessment, 59% of the teachers had no idea of learning media assessment which is used to find out which senses a child uses most to get information from the environment. Once this is known, decisions could be made about which method or methods the child should use for learning and literacy. Sixty-four percent did not know that learning media includes braille, regular print, and regular print with adaptation, large print, digital text, and audio materials. In addition, 56% of the teachers did not know that the primary reason to perform a learning media assessment is to ensure that all children have access to literacy and to education. Comparing the knowledge of the teachers on functional vision assessment and that of learning media assessment does not seem to correlate.This is because visual assessment has to do with both functional vision assessment and learning media assessment. For this reasonknowing one will lead to knowing the other. It is either teachers were not being true in their responses or they have not really learnt or read about vision assessment and might have known about functional vision assessment accidentally through internet searching or through a special educator.

From the results, it can be concluded that teachers therefore do not assess learners' vision to know how the child uses his or her vision in everyday life and which senses he or she uses most to get information from the environment. It can also be concluded that teachers do not have any well-planned method that could help the child to learn better especially if the child has any vision problem such as low vison. Since87% of

the teachers confirmed that basic school children have never received any form of vision screening in their schools, it is obvious that teachers are ignorant of learners with vision problems in their classrooms and therefore no proper or adequate preparations are made for them concerning their learning. The Inclusive Education Policy of Ghana (2005) states that every child in primary school shall undergo an assessment twice every year. It continues to state that at all levels, there should be regular monitoring and periodic assessment aimed at improving the child's circumstances. This policy can be well implemented if teachers are well informed on visual assessment of basic school children at all levels.

5.3 What are Teachers' and Parents' Knowledge on Common Eye Disorders that affect Basic School Children in Winneba?

Research question three aimed at finding out teachers' and parents' knowledge on common eye disorders that affect basic school children. Teachers were asked about some of the signs of refractive errors. The signs listed includessquinting, distance blur, headache, eye strain and haziness or cloudy vision. The result from the study indicatesthat teachers' knowledge about signs of refractive error is very high.Fifty percent of the teachers had the knowledge that squinting isasign that a child may be suffering from refractive error, 64% knew that distance blur is a sign of refractive error, 71% agreed that headache is a sign that a child maybe suffering from refractive error, 86% of the teachers had the knowledge that eye strain is a sign that a child maybe experiencing refractive error as well as 100% of them had the knowledge that haziness is a sign of refractive error.

This knowledge of teachers on signs of refractive error will help teachers to be able to identify learners with vision disorders. On the other hand, knowledge about signs of refractive error among parents was very moderate. Forty seven percent of the parents know that squinting is a sign of refractive error, 60% of the parents knew of eye strain as a sign of refractive error, 43% of the parents knew that distance blur is a sign of refractive error while 43% of the parents were not aware that headache could be a sign of a refractive error. This confirms with a study conducted by Sukati, Moodley andMashige (2018) which showed that ninety-seven (53.1%) parents indicated having no knowledge about childhood eye conditions. Of those who indicated being knowledgeable about childhood eye conditions, 44 (32.8%) reported that they knew about refractive errors and 37 (27.6%) reported that they knew of allergic conjunctivitis.

Refractive error is one of the most common causes of vision disorder in children. According to Atkinson, et al. (2002), 12.8 million of children aged five to fifteen in the world, suffer from visual impairment due to uncorrected refractive error. A study by Potter, et al. (2013) in Tema found that refractive error is a major cause of blindness and visual impairment in this population, above cataract and glaucoma. It is therefore encouraging to know that teachers have adequate knowledge about signs of refractive error which could help in identifying children with visual impairment and refer them to the hospital or clinic for proper vision examination.

The result also shows that knowledge about signs of strabismus among teachers is very high, 100% of the teachers knew that ocular discomfort or painful eye is a sign of strabismus. Eighty percent of the teachers knew that when a child complains of not

being able to see from the board it indicates that the child may be experiencing strabismus. Hundred percent of the teachers had the knowledge that difficulty in reading is a sign that a child might be experiencing strabismus, 54% of the teachers knew that blurred vision is a sign that a child may be suffering from strabismus as well as 61% of the teachers had the knowledge that double vision is a sign of strabismus.A study conducted in Central China by Jing Fu et al. and the Anyang Childhood Eye Study Group (2014) found out that the prevalence of strabismus in 7th-grade students in Central China was 5.0% respectively. Strabismus was found to affect boys and girls equally. Their data suggested that the prevalence of strabismus in Central China is high. Strabismus is one of the most common pediatric eye diseases of which can lead not only to cosmetic impairment but also to grave functional sequelae. The negative effects of this childhood-onset visual developmental disorders frequently persist into adulthood.

Teachers were also asked if certain behaviours of children can be a sign that a child is either experiencing amblyopia or colour blindness. The result indicates that teachers' knowledge about signs of amblyopia and colour blindness is moderate. Forty three percent of the teachers know that when a child tilt the head to see is a sign that the child may be suffering from amblyopia, 47% of the teachers had the knowledge that difficult in performing close tasks is a sign of amblyopia, 60% were aware that when an eye ball turns in and out at any time is a sign that the child maybe experiencing amblyopia, 54% of the teachers know that confusion of shapes is a sign of amblyopia as well as 100% of the teachers had the knowledge that difficulties in identifying colours is a sign of colour blindness. Jing Fu et al. and the Anyang Childhood Eye Study Group (2014) also found that prevalence of amblyopia in 7th-grade students in

Central China was 2.5% respectively. Amblyopia manifests as a unilateral or bilateral reduction of best-corrected visual acuity (BCVA). It is a condition in which no ocular pathologies are detectable on physical ophthalmological examination and in appropriate cases, is reversible by therapeutic measures. Early detection and early initiation of treatment is widely accepted as being necessary to improve visual acuity (VA) outcomes for children.

Learning problems are often related to vision disorders, teachers are therefore the best screeners for vision disorders as they observe the child functioning in the classroom. By identifying a child's behavior and identifying the telltale signs of vision problems, teachers can quickly identify a student who may need help. Teachers are also part of a team that evaluates learning disabilities and their observations may help identify a vision problem that may be contributing to a child's poor performance in the classroom.

Parents were given 5 signs indicating a child maybe suffering from either amblyopia, strabismus or colour blindness to identify if any child in their households is experiencing any of the listed signs. The list includes tilting of the head to see, difficulty in performing close tasks, double vision, pain in the eye and difficulty in identifying colours. The result shows that parents knowledge concerning signs of vision disorders such as strabismus, amblyopia and colour blindness among children in Winneba is very moderate. Sixty percent of the parents responded that no child in their household tilt the head to see, 70% said no child in their house hold find it difficult to perform close task, 43% of the parents responded that children in their household experience double vision, 73% said yes children in their household

experience pain n the eye while 57% of the parents were not sure if any child in their household is experiencing colour blindness.

This confirms that most parents do not take their children to the hospital for eye-care and screening. A study by Senthilkumar, Balasubramaniam (2013) showed that although most parents were aware of childhood visual disorders, these parents were unaware of amblyopia in their children, and did not understand the causative factors of many pediatric visual anomalies. There is an estimation of about 1.26 million blind children globally, with majority of them living in the poorest countries of Asia and Africa. Majority of the causes of childhood blindness are avoidable. The number of expected blind years in children is higher than that of adults therefore childhood eye-care needs to be a top priority to parents.

5.4 What are Teachers' and Parents' Perception onfactors that influence Vision Screening and Visual Assessment forChildren inBasic School in Winneba?

Research question four sought to find out teachers and parents' perception about factors that influence vision screening and visual assessment. The result shows that teachers and parents' perceptions about factors that influence vision screening and visual assessment are very high. Ninty three percent of the teachers and 83% of the parents have the perception that public awareness is a factor that can influence vision screening and visual assessment. Public awareness of vision screening and visual assessment in basic schools will help teachers and parents to see its importance and work together to organize vision screening and visual assessment for basic school children. The study showed that 87% of teachers said their school children do not receive any form of vision screening, this could mean that there are a number of students who may have vision disorders in our basic schools but due to lack of

education on vision screening and visual assessment, teachers cannot properly conduct functional vision assessment and learning media assessment in the classroom which may in turn affects children with low vision in the classroom.

Due to lack of education some parents are afraid of going to the hospital for eye-care treatment options that might be required. Some parents think children wearing eye glasses can impair their vison. The study showed that some parents believe a child would have to go to the hospital for eye test when they can read or when they grow to adulthood. This explains that parents with such perceptions will not see the need of taking their children for an eye test. According to Heiting (n.d.), children should have their first comprehensive eye exam at 6 months of age. They then should have their eyes examined at age 3 and just before they enter the first grade at about age 5 or 6. School-aged children should have an eye exam at least every two years if no vision correction is required. This is because a number of developmental delays and lifelong disabilities can occur as a result of failure to detect vision problems early in a child's life. Very young children may not report difficulties with vision because they do not know how they are meant to see. Thus, vision screening is undertaken as early as possible to identify children with possible refractive errors (myopia, hyperopia, and astigmatism), muscle imbalance, and other gross abnormalities of the vision system (Kansas Department of Health and Environment, 2004).

The findings also indicated that 96% teachers and 77% of parents had the perception that availability of resources has an influence on vision screening and visual assessment. Resources such as financial, material and human are very important in vision screening and a lack of them can affect vision screening in basic schools.

During the study, the researcher went to the Eye Department at Municipal hospital, Truama and OtooMemorial Hospital to find out the number of eye-care providers they have in the department and it came out that Winneba had 10 eye-care providers, one at Otoo Memorial Hospital, five at Municipal Hospital and four at Trauma and Specialist Hospital. This information was given by word of mouth and cannot be proven with a document. One basic school in Winneba will have about 200 students and if 10 eye-care providers are to conduct vision screening for such school it will be very stressful. This implies that an increase in eye-care providers in Winneba will help in vision screening services in basic schools as well as creating public awareness and educating teachers in assessing childrens' vision in the classroom.

A study by Anthea, et al. (2018) in China, India and Peru found out that an insufficient number of eye-care specialists created barriers for referrals and follow-ups. As the availability of eye-care specialists can be limited in school settings, particularly in low-income and middle-income countries, studies have investigated the use of teachers, nurses, certified medical assistants and key informants for the provision of screening and basic eye-care for children. Several studies found that training teachers in vision screening enabled the provisionof a good-qualityand cost–effective service, while facilitating the opportunity to motivate spectacle use among students. WHO also reported that the lack of facilities and tools, such as appropriate charts for vision screening, was a potential barrier to implementing school-based eye-care programmes. The supply of low-cost spectacles was identified as increasing spectacle acceptance in China, Mexico and Timor-Leste.

The result also showed that 81% of teachers and 87% of parents hold the perception that vision screening can be influenced by cost. This could be the reason for which most schools do not organize vision screening and visual assessment for basic schools. The schools might not be able to afford the needed items when it comes to learning media assessment such as large print, audio materials, braille, and regular print with low vision devices. For these reasons teachers will not even bother to assess the best medium through which the child learns. It could also be that parents find it difficult to seek eye test for the children because they lack money to pay for the cost and will rather resort to herbal medicine or getting a drug from the drug store instead of taking the child to the hospital for vision screening or comprehensive eye examination. A study conducted in Nigeria by Ebeigbe (2018) found out that most parents said the cost of seeing thedoctor and paying for treatment were the major barriers. Some parents said they preferredgoing to the government hospitals because treatment was cheaper there than in the privately owned clinics. Other parents were against attending the government hospitals because they were usually overcrowded and doctor-patient interaction was not optimal.'It cost a lot of money to see a doctor.

Any timeyou go they tell you to pay. You pay for card, medicine and for glasses. It's too much…' FGD: Mother who did not seek care for child. 'I like to go to government hospitals because it is cheaper there than private. You pay too much for private hospital…' FGD: Mother who had sought care. 'I prefer private clinic because there is less crowd there and the doctor has time to attend to you. In government hospitals, you wait too long because of the crowd and the doctors don't listen to you properly because they are in a hurry to finish with the number of people present. I might pay a little more but am happy with the outcome…'FGD: Father who had

sought care.One may say that with the introduction of national health insurance in our health system parents should not see it as a problem taking their children for vision screening. Unfortunately, not all parents can even afford national health insurance and even if all parents can afford national health insurance, schools do not need only national health insurance of school children to organize vision screening in basic schools. The cost of organizing vision screening can be reduced if the government make it a priority to finance school vision screening.

A study conducted by Ohene (2012) interviewing 45 students reported that 41 of them believed witchcraft was responsible for existing medical problems in their patients. This could be due to the culture that these students were raised in. For this reason, the researcher decided to find out if it is the same with individuals in Winneba. The outcome of the study indicated that majority of the participants believed that beliefs and culture can influence vision screening and assessment. Fifty-nine percent of teachers and 60% of parents agreed that beliefs and culture of some individuals can influence vision screening and visual assessment. If a person's belief is against medical care such a person will not worry to take the child to the hospital for vision screening. Also, individuals who believe much in traditional medicine will mostly resort to herbal or traditional treatment when a child faces an eye injury. In Ghana, many societies believe that diseases may be caused by non-medical reasons and are 'God's will', witchcraft, demons, devils and evil spirits. Religion and culture can also have a considerable influence on one's willingness to seek medical care since witchcraft and superstitions are very ancient and ingrained in Ghanaian culture.

The involvement of schools in vision screening and assessment for basic school children is very important. If school heads and teachers neglect school vision screening it will affect the school children. Seventy nine percent of the teachers and 63% of the parents all perceivedthat involvement of the schools influences vision screening and visual assessment in basic schools. School vision screenings are very important and can help to detect eye conditions that can affect a students' educational life. This will also help in reducing the workload of eye-care providers since the knowledge teachers gain in vision screening and visual assessment can be used in assessing students in their immediate environment.

The study also revealed that the success of vision screening in basic schools depend on parental involvement. Allthe teachers and 80% of parents agreed that parental involvement has influence on vision screening and visual assessment. The study showed that 70% of parents had never taken their children for vision screening. Thiscould be that most parents do not have time because of their job, others probably feet because of large crowds and long queues at the hospitals. Parents have multiple opportunities to view their children in a variety of situations over an extended period. Parents can also interpret their children's behavior, placing it within a broad framework and a meaningful context. Parents' views can contribute substantially to the attainment of goals associated with the vision screening process.

This agrees with findings from Ebeigbe (2018) who reported that parental involvement or family interference can influence vision screening and assessment. The findings came out that sometimes, there is disagreement about the decision to seek eye care for a child. A mother might want to seek eye care for a child but the

father is not in support of the decision, either because of the cost it might incur or because he does not see the need for the doctor's visit. In communal settings, where the opinion of extended members of the family is sought, if the majority doesnot support the idea of a doctor's visit, it would probably not happen. This is because one or another member of the family would claim to know a home remedy or traditional medicine that could cure the condition better than the doctor's prescription. Most of the parents agreed that they had used one form of traditional medicine or the other before seeking eye care. 'The father said not to take her to see doctor, so we bought eye drop from the chemist…' FGD: Mother who did not seek eye care. 'I was going to take my child to the clinic when he had 'apollo' but my mother said to use sugar solution instead of going to the clinic and after three days it was better…' FGD: Father who did not seek eye care. 'Another barrier to seeking eye care among theparents is the level of education or level of awareness of the existing problem or condition. Amyopic parent for instance who is aware and educated about his condition would most likelyseek care for a child who complains of poor vision'.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter provides summary of findings, conclusion, recommendations and implications for further research.

6.1 Summary of the Study

The purpose of the study was to seek the teachers' and parents'perceptions and Knwoledge on vision screening of children in basic schools in Winneba. The study adopted the cross-sectional survey. Eighty teachers from 8 schools and 40 parents were selected in this study. Convenient and random sampling were used in selecting the sample size, with questionnaire used as the main tool for collecting data for the study. Documents were also analyzed to compliment the questionnaire data.

6.1.1 Summary of majour findings

The outcomes of the study are as follows:

a) Among the perceptions held by teachers and parents about vision screening for basic school children in Winneba include:preschool vision screening is only necessary for children above 5 years, organising vision screening for basic school children is very stressful, a child has to grow into adulthood before he or she can go for an eye test, wearing of eye glasses can impair childrens' vision as well as children can only get an eye test only when they can read. Periodic vision screening of basic school children is necessary, vision screening at basic schools is necessary for the identification of ocular conditions and when a child has difficulties with literacy it calls for vision

screening services.Eye test can help prevent eye problems, it is the parents' duty to regularly send the child for an eye test, a child can be taken for an eye test when a teacher or health care provider advises as well as when a child complains of a vision problem he or she should be sent for an eye test. Among these perceptions, a lot of teachers (70%) perceived that organising vision screening for basic school children is very stressful and few of the teachers (47%) also have the perception that when a child has difficulties with literacy it calls for vision screening services. Among the parents, majority (90%) have the perception that when a child complains of a vision problem he or she should be sent for an eye test while few of the parents (30%) have the perception that wearing of eye glasses can impair childrens' vision.

b) In terms of teachers' knowledge about vision assessment for basic school children in Winneba,the results showed that teachers have more knowledge in functional vision assessment compared to learning media assessment. Fifty-seven percent of the teachers agreed that based on the information gathered through these various activities (functional vision assessment), the teacher of students with visual impairments can make recommendations about ways to help your child learn to use his vision more effectively through modifications and adaptations. Sixty-four percent were neutral concerning the term media which includes braille, regular print, and regular print with adaptation, large print, digital text, and audio materials.

c) On the issue of teachers' and parents' knowledge about common eye diseases that affect basic school children in Winneba, the result showed that both teachers and parents have a fair knowledge on signs of common eye disorders that affects basic school children such as refractive errors, amblyopia,

colourblindness and strabismus. All the teachers had the knowledge that haziness/cloudy vision is a sign of refractive error. Few (3%) were not sure that distance blur is a sign of refractive error.Sixty percent of the parents have the knowledge that eye strain is a sign of refractive error. Few of the parents (20%) did not know that squinting and headache is a sign of refractive error. In terms of strabismus, all the teachers and 73% of the parents have the knowledge that itching and painful eye is a sign that a child may be experiencing strabismus, few of the parents (27%) did not know that double vision is a sign of strabismus while 6% of the teachers were not sure if a child says 'I cannot see from the board' is a sign of strabismus. With amblyopia and colour blindness, all the teachers have the knowledge that difficulties in identifying colours is a sign of colour blindness while 57% of the parents were not sure. Sixty percent of teachers have the knowledge that eye ball turning in and out at any time is a sign of amblyopia while 70% of the parents did not know that difficulty in performing close tasks is a sign of amblyopia.

d) Among the perceptions ofteachers and parents about factors that influence vision screening and assessment for basic school children in Winneba include;public awareness is not necessary for vision screening and assessment, availability of resources has an influence on vision screening and assessment, vision screening cannot be influenced by cost but beliefs and cultures can influence vision screening and assessment.The involvement of schools does not influence vision screening and assessment as well as parental involvement has influence on vision screening and assessment.All the teachers percevied that parental involvement has influence on vision screening and assessment of the teachers while few of the teachers (4%) perceived that public awareness is

not necessary for vision screening and assessment.Majority of the parent (87%) disagreed that vision screening cannot be influenced by cost while few (7%) of the parents perceived that public awareness is not necessary for vision screening and assessment.

6.2 Conclusion

In conclusion, my finding for this research project found out that basic school teachers in Winneba have negative perception conscerning vision screening and lack in-depth knowledge about visual assessment. These negative perceptions and lack of knowledge will make it difficult for the inclusive education policy on screening and assessment to be implemented. This also explains why most basic schools in Ghana do not conduct vision screening and visual assessment for basic school children. The study established that most parents perceive that vision screening for basic school children is very important. This positive perception will encourage parents to take active part in vision screening programme in basic schools since their information is very important for basic school vision screening. It is rather unfortunate that most of the parents do not send their children for vision screening which explain that most basic school children may experience vision disorders unknown to parents and teachers. Even thoughboth the teachers and the parents have fair knowledge on common eye desease that affects basic school children, it is important for them to ensure that basic school children get their vision screened periodically.

In order to ensure vision screening and visualassessment in basic schools, there is the need for public education on vision screening and visualassessment for both teachers and parents. It is also important for health care providers to collaborate with schools to organize vision screening and visual assessment for basic school children. For this reason vision screening should be enforced in basic schools as stated in the inclusive education policy of Ghana.This can be possible if the government provide schools and hospitals with the needed resources. At the policy level this requires cooperation between the ministries of health and education, and a national eye-care plan that includes vision screening and visualassessment in basic schools.

6.3 Recommendations

Based on the results of the present study, the following recommendations were made:

1. Basic school teachers as well as parents should be educated on vision screening for basic school children by the Ghana Health Service and the media. Vision screening should also be enforced in basic schools.
2. Basic school teachers should be given in-service training on visual assessment by special educators and heath workers for basic school children as well as provision of more special educators into basic schools by Ghana Education Service to help classroom teachers in basic vision screening and visualassessment for basic school children.
3. Funds for resources should be provided by the government, NGOs and individual philanthropists to help in vision screening and visual assessment at the basic school level.

4. Medical and Nursing schools should train more eye-care providers to hospitals who will help in educating schools and parents on the importance of vision screening and visual assessment for basic schools.

6.4 Areas for Further Study

The following recommendations were made as suggestions for further study:

The researcher only focusedon teachers' and parents' perceptions and knowledge on vision screening and visualassessment for children in basic school in Winneba. In order to provide more useful information on improving vision screening and visualassessment in basic schools, other researches can concentrate on the following:

a. Perceptions of eye-care providers on vision screening and visualassessment for basic school children.
b. Effects of schools and eye-care providers collaboration in to provision ofs vision screening for basic school children.
c. Attitudes of teachers and parents towards vision screening for basic school children.

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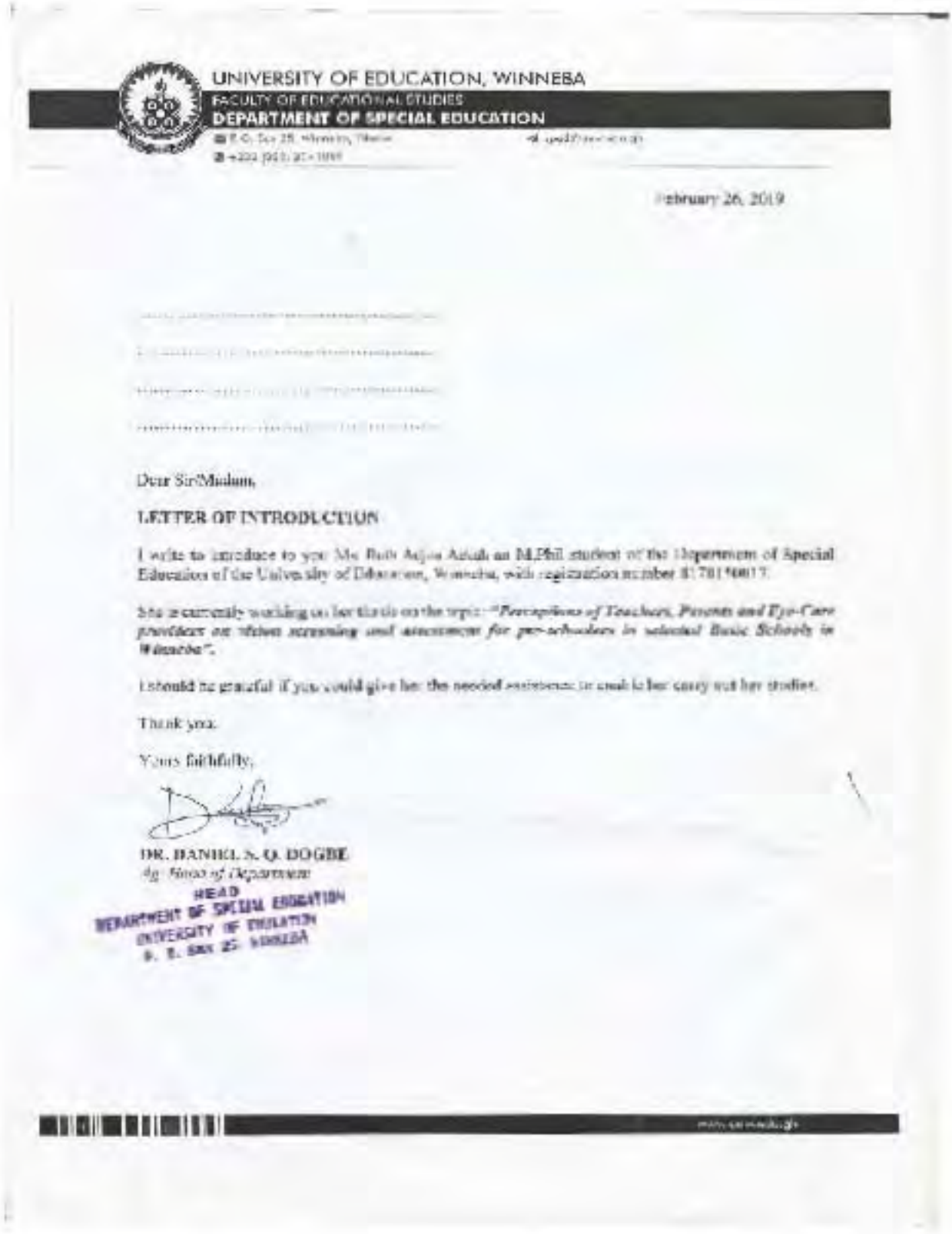
APENDIX A

INTRODUCTORY LETTER



UNIVERSITY OF EDUCATION, WINNEBA
FACULTY OF EDUCATIONAL STUDIES
DEPARTMENT OF SPECIAL EDUCATION

February 26, 2019

Dear Sir/Madam,

LETTER OF INTRODUCTION

I write to introduce to you Ms. Ruth Aajua Azizah an M.Phil. student of the Department of Special Education of the University of Education, Winneba, with registration number 8170400017.

She is currently working on her thesis on the topic: *"Perceptions of Teachers, Parents and Eye-Care providers on vision screening and assessment for pre-schoolers in selected Basic Schools in Winneba"*.

I should be grateful if you could give her the needed assistance to enable her carry out her studies.

Thank you.

Yours faithfully,

DR. DANIEL S. Q. DOGBE
Ag. Head of Department

HEAD
DEPARTMENT OF SPECIAL EDUCATION
UNIVERSITY OF EDUCATION
P. O. BOX 25, WINNEBA

APPENDIX B

INTRODUCTRY LETTER FROM GES

GHANA EDUCATION SERVICE

MUNICIPAL EDUCATION OFFICE
POST OFFICE BOX 51
WINNEBA
TEL: 03323 22075

REPUBLIC OF GHANA

My Ref. NO:GES/CR/EMEO/WL.C50/VOL.2/47
Your Ref. No ....

DATE: 8th March, 2019

LETTER OF INTRODUCTION

We acknowledge receipt of your letter dated 26th February, 2019 introducing a student to the directorate for permission to conduct a research in the Municipality.

Permission has been granted to Ms. Ruth Adjoa Ackah, an M. Phil student of the Department of Special Education, University of Education, Winneba to conduct a research in the Municipality from 12th March to 11th April, 2019.

She is working on the topic: "Perceptions of Teachers, Parents and Eye-Care Providers on vision screening and assesement for pre-schoolers in selected Basic schools in Winneba.

Headteachers and staff in the selected schools are to assist her in gathering the needed data while ensuring that she abides by the ethics of the teaching profession.

WILLIAM MENSAH KUWUDJO
DEPUTY DIRECTOR (S/M)
for: MUNICIPAL DIRECTOR OF EDUCATION
EFFUTU-WINNEBA

THE AG. HEAD OF DEPARTMENT
DEPART OF SPECIAL EDUCATION
UNIVERSITY OF EDUCATION
WINNEBA.

MS. RUTH ADJOA ACKAH
DEPARTMENT OF SPECIAL EDUC.
UNIVERSITY OF EDUCATION
WINNEBA.

CONCERNED HEADTEACHERS
PUBLIC & PRIVATE BASIC SCHOOLS
WINNEBA.

Copy to: All Circuit Supervisors
Effutu Municipal
Winneba.

EEY/

APPENDIXC

QUESTIONNAIRE FOR TEACHERS

INFORMED CONSENT FORM

PERCEPTIONS AND KNOWLEDGE OF TEACHERS AND PARENTS ABOUT VISION SCREENING AND VISUAL ASSESSMENT FOR BASIC SCHOOL CHILDREN IN WINNEBA.

You are invited to take part in a research project entitled "Perceptions and knowledge of teachers and parents about vision screening and visual assessment for basic school children in Winneba".

My name is Ruth AdjoaAckahand I am a graduate student in MPhil. Special Educationat University of Education Winneba. As a requirement to complete my master's degree, I am conducting a research project about vision screening and visual assessment of basic school children. This survey is to know how teachers and parents perceive vision screening, teachers' knowledge about visual assessment, teachers' and parents' knowledge about common eye disease that affects basic school children and factors that influence vision screening and visual assessment.

You are being invited to participate in this project because as a teacher who teaches children and are very observant when it comes to their vision you will be able to know how best children you handle use their vision in learning and as a school how vision screening and visual assessment is influenced. Your information will help the researcher to answer the research questions to arrive at a conclusion.

Participants are requested to provide their honest and genuine responses about each question through a hard copy survey. This will take you 3 minutes to finish. You may complete the survey at any time convenient to you between Friday 11th March 2019 and 15th March 2019.

Other information

Your participation is voluntary and you can decide to redraw at any time. The information you will provide would be treated strictly confidential, and be used for research purpose only. Once you have completed the survey, the information will be transferred to a database and the survey will be destroyed.

I hope you will help me by participating in this survey. Thank you.

☐ I agree to participate in the survey by answering the questions

☐ I choose not to participate at this time.

Participants signature Date

…….. ……

BACKGROUND

Gender: Male ( ) Female ( )

Instruction: Please, for each statement tick [√] the appropriate box that corresponds to your choice.

PRESCHOOL VISION SCREENING

As a teacher how do you understand preschool vision screening in basic schools?

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
01	Preschool vision screening is only necessary for children above 5 years.					
02	Vision screening at basic schools is necessary for the identification of ocular conditions.					
03	Periodic vision screening of basic school children is not necessary.					
04	when a child has difficulties with literacy it calls for vision screening					
05	It is stressful organizing vision screening in basic schools.					

Please tick yes or no to this question.

No.	Item	Yes	No
06	Do children in your school receive some form of vision screening?		
07	Is vision screening necessary in basic schools?		

VISION SCREENING ASSESSMENT

How do you understand functional vison assessment?

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
08	This is an assessment of how a child uses the vision he or she has in everyday life, it is therefore not usually done with children who are totally blind or with light perception only.					
09	A functional vision assessment will investigate how your child uses his vision for near tasks, closer than 16 inches; intermediate tasks, 16 inches to 3 feet; and distance tasks, more than 3 feet away.					
10	Based on the information gathered through these various activities, the teacher of students with visual impairments can make recommendations about ways to help your child learn to use his vision more effectively thro modifications and adaptations.					

How do you understand Learning Media Assessment?

No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
11	It is used to find out which senses a child uses most to get information from the environment. Once this is known, decisions can be made about which method or methods the child should use for learning and literacy.					
12	The term media includes Braille, regular print, and regular print with magnification, large print, digital text, and audio materials.					

13	The primary reason to perform a Learning Media Assessment is to ensure that all children have access to literacy and to education.					

COMMON EYE DISEASES

Refractive Errors

Please tick Agree, Disagree or Neutral if these statementare signs of refractive errors such as myopia, hyperopia and astigmatism.

Code	Statement	Agree	Disagree	Neutral
14	Squinting			
15	Distance blur			
16	Headache			
17	Eye strain			
18	Haziness			

Strabismus

Are the following statements signs that indicate a child may be experiencing an eye disorder called strabismus?

Code	Statement	Agree	Disagree	Neutral
19	Painful eye			
20	I cannot see from the board (decreased vision)			
21	Difficulty in reading			
22	Blurred vision			
23	Double vision			

Amblyopia and Colour Blindness

Do you think a child exhibiting the following behaviors is a sign that the child is experiencing amblyopia or colour blindness?

No.	Statement	Agree	Disagree	Neutral
24	Tilting of the head to see			
25	Difficult in performing close tasks			
26	Eye turning in and out at any time			
27	Confusion of shapes			
28	Difficulties in identifying colours			

FACTORS THAT INFLUENCES PRESCHOOL VISION SCREENING

What factors influences preschool vision screening?

No	Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
29	Public awareness is not necessary for vision screening and assessment.					
30	Availability of resources has an influence on vision screening and assessment.					
31	Vision screening cannot be influenced by cost.					
32	Beliefs and cultures can influence vision screening and assessment.					
33	The involvement of schools does not influence vision screening and assessment.					
34	Parental involvement has influence on vision screening and assessment.					

APPENDIX D

QUESTIONNAIRE FOR PARENTS

INFORMED CONSENT FORM

PERCEPTIONS AND KNOWLEDGE OF TEACHERS AND PARENTS ABOUT VISION SCREENING AND VISUAL ASSESSMENT FOR BASIC SCHOOL CHILDREN IN WINNEBA.

You are invited to take part in a research project entitled "Perceptions and knowledge of teachers and parents about vision screening and visual assessment for basic school children in Winneba".

My name is Ruth AdjoaAckahand I am a graduate student in MPhil. Special Educationat University of Education Winneba. As a requirement to complete my master's degree, I am conducting a research project about vision screening and visual assessment of basic school children. This survey is to know how teachers and parents perceive vision screening, teachers' knowledge about visual assessment, teachers' and parents' knowledge about common eye disease that affects basic school children and factors that influence vision screening and visual assessment.

You are being invited to participate in this project because as a parent or guardian, you are able to tell much of your child's vision and how best he or she uses the vision. Your information will help the researcher to answer the research questions and to arrive at a conclusion.

Participants are requested to provide their honest and genuine responses about each question through a hard copy survey. This will take you 3 minutes to finish. You may complete the survey at any time convenient to you between Friday 8th March 2019 and Saturday 16th March 2019.

Other information

Your participation is voluntary and you can decide to redraw at any time. The information you will provide would be treated strictly confidential, and be used for research purpose only. Once you have completed the survey, the information will be transferred to a database and the survey will be destroyed.

I hope you will help me by participating in this survey. Thank you.

☐ I agree to participate in the survey by answering the questions

☐ I choose not to participate at this time.

Participants signature ……..

Date ……

BACKGROUND

Mother ……..Father…….. Aunty…….

Uncle…… Grandparent……

VISION SCREENING AND EYE CARE

Please tick Yes, No or Not sure to the statements below.

No.	Item	Yes	No	Not sure
01	Children can only go for eye test when they can read.			
02	Wearing eye classes as a child can affect your vision			
03	Eye test for children can help prevent eye problem.			
04	It is the parent's duty to regularly send the child for eye test.			
05	Children have to grow to some specific age before they can have an eye test			

For what reason will you take your child for eye test?

No.	Item	Yes	No	Not sure
06	When the child complains of vision problem			
07	When the child bumps into things frequently when walking			
08	When a teacher or health care provider advises			
09	Family history			
10	Difficulties with literacy			

Please tick Yes or No to the questions below.

No.	Item	Yes	No
11	Has any child in your household had an eye exam by an eye doctor before?		
12	Do you think that children in your household would benefit from an eye exam by an eye doctor?		

If a child has a sudden trauma to the eye or complains of the eye, what would you do?

No.	Item	Yes	No	Not sure
13	Wash with water			
14	Blow air on the eye			
15	Get drugs from the drug store			
16	Take the child to the hospital			
17	Use herbal medicine			

COMMON EYE DISEASE

Amblyopia, Strabismus and Colour Blindness

The following are signs indicating a child may be suffering from either amblyopia, strabismus or colour blindness. Is any child in your household experiencing any of the following?

No.	Item	Yes	No	Not sure
18	Tilting of the head to see			
19	Difficulty in performing close tasks			
20	Double vision			
21	Pain in the eye			
22	Difficulty in identifying colours			

Refractive Errors (Myopia, Hyperopia and Astigmatism)

Do you think the following are signs indicating a child may be experiencing an eye disorder such as myopia, hyperopia and astigmatism?

No	Item	Yes	No	Not sure
23	Squinting			
24	Eye strain			
25	Distance blur			
26	Headache			

FACTORS THAT INFLUENCES PRESCHOOL VISION SCREENING

What are some of the reasons do you think prevent vision screening for children?

No	Item	Yes	No	Not sure
27	Public awareness is not necessary for vision screening and assessment.			
28	Availability of resources has an influence on vision screening and assessment.			
29	Vision screening cannot be influenced by cost.			
30	Beliefs and cultures can influence vision screening and assessment.			
31	The involvement of schools does not influence vision screening and assessment.			
32	Parental involvement has influence on vision screening and assessment.			

APENDIX E

APPLICATION LETTER TO GES

Ruth AdjoaAckah

Department of Special Education

University of Education Winneba

Box 25

Winneba.

4th March 2019

The Director

Municipal Education Service

Winneba

Dear sir/Madam,

APPLICATION FOR DATA

My name is Ruth AdjoaAckah, I am a graduate student in MPhil. Special Educationat University of Education Winneba. As a requirement to complete my master's degree program, I need to present a thesis. I therefore need information from your office to help me write my thesis. I would like to get data for all basic schools in Winneba and the number of basic school teachers. Attached is an introductory letter from my department.

Thank you for your assistance.

Yours faithfully,

Ruth AdjoaAckah

0208214567

Pendilove2@gmail.com

APPENDIX F

DATA FROM GES

GHANA EDUCATION SERVICE

EFFUTU MUNICIPAL EDUCATION DIRECTORATE

ENROLMENT (2018/2019)

1. PUBLIC SCHOOLS

LEVEL	ENROLMENT		
	BOYS	GIRLS	TOTAL
KG	978	866	**1844**
PRIMARY	3,770	3,810	**7580**
JHS	1,934	1,957	**3891**
TOTAL	**6682**	**6633**	**13315**

2. PRIVATE SCHOOLS

LEVEL	ENROLMENT		
	BOYS	GIRLS	TOTAL
KG	1,328	1,365	**2693**
PRIMARY	2,873	3,062	**5935**
JHS	735	746	**1481**
TOTAL	**4936**	**5173**	**10109**

STAFFING (2018/2019)

1. PUBLIC SHOOLS

LEVEL	STAFFING		TOTAL
	MALE	FEMALE	
KG	2	78	**80**
PRIMARY	71	179	**250**
JHS	120	122	**242**
TOTAL	**193**	**379**	**572**

2. PRIVATE SCHOOLS

LEVEL	STAFFING		TOTAL
	MALE	FEMALE	
KG	17	122	**139**
PRIMARY	191	156	**347**
JHS	132	41	**173**
TOTAL	**340**	**319**	**659**