UNIVERSITY OF EDUCATION, WINNEBA

PROVISION OF SUPPORT SERVICES FOR LEARNERS WITH LOW VISION IN SELECTED REGULAR BASIC SCHOOLS IN THE BIBIANI-ANHWIASO-BEKWAI-MUNICIPALITY

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MASTER OF PHILOSOPHY

2023

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A thesis in the Department of Special Education, Faculty of Educational Studies, submitted to the School of Graduate Studies, in partial fulfillment of

the requirements for award of the Master of Philosophy (Special Education) in the University of Education, Winneba

OCTOBER 2023

DECLARATION

Student's declaration

I, **SABBINA ADDAE DONKOR,** hereby declare that except for reference to other people‟s work which have been duly cited, this thesis is the outcome of my own research work and it has neither in whole or part been presented elsewhere.

SIGNATURE……..……

DATE……..……

Supervisor's declaration

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

SUPERVISOR'S NAME: DR. AWINI ADAM

SIGNATURE……

DATE……..……

DEDICATION

I dedicate this work to my family.

ACKNOWLEDGEMENTS

My heartfelt thanks go to my Supervisor, Dr. Awini Adam who painstakingly read through the work and gave constructive comments about the work. This research work could not have been successfully completed without his support and assistance In spite of his tight schedules, he made time to do thorough reading and help put the work in order. For this, I will forever be grateful to him.

I am also extremely grateful to Dr. Samuel Amoako-Gyimah in the Special Education Department, UEW for his words of encouragement, inspiration and ideas sharing throughout the period of this research.

I express my deepest gratitude to my husband Mr. Emmanuel Gyebi. I would never have come this far without his encouragement and financial support. I also thank my parents for their encouragement throughout my studies. Finally, I thank all my colleagues and friends for their continual motivation and assistance during this research. I am deeply grateful for the help everyone has offered.

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

The purpose of the study was to investigate the provision of support services for learners with low vision in basic schools in the Bbiani-Anhwiaso-Bekwai Munipality. The study, which was qualitative in nature, utilized the descriptive case study design with interview and observation as instruments for data collection. A sample of twenty-five participants were used comprising seven teachers and eighteen learners with low vision from a population of fifty comprising thirty-two teachers and eighteen learners with low vision. The themes were derived from the data and analyzed. Findings from the study revealed that the schools were not having sufficient material resources to meet the learning needs of learners with low vision. The few materials were useful to the learners with low vision. Moreover, the findings of the study revealed that regular teachers were the major resource persons available to the learners with low vision. However, they were not able to provide services as often as it should be. It was indicated that resource teachers were not attached to the regular teachers to render services to the learners with low vision. The findings again indicated that teachers were not able to provide instructional support to the learners with low vision frequently due to inadequate teaching and learning materials and limited time available. The findings further indicated that learners with low vision encountered many challenges such as academic challenges in reading and writing, social challenges with their sighted peers and challenges in physical locomotion which affected their learning needs and overall development. It was recommended that the schools should provide enough material resources to support learners with low vision to meet their learning needs. Again, the Municipal Education Office should provide schools with trained teachers who have knowledge in Special Education to accommodate learners with low vision in the regular schools. Finally, the learning environment, both class room and school compound should be adapted and equipped for free physical locomotion from place to place.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

There are increasing numbers of learners with visual impairment in regular schools in Ghana. These students attend mainstream classes (inclusive education) and are examined in the same subject content with their peers. Learners with visual impairment need to be educated in inclusive classes and are supposed to enjoy quality Education for All (UNESCO, 2010). Inclusion of children with blindness and low vision, in mainstream education is beneficial not only to the children with blindness/low vision, but to all other students in schools because it enhances social integration. It helps change the negative attitude and misconceptions people have about people who are blind and those with low vision and it is an opportunity to prepare them for their future roles in society. Avoke & Yekple (2006) stressed on the benefits of inclusive education as having the potential to reduce fear and build friendship, respect and understanding. Learners with low vision need an education that will help them to develop relationships and to prepare them for life in mainstream society.

As a Special Educational Needs Coordinator in the Bibiani-Anhwiaso-Bekwai Municipality, health screening of learners is one of the major activities carried out. It was through this exercise I suspected a significant number of learners with visual impairment (low vision) in the Municipality. Some of whom were referred for further assessment and were confirmed of having low vision. I also did some classroom observation to ascertain the level of support services for such learners and it appeared

there were insufficient support services. This paved way for the researcher to conduct this study.

Vision is the major channel through which people perceive their environment and the relationship of themselves and objects within it. It is clear that people with low vision cannot function effectively and as a result they require more help. Chandra & Gilbert (2010) found that almost three quarters (3/4) of a child"s early learning comes through vision and that over one third (1/3) of adult visual cortex responds to visual stimuli. This tells us that vision is not only very important for early development in infancy, but also that visual information is used and processed by many different parts of the brain. As a result of this, learners with low vision need provision of support services to ensure success in their education.

However, learners with low vision do not receive adequate support services in inclusive educational settings. In Ghana, most children with low vision attend regular schools without any tangible support (Agbenyega, 2003). Support services for individuals who are partially sighted in inclusive schools in Ghana are critical because most inclusive education school teachers lack the basis to teach children with differential learning needs (Avoke & Yepkle, 2006).

A UNESCO survey carried out in 1986 – 1987 on access to education revealed that 32 countries out of 52 countries which replied to a questionnaire, less than 10% of the school age was enrolled in special education programme without adequate support services while the figure was under 3% in 44 countries. The reality underlining these figures is that majority of children and young people with special educational needs do not receive an appropriate education, if they are offered any form of education at all. Studies revealed that in the United State of America, students with special needs in inclusive education schools are provided with support. This is in the form of special

assistance including when necessary, individualized instruction from specialists (Hardman, Drew & Egan, 2005). The general education teachers also receive assistance from specialists.

UNESCO (2010) also stressed that the importance of support services is to ensure that all students who are included benefit from the school programme, if not the inclusive schools become a dumping ground for students with disabilities and special needs. These authors‟ view suggested that when inclusive schools are adequately supported or have the right support services, they provide numerous benefits to students with special needs. In line with this, Alley & Deshler (2017) have noted that issues concerning child support, guidelines or directions play central roles in inclusive education classroom teaching and learning.

Learners with low vision, more often than not need material resources such as eye glasses, large print materials, strong felt pens, tape recorders, reading stands, and others to support them in the regular school settings. Inclusive education hinges on the effective utilization of resources to achieve maximum results (Smith, 2007). Learners with low vision are pupils with moderate to severe visual impairments who experience difficulty in performing daily tasks involving the use of sight and need to use large print for reading, strong magnifying devices and other adaptations. Some pupils with low vision may also learn to read Braille and use tactile and auditory channels to complete tasks. Koenig and Holbrook (2010) postulated that 90% of individuals with low vision have limited vision and just 10% are functionally blind and therefore with the provision of material support, they learn effectively. However, in most of the inclusive educational settings material resources are not adequate to support learners with low vision to meet their learning outcome.

In furtherance, resource personnel services are necessary to ensure the success of the learners with low vision in the inclusive educational settings. Professionals, such as resource teachers or special education consultants participate in planning educational programmes for students with special educational needs, provide suggestions for the modification of general education classroom activities, and supply of unique materials and equipment. In addition, there are supports depending on the needs of the student. The supports include physical assistance and therapy, counseling and psychotherapy, modified learning environments, assistive learning devices, and behavioral modification techniques (Douglas, Rockson & Dorleku, 2020). Nevertheless, majority of learners with low vision in the regular schools are not receiving adequate support services due to inadequate resource personnel.

Moreover, learners with low vision need diverse effective instructional support from their teachers to make teaching and learning effective. Instructional support such as teachers verbalizing their teachings, individualized support services, writing legibly on the chalk board, allowing extra time to complete task, using appropriate instructional materials, motivating learners, allowing learners with low vision to participate actively in teaching and learning are needed to meet the learning needs of the learners with low vision. Pupils with low vision require direct instruction in literacy, visual efficiency, accessing the core curriculum and compensatory skills (Koenig & Holbrook, 2010). Nonetheless, the researcher has observed that most of the learners with low vision are not benefiting from the majority of the instructional support in the regular school settings.

Inclusion of students with Special Educational Needs (SEN) into general education classroom is a much-discussed topic worldwide. The Salamanca Declaration of 1994

proposes individuals with special needs must have access to regular schools which should accommodate them within child-centered pedagogy capable of meeting these needs, regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society achieving education for all.

Again, learners with low vision encounter challenges which affect their learning needs and overall development. These challenges include academic challenges, challenges in adjustment to inclusion and physical locomotion challenges. It is noticed that many learners with low vision have adjustment problems because some of them become inward looking and attach too much importance to their disabling condition. Most persons with visual impairments are marginalized possibly due to the fact that they might not have been catered for just as capable in social occurrence. Some of these folks may display other unsuitable anti-social behaviours, at the same time as rocking their heads and hands strangely in space, and eye pocking while sitting, walking and standing (Tirago, 2012).

Learners with visual impairments tend to be more passive and less inclined to go in search of new experiences; they increase a small number of learning skills than learners without disabilities do. These learners may have inadequate orientation and mobility, and accordingly limited familiarity that should hinder achievement and dependency and a learned helplessness. One facet of psychological performance that may influence these learners is self-worth. Self-worth is associated to the feeling of a person of self-esteem and value. It is a serious constituent for enduring contentment, triumph, and healthier life (Scott & Murry, 2001). However, the learners with low

vision do not receive adequate support services in the regular schools to overcome their challenges.

Avoke & Yekple (2006) revealed that there are individuals with mild impairments and special educational needs in inclusive education classrooms in the Winneba Municipality of the Central Region of Ghana who need various supports. Data available at the Bibiani-Anhwiaso-Bekwai Municipal Education Office (2020) revealed that a significant number of children in the regular basic schools such as Mframanyo M/A JHS, Bibiani Presbyterian JHS and Nzema Nkwanta M/A JHS and others all in Bibiani-Anhwiaso-Bekwai Municipality who have learning needs can hinder their academic performance. Some of the support services given to the learners with low vision in the Municipality include provision of optical devices such as lenses. Also, teachers allow students with low vision to sit where they prefer in the classrooms, write boldly on the chalkboard, verbalize their teachings, use pictures with large shapes in teaching. However, the support services to the learners with low vision are not adequate to meet their learning needs. According to Ocloo, Hayford, Agbeke & Gadagbui (2002), many children with special needs in regular schools go through education without any support, as such some of them drop out of school and those who manage to go through end up with poor grades. Therefore, this current study seeks to investigate the provision of support services for learners with low vision in regular basic schools in the Bibiani-Anhwiaso-Bekwai Municipality in Ghana.

1.2 Problem statement

Provision of support services for students with low vision in regular schools in Ghana is very necessary. In order to ensure a successful learning environment for individuals

with low vision, it is envisaged that inclusive schools have requisite support services for pupils with low vision. At the moment, there is a growing number of learners with low vision in some regular basic schools in Bibiani-Anhwiaso-Bekwai Municipality who are not benefiting from the broad range of curriculum experiences and effective learning as a result of inadequate material resources in the schools. Masuku (2010) noted that inadequate teaching and learning materials in Swaziland schools implies non-preparedness of the country towards the implementation of inclusive education. Teachers are not trained to accommodate learners with difficulties fittingly, support and supplemental materials are not available and as well, learners with difficulty have asked for going back to segregated systems owing to the fact that instructors were not prepared to meet their needs appropriately (USAID/ Ethiopia, 2011-2015).

Again, resource person‟s services which are crucial for meeting the learning needs of these learners are not adequate. Teachers in these regular schools appear not to have adequate training thus cannot provide adequate instructional support services to mitigate the disparity needs of the learners with low vision. Learners with low vision also encounter challenges in the classrooms and the school environment which affects their learning needs negatively. According to Douglas, Rockson and Dorleku (2020), the need for support for pupils with low vision in general education classrooms in Ghana is critical because regular school teachers do not have the necessary skills to teach according to the differential needs of the pupils.

As a result of these many learners with low vision are not able to participate actively in teaching and learning which leads to general poor performance. They become frustrated and anxious during classroom activities because they do not receive adequate support services. Some of these learners fail, repeat class, and perform

poorly in Basic Education Certificate Examination (BECE). It is therefore against this background that this study intends to investigate the provision of support services available for learners with low vision to aid their teaching and learning needs in the basic schools in Bibiani-Anhwiaso-Bekwai Municipality.

1.3 Purpose of the study

The purpose of this study was to examine the provision of support services to learners with low vision in basic schools in Bibiani-AnhwiasoBekwai Municipality.

1.4 Objectives of the study

The study sought to;

1. explore the usefulness of material resources that are used to support the learning needs of learners with low vision in schools in Bibiani-Anhwiaso-Bekwai Municipality.
2. examine resource services offered to learners with low vision in the Bibiani-Anhwiaso-Bekwai Municipality.
3. find out how the instructional supports meet the needs of learners with low vision in the Bibiani-Anhwiaso-Bekwai Municipality.
4. ascertain the challenges learners with low vision face in the schools within Bibiani-Anhwiaso-Bekwai Municipality.

1.5 Research questions

To achieve the aims of this study, the following research questions guided the study;

1. How useful are material resources provided to learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?
2. What resource services are offered to the learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?

3. How do instructional supports meet the needs of learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?
4. What are the challenges learners with low vision face in the basic schools?

1.6 Significance of the study

The results of the study would help in revealing the level of support services learners with low vision receive from the staff of the basic schools in the Municipality. This would enable personnel at the schools to improve on the level of support services for the learners. These would also assist parents, resource teachers and the Ghana Education Service (GES) to find solutions in addressing the limited support services for learners with low vision of the regular schools in the Municipality. It would moreover guide the Ministry of Education in reforming and restructuring programmes for learners with low vision so as to improve service delivery. The study would make provision for pupils with low vision to talk about the problems that they have been facing in the classroom and how these problems impact on their learning and inclusive education class as a whole. The study would further enable the voices of pupils with low vision to be heard.

1.7 Delimitation of the study

The study covered only regular public basic schools in the Bibiani-Anhwiaso-Bekwai Municipality. Therefore, private basic schools were outside the scope of the study.

1.8 Limitation of the study

The main limitation of the study was that data were collected from regular classroom teachers and learners with low vision from Bibiani-Anhwiaso-Bekwai Municipality in the Western- North Region.

1.9 Operational definition of terms

Low vision: Is a visual condition where there is a perception of light and visual acuity of less than 6/18 to light perception.

Support services: Refer to extra services provided to parents and schools in helping children with special needs in education to adjust to the environment and activities in order to overcome barriers to learning and development.

Learners with visual impairment: Refer to individuals who cannot see well even with correction and this adversely affect their educational performance.

Regular teachers: They are trained professionals in the field of education. These teachers are not specifically trained to deliver special education service.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1Introduction

The focus of this chapter is to review related literature on the variables involved in the study. The review is organized under three thematic areas. The first part discusses the theoretical framework of the study which is followed by the empirical review of previous studies on the variables contained in the study. The final part of the review relates to the summary of the literature review of the study. The review of literature is organized under the following sub-headings:

1. Theoretical framework
2. Material resources provided for learners with low vision
3. Resource services offered to learners with low vision
4. Instructional supports for learners with low vision
5. The challenges learners with low vision face
6. Summary of the literature review

2.2 Theoretical framework of the study

A number of theories are applicable to education of students with special needs including individuals with low vision in the regular schools. In this study, social exclusion theory was adopted. Social exclusion theory by Hillary Silver (2007) stated that social exclusion is a multidimensional process of progressive social rupture, detaching groups and individuals from social relations and institutions and preventing them from full participation in the normal, normatively prescribed activities of the society in which they live. This theory is thus helpful to know that if we want to integrate students with disabilities in the mainstream social inclusion is necessary.

Social exclusion can be avoided by improving on the participation of the disabled in mainstream activities

Silver (2007) further noted that social exclusion results in social isolation and thus become a barrier in mainstreaming of students with disabilities. It is the social systems or set ups that act as barriers to the participation of the disabled. The social exclusion considers the environment which has disabled the individual not the condition. Underlining this social principle to disability are the beliefs that disability is a social construct, which promotes the viewpoint that disability is created by the social view that persons with disabilities with certain conditions are different.

From an exploration of the literature and views from some researchers such as (Kolb & Hanley-Maxwell, 2003) the early development of social skills promotes psychological well-being, resilience, and mental health. Thus, mainstreaming through social skills improvement may offer students with visual impairment to develop and learn among their sighted peers successfully with whom they are expected to lead active community life. This in turn affects the person`s academic work and performance positively as well as the service provisions put in place for them.

The social prejudices, discrimination, and stigma are inherent parts of the social exclusion. In effect, majority of persons with disabilities become restricted with regard to access, participation, and adequate provision to quality education. The assumption is that it was not individuals that were disabled by their physical or mental impairments as purported by medical conceptualization of disability, but rather organization of society as designated by non-disabled people that were more significantly disabling (Brynner, 2000). Within the social exclusion, the locus of the problem is not within the individual, but within the oppressive aspects of societal,

political, and un-enabling economic environments in which disabled people lives (Barnes & Thomas, 2004). Such barriers can either be physical (for example, inaccessible buildings, transport or lack of sign language interpreters) or attitudinal (for example, discrimination in the workplace). Disabled people‟s organizations (DPO) have played a leading role in challenging professional dominance, making it clear that people with disabilities can make their own choices in life. They have also increased awareness of the role and responsibility that civil society should play in the inclusion of disability into broader social issues (Mji, MacLachlan, Melling-Williams, & Gcaza, 2009).

Swain, French and Cameron (2003) noted that in the social construction, the administration of the situation involves social principles, and thus, the society is expected to design the surroundings to meet the needs for full involvement in all areas of life. The situation is both ethnic and beliefs including the person, community and environmental change (Swain et al., 2003). With the social exclusion, society and people must change their attitudes and perception about persons with disabilities (FinkelStein, 2001).

The social exclusion is applied in this study in that many learners with special needs especially those with visual impairments are locked out of education opportunities due to barriers related to school, teacher and expensive educational resources which are not locally available. To work towards inclusion calls for the removal of such barriers. That could be done by trying certain intervention measures which could lead to removal of barriers. When this is done, it is expected that the disability would be limited even though the impairments would still be there.

Also, the social exclusion theory is relevant to this study, for it supports the ideas of inclusive education and encourages the removal of barriers that hinder the students with visual impairment from accessing quality higher education. Thus, general educational authorities are responsible for the education of persons with disabilities and those with special needs are for integrated settings. Education for persons with disabilities should form an integral part of national education planning, curriculum development and school organization. Inclusive educational settings pre-supposes that provision of adequate and other appropriate support services exist to enhance education of individuals with low vision. The performance of learners with low vision in inclusive schools may be highly affected by barriers highlighted in this theory and unless these barriers are removed, individual‟s academic performance of students with visual impairments may not be achieved.

2.3 Materials resources for learners with low vision

There is a wide variety of instructional materials and equipment for supporting pupils with low vision. In the opinion of Unegbu (2006), instructional materials and equipment for supporting pupils with low vision include tables, chairs, vehicles, tape recorders, earphones, braille machines and papers, large print materials, CCTVs, felt-pens among others. In the same vein, Nwachukwu (2006) opines that children with such an array of problems need a flexible curriculum that would provide an enabling environment for total development of their three domains- cognitive, affective and psychomotor.

Audio, optical and non-optical devices

Since students with visual impairments rely mainly on verbal information for their learning, audio devices should be incorporated to aid the teaching process. These

include audio cassettes and compact discs (Salisbury, 2008). However, lesson contents with diagrams and tables cannot be well explained in an audio format (Salisbury, 2008). Moreover, a lesson can be tape recorded and given to students with visual impairments for later playback at their convenient time (UNESCO, 2001).In furtherance, if a videotape for example has to be shown, it is advisable to show it to students with visual impairment so that through a specialized teacher‟s or a classmate‟s explanation, they understand all the visual concepts in it before the class watches it. For a film with sub-titles, a classmate or teacher can read aloud to the class to help those with visual impairment (Spungin, 2002).

Optical devices such as eye glasses, magnifiers and telescopes use lenses to increase a person‟s residual vision. They are normally prescribed by a medical specialist while non-optical devices do not incorporate a lens and do not need to be prescribed by a specialist. Things like large prints, braille and braille writer, tape recorders, book stands, recorded and talking books and calculators are examples of non-optical devices (Simon et al., 2010). The role of both optical and non-optical devices is to improve vision and increase functionality of students with visual impairments through the use of other senses. It is the role of a teacher to encourage students with visual impairment to use visual devices and assistive technologies to help them with vision (Spungin, 2002). Teaching with instructional materials is critical in learning because the materials help learners to see, hear and manipulate them as they learn. Instructional materials help to improve communication and make the teacher‟s work easier because he talks less (Ocloo, 2011). Many pupils with low vision need some form of materials or equipment in order to learn. For instance, a strong felt pen in a particular colour enables the child with low vision to see what has been written. Non-shining papers with either no lines or very strong and well-spaced lines are very

useful to many children with visual impairments. Working papers and books with enlarged print eases the task of reading for most children with low vision.

Magnifiers of all shapes and sizes are other useful devices which help significantly to ease the problem of reading in children and adults with low vision (Ocloo, 2011). Optical aids help individuals with low vision function effectively in their environment. This involves standard prescription spectacles, optical low vision devices for distant vision, and it is necessary to attend to students with low vision and give their required spectacles (Ocloo, 2003). Work in America indicates that at least 40% of children with low vision need spectacles. Refraction should always be carried out before vision assessment (Ocloo, 2003). Best (2002) and Keefe (2005) cited in Ocloo (2003) suggest some special ways teachers can use materials to support pupils with low vision; Firstly, a teacher who is going to put a test on the chalkboard can give the material on a piece of suitable paper for the child with low vision. This enables the child to copy from close range instead. Secondly, a teacher can make simplified drawing for the child with low vision from complicated picture. Finally, when possible the teacher can provide the child with visual impairment an original object or animal if it is not harmful, so that the child explores it extensively while the other students are looking at the picture of the object or animal (Ocloo, 2003).

Additionally, the Task Force on Special Needs Education (2006) notes that learners with special needs education (SNE) including pupils with low vision need provision of the following materials and facilities in the regular schools: learning resources such as low vision devices, audio- and audio-visual equipment, working papers and books with enlarged print and strong felt pens which will assist them effectively. Heward (2006) also observes that no category of handicap requires greater coordination and

provision of resources than in the area of persons who are blind or visually impaired. UNESCO (2008) noted that learners must be provided with learning materials in formats that meet their individual learning needs.

Randiki (2005) advises that the resources can be pooled at the start so that several schools in a zone can have such group resources kept in the offices and shared. Again, the writer notes that local artisans should be incorporated so that they are able to make and repair some of these devices. According to the most recent data available, about 24,000 school-age children have visual disabilities that make them eligible for special education services (Office of Special Education Programme, 2000). Gargiulo (2006) explains that in the 1950s and the 1960s, vision professionals restricted pupils with low vision not to use their sight for learning to read print. However, Baraga in 1973 discovered through research that children could learn to use vision that is left and that this would get better with practice. The training of residual vision is known as visual efficiency. The child is taught to use spectacles, magnifiers and any assistive devices to improve the use of vision (Hallahan, Kauffman & Pullen, 2009). Hallahan et al. (2009) further explain that pupils who have low vision should be made efficient readers with optical devices to enable them access print independently thus enabling them to develop solid and meaningful academic literacy skills.

Tactile materials

Tactile materials utilize sense of touch, which is frequently overlooked. Tactile materials vary from natural to synthetic, and many can be found around the house. Tactile and kinesthetic input can provide students with information about objects they come into contact with and use.

Teachers must be aware, that students with visual impairments have deficit in conceptual experiences and understanding due to absence of visual ability, therefore adaptations of teaching materials become paramount, if they have to learn all the things other students without visual impairments learn in the class. To help achieve this, therefore, such students should be taught physically using concrete experiences (Bishop, 2006; Pauline, 2008). Following this proposition, the students should be given an opportunity to explore tactile diagrams. Tactile diagrams are very important to understand images and concepts which are difficult to explain and describe in words. Therefore, they should be used when shapes and patterns are very important to understand the concept but also, when the real objects are not available to help teaching (Salisbury, 2008). Tactile images or diagrams can be drawn on braille papers using a special mat and stylus. This produces a relief image or diagram that can be easily felt (UNESCO, 2001).

Adapting written texts

In order to support students with vision loss, material resources need to be employed. For example, printed text can be adapted through increasing the font size, bolding the text, increasing contrast, adding colour, and adjusting spaces between characters. However, the extent of these adaptations depends solely on the severity of visual defects and the needs of the student concerned (Bishop, 2006; Mastropieri & Scruggs, 2010). It is important to consult a specialist teacher on preparation of materials prior to the lesson, because different students use different materials depending on the degree of their visual impairment (Spungin, 2002).

Meanwhile, individuals who are partially sighted should be given notes which are presented on a projector. A special education teacher for students who are partially sighted, should be able to teach them before lessons begin (Spungin, 2002).

Assistive technology

Assistive technology for people with visual impairment includes "low tech"" to „„high tech"" tools (Smith, 2012). Examples of the low-tech materials include pencil grips, highlighters, paper stabilizers and high-tech examples include computers, voice synthesizers and braille readers. Moreover, Rose, Bracket & Maxan (2006) stated that assistive technology devices are any pieces of material items, or product system (software) used to improve the functional capabilities of persons with visual impairment. Instructional materials on ICT, material devices or printed paper all aim to fulfill a purpose (Weiter & Hastein, 2003). Firstly, there is a target to fulfill the function for which they are designed; secondly, they serve as a means for inclusive education. We know it is relevant to draw practical consequences deriving the function between them. The types of assistive technology in the classroom may be in place to aid in the following areas: Computer Access, Composing Writing Material, Communication, Mobility and Vision (Weiter & Hastein, 2003). The technological developments during the last decades have significantly increased access to information in all formats with visual impairments. Kapperman & Stiken (2000) observed that, the ability to access information is essential for success in education, employment and life. Therefore, much of the development of assistive technology has focused on providing access to information. In particular, devices to read and write braille and print have significantly improved with the application of new technology. Such devices include audio technology (tapes and tape recorders, auditory text, recorded texts and synthetic speech) as well as computerized braille technology such

as braille embossers (specialized tactile printer) advanced CCTV, scanners and optical character recognition software (technology that scans printed text and provide the user with speech output), computer screen readers, Compact Disc (CDs) and multiple hardware and software innovations. Computer assistive and technology are often cited as the means to overcome limited access to print and other environmental barriers for non-print readers (Gerber, 2003).

Gerber noted that a plethora of researchers and practitioners in the field of visual impairment have acknowledged that the use of computers and assistive technology can change the lives of pupils with visual impairments to a great extent by improving education and employment opportunities, enhancing social network and facilitating independence. In essence, assistive technology has the potential to be the „„great equalizer"" for persons with visual impairments (Michaels & McDermott, 2003).

For instance, many career opportunities requiring access to visual information are now accessible to those who have visual impairments through the application of appropriate technology. It is broadly recognised that assistive technology has good impact on the lives of individuals with vision loss (Kapperman, Sticken, &Heinze, 2002; Strobel, Fossa, Arthanat& Brace, 2006). However, the advancement in technology on the other hand has been cited as a factor for declining braille use and braille literacy (Spungin, 2005). In addition, assistive technology omits grammatical structure, spelling and traditional text formats. Therefore, as assistive technology market continues flourishing with devices and software that make the visual world significant and more accessible to persons with visual impairment, educators need to evaluate their applicability and effectiveness to literacy related needs.

Also, Optical Character Recognition (OCR) technology enables individuals with visual impairment to place books or other print materials on a scanner and have the text interpreted and read using synthetic or digital speech. The first OCR system for individuals with visual impairments was introduced in 1976, when Ray Kurzweil invented the Kurzweil reader. The early Kurzweil reader was about the size of a small photocopy machine and was considered to be a truly remarkable advancement for students with visual disabilities. While the device was often found in libraries, it was too bulky and expensive to be available to students in the classroom. Kurzweil & Gilder (2002) noted that, there are portable stand-alone OCR devices and other devices that can be attached to other computers and scanners today.

Print adaptation for pupils with low vision

Determining the appropriate method of adaptations to magnify text for learners with low vision is an important issue, to ensure that difficulties in reading do not impede progress in educational, vocational and recreational activities. Such adaptation may include closer working distance (relative distance magnification), use of magnifiers (angular magnification), higher contrast material, large print and use of electronic devices (Ndung‟u, 2011). Teaching with instructional materials is critical in the learning of human beings because they help learners to see, hear and handle what they learn. Instructional materials help to improve communication and make the teacher‟s works easier because he/she talks less (Ocloo, 2011). Many pupils with low vision need some form of materials or equipment in order to learn. For instance, a strong felt pen in a particular colour will enable the child with low vision to see what has been written. Non-shining papers with either no lines or very strong and well-spaced lines is very useful to many children with visual impairments.

2.4 Resource services for learners with low vision

Support services are services that are needed to assist a child with disability to benefit from regular or special education (Avoke, Hayford, Ihenacho & Ocloo, 1998). These services are offered in special education programmes to help learners with special needs benefit from the training they get from school (Avoke et al, 2008). For Lewis & Doorlag (2005) these support services are offered to pupils and students with disabilities to supplement special education programmes and these programmes include psychological services, counselling services, physical and occupational therapy as well as recreation and diagnostic medical services. Also, support services offered to a student to a large extent depend on the special needs of that particular student. The services according to Garguilo (2005), may involve physical assistance and therapy, counselling and psychotherapy, modified learning environments and assistive learning devices, educational and psychological assessments and behavioural modification techniques. Sands et al, (2000) said, all stakeholders have to be properly informed of the changes in order to make inclusion a success. Traditionally, discussions of important school outcomes have been conducted in private by school administrators, curriculum specialists and other „experts". In contrast, in inclusive school communities, children, youths and their families, community members all participate in these important decisions along with school professionals and support personnel (Sands et al. 2000). The needs and interests of the learners inform policy. Professionals, like psychologists and social workers, have different roles, because they now have to listen to the views of other people and they do not have the last say. This partnership also ensures that inclusion spills from individuals to classrooms, from classrooms to the playground, from the playground to the entire school and then from the school to families and the entire community (Sands et al. 2000). These

services aim at placing and supporting individuals with visual impairment individuals in regular educational settings to enable them achieve the best in learning.

Role of the teacher of students with visual impairment

Boulevard and Rosa (2016) note that teachers of students with visual impairments are itinerant staff that visit classroom to help students access the curriculum and their responsibilities include:

a. Assessing the student‟s functional vision.
b. Attending IEPs and providing present level information about the student‟s functional vision, suggesting appropriate goals, recommending modifications or accommodations for state-mandated assessments, and making recommendations about the scope and extent of VI service required. The itinerant teacher programme for learners with visual impairment conforms to rules and regulations for PL 94-142 of the United States of America regarding the Least Restrictive Environment and the Individualised Education Programme (IEP). This programme involves a collaborative effort of the classroom teachers and the special educators of children with visual impairment.
c. Assisting with and advising District Special Educational Needs Coordinator about modifications to curriculum and assessment materials.
d. Providing students with direct instruction about braille, the use of specialized equipment and adaptations, and activities of daily living.
e. Helping with the training of assistants assigned to students with visual impairment.
f. Providing Braille, large-print, or specialized media

g. "Interlining" student"s work produced in braille so that the classroom teacher can read it (printing out what the student has written in braille).

According to Boulevard and Rosa (2016), teachers of students with visual impairment provide instruction that is directly related to the student"s vision loss. Although they may help modify curriculum materials, they do not generally provide direct instruction in core curriculum areas. For instance, if a student with low vision is having trouble learning math concepts, the teacher of students with visual impairment might help with suggestions for presenting materials, provide enlarged textbooks, or teach the student how to use a talking calculator. The teacher of students with visual impairment might work with the student on classroom curriculum as a way of teaching the student how to use adaptive equipment, organize workspace, etc. However, the teacher of students with visual impairment is not primarily responsible for teaching math content.

Role of the orientation and mobility teacher

Orientation and mobility (O&M) teachers are itinerant staff who help students with visual impairments successfully navigate their environment. Mobility is very crucial when it comes to the education of children who are visually impaired. According to Ocloo (2003), orientation and mobility should be taught to the pupils who are visually impaired to ensure independent movement among these children. Wolffe (1999) contends that orientation and mobility (O & M) training is an important skill that allows a person with visual impairment to safely access his or her environment, both indoors and outdoors. The sighted guide technique, the use of the white cane and the dog guide training are all adaptations persons who have visual impairment can use to access their environment.

Curtis, Emerson & Kim (2009) were of the view that, techniques that may be used immediately is the sighted guide technique also called human guide that can be used with or without a cane as a means of moving with another individual. These authors indicated that when the sighted guide techniques are used correctly with a proficient sighted guide, travel is very safe and efficient. The guide can be a constant source of information about the environment.

Corbett, Haneline, Penrod & Smith (2010) argued that sighted guide travel used as the only mobility system may foster dependence rather than independence. The individual with visual impairment holds the guide‟s arm and walks a little behind the guide and to the guide‟s side. Corbett et al, (2010) added that the individual with visual impairment grasps the guide firmly with the thumb on the outside of the guide‟s arm and the four fingers curled around the inside of the guide‟s arm. Individual with visual impairment should not grasp the guide‟s clothing. Young individuals with visual impairment can take the guide‟s wrist. Older individuals can grasp just above the guide‟s elbow. The guide always checks that there is enough room from side-to-side and overhead to pass safely with the individual with visual impairment. The guide hesitates before making a turn, stepping up or stepping down with the individual with visual impairment. Some individuals with visual impairment may use their cane when they are walking with a guide. This allows the individual with visual impairment to gain additional information and identifies the individual with visual impairment as being visually impaired. Lahav and Mioduser (2000) share the view that in case of human guide and seating, the sighted individual indicates where the chair is by guiding the individual‟s with visual impairment hand to the back of the chair. This

simple tip allows the individual with visual impairment to determine the positioning of the chair for sitting.

Besides, Corn and Sacks (1994) assert that, orientation and mobility is one of the most important tools a person with visual impairment receives. The orientation and mobility techniques help client learn to become independent in most of their lives. According to Boulevard and Rosa (2016) orientation and mobility teachers‟ responsibilities may include:

a. Assessing the student‟s mobility and travel skills.
b. Attending IEPs and providing present-level information about the student‟s mobility skills, suggesting appropriate goals, and making recommendations about O&M services.
c. Providing direct instruction to students regarding travel skills and use of public transportation, cane use, orienting their bodies in space, and having a mental map of the classroom, school, and neighbourhood.
d. Providing direct instruction to students, their teachers, and peers in the use of "sighted guide" techniques.
e. Providing consultation to district education staff about any of these areas so that they understand what students with blindness or low vision can be expected to do safely and independently, know when to help, and know how much help to give.

Role of the classroom teacher and aide

Sometimes an aide is assigned to assist a student with blindness or severe visual impairment. Boulevard and Rosa (2016) explain that the aide works under the combined direction of the classroom teacher and teacher of students with visual

impairment to facilitate the student‟s learning and integration in the general education setting. The younger the student is, the more hands-on help he or she will need. It is important for the aide to help the student become as independent as possible and to move from being a hands-on assistant to a "shadow" aide as the student‟s independence increases. The aide of students with visual impairment typically learns how to produce some braille materials and takes responsibility for day-to-day assignments that the teacher of students with visual impairment cannot accommodate. The teacher of students with visual impairment works with the aide to provide training in this area (Boulevard & Rosa, 2016). Scruggs, Mastropieri, & McDuffie (2007) reported that there is benefit in co-teaching which includes communication among students and teachers to enhance teaching.

Teachers, who adopt a goal of self-sufficiency for their students with visual impairment, expect these students to participate fully and independently in the class. Here are some suggestions to help achieve this goal:

a. Keep expectations high.
b. Provide the same or equivalent information, experience, and education for the student with visual impairment as for all other children in the class.
c. Speak directly to the child at all times, grade the child‟s papers, know the child‟s work, interact with the child daily, discipline the child, and so forth.

It is important that the classroom teacher, aide, and teacher of students with visual impairment work together as a team and communicate with each other frequently (Boulevard & Rosa, 2016).

District Education responsibilities (Special Educational Needs Coordinator)

District Education staff (Special Educational Needs Coordinator) also provides services for learners with visual impairment in the District. Boulevard & Rosa (2016) further state that their major services include:

a. Providing some enlarging and braille translations of day-to-day materials.
b. Providing consistent space for the teacher to work with students with visual impairment.
c. Assuring a safe storage place for any equipment assigned to students with visual impairment.
d. Obtaining braille or large print copies of state testing materials when needed.
e. Purchasing minor adaptations to accommodate a particular student‟s with visual impairment needs, such as classroom white board for good contrast.
f. Attending IEP meetings.
g. The District Special Educational Needs Coordinator usually chairs the meeting and the student‟s with visual impairment regular education teachers should attend and participate.
h. Providing an aide for the student with visual impairment when required by the IEP.

District Special Educational Needs Coordinator is responsible for referring and assessing students.

Medical Specialist support

International Council for Education of the Visually Impaired (2010) noted that some students may require the services of a medical specialist, who can meet the specific medical and physical needs of students including pupils with low vision by providing

diagnostic and treatment services within their areas of specialization. For example, an ophthalmologist – a medical doctor with a specialty in diagnosis and treatment of eye diseases and defects. Treatment may include prescription of drugs, glasses, surgery or other therapy. Many medical-related services may be provided by school nurse, who can screen students for sensory and physical problems; treat some illness; offer explanations of medical records; monitor the efforts of pharmacological interventions; teach students specific health-care skills; offer training in nutrition, dental care, and other health-related skills; check the fit, maintenance, and functioning of prosthetic and adaptive devices; and help parents obtain medical services (Friend, 2008).

Psychological support

Regular classroom teachers count on the services of the school psychologists in order to support pupils with low vision in their schools. An essential member of the multidisciplinary team is the school psychologists. In many instances, teams are chaired by school psychologists because of their training and expertise in the administration and interpretation of standardized tests. In addition to carrying out test-related tasks, school psychologists also collect data from regular teachers on pupils by observing them in their classrooms and interviewing regular teachers who work with the pupils with visual impairments in order to assist them. Many school psychologists are trained as consultants to assist regular classroom teachers in designing, implementing, and evaluating pre-referral interventions and behavior management systems (Konadu, 2010).

Psychologists are professionals trained in the science of human behavior and learning. They have expertise in the area of cognitive, behavioral, social, and emotional development (Avoke, Hayford, Ihenacho, &Ocloo, 2008) cited in Konadu (2010)

stated that psychologists offer services to both students with „normal" and „abnormal" development. The school psychologist uses information gathered from evaluation procedures to advise teachers about how to stimulate children, both those with and without disabilities, to learn. They offer parents strategies to combat the numerous behaviour problems posed by children, including those with disabilities. These functions in the view of the authors are quite similar to those performed by the guidance coordinators in our second cycle schools. According to Avoke et al, (2008) though the function of a school psychologist cannot be underscored, these professionals are entirely missing in the provision of specialized services for students in Ghana.

Parental support

Education is viewed as the shared responsibility of the home and the school. Parents of children with visual impairment offer a lot towards the education of their wards, and are potential sources of information about the academic ability of the students. They are familiar with their wards and know their educational needs, and can decide for their children. Moreover, parents provide the necessary information about social, physical and emotional development (Garner & Davies, 2001; Webster & Roe, 1998). Having this information, a teacher will strive to structure and modify his or her teaching to help students with visual impairment in the class (Spungin, 2002). Instead of parents sitting on the side-lines and being called to school to be informed of changes, they actually participate in decision-making that concerns making changes. Parents are to be involved in aspects of school, such as the assessment of their own children. They are normally very observant of their children's performance and schools often tell rather than ask parents about their children's performance (Engelbrecht, 2004). Parents are also informed about anything that might concern the

identification, evaluation or placement for educational purposes of their children. They can also request an independent evaluation to be done for their children.

Parents can also provide essential information to the multidisciplinary team that assists in the development of an appropriate and a high-quality educational programme (Vaughn, Coppola, Verissimo, Monteiro, Santos, Posada & McBride, 2007). Parents play important role as mediators towards the school, by giving information and resolving problems when teachers/learners do not understand their child‟s needs (Lightfoot, Hill, & LaLiberte, 2010). Some of the problem behaviours that manifest in the school environment emanate from the home and it is only the parent who can inform the schools about the nature of the problem. Parents should not just be called when there are problems but, should take an active role in preventing problems in the school. Some might argue that this is not feasible. Teachers are very much used to their own space in teaching and having to accommodate the views of others may seem an insurmountable task.

Gadagbui (2012) explains that when parents and teachers partner, positive attitudes towards school can be encouraged and grooming children to upgrade themselves to higher levels can be done. The importance of parental support for any child cannot be over emphasized. This is because parents are the first social agents and co-teachers, mentors and they care for the development of their children. These attributes are very crucial in home-school partnership. Gadagbui further explains that parent teacher partnership is more crucial for families with children with disabilities because of the “special needs” they have which have to be attended by both institutions and for the parents to reinforce learning and carry-it-out to the home for continuity.

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Carney et al (2003) contend that parents should be included as active members of the support team as early in the process as possible. Educational priorities identified by family members should be a primary consideration. Carney et al (2003) further state the following as the services parents can provide to ensure educational success of their wards. Parents;

a. are able to communicate a picture of the life of the student;
b. can provide up-to-date medical information;
c. can help achieve continuity of programming over time;
d. have important information on the likes, dislikes, interest and skills the child demonstrates in the home and community;
e. can assist in developing goals and effective strategies; and
f. can offer opportunities for practice, reinforcement, generalization and maintenance of skills in the home.

2.5 Instructional supports to learners with low vision

In a regular classroom, it is the teacher‟s responsibility to teach all the categories of children in the classroom including the child who is blind or child with low vision. Smith and Polloway (2008) acknowledge that teachers working with learners with visual impairment need to understand the nature of a particular student‟s vision problem to be able to choose appropriate accommodative tactics. These teachers need basic information related to the following categories:

a. Fundamental concepts of vision,
b. Visual impairment signs on possible visual problem,
c. Typical characteristics of learners with visual impairment and
d. Specific accommodative techniques for meeting these learners‟ needs.

In order to achieve learning outcomes in regular schools, adaptations to instruction, resources, assignment formats and classroom environment must occur. Multiple teaching methods need to be diversified to enable students who are visually impaired to participate in learning (Palmer, 2005). Verbalizing all instructions in detailed form ensures that students comprehend the expectations of required assignments and projects (Richards, Hove & Afolabi, 2008). Breaking concepts into clear chunks is beneficial to facilitate learning for the child with visual impairment (Palmer, 2005).

The American Foundation for the Blind (2005) and (Richard, Hove & Afolabi, 2008) stated that students who are visually impaired may require individual instruction in order to understand what is expected of them. Students with visual impairment may also benefit from pre-lesson instruction for more difficult concepts. According to Pagliano (2005), confirming instructions can assist in ensuring comprehension. Teachers therefore, need to allow these individuals to solve problems and complete tasks on their own. Pagliano (2005) further stated that students with vision impairment benefit from doing tasks on their own via “learning by doing”. They are guided through the actions until they have gained expertise of the task and that they must be “explicitly taught how to make connections between parts and the whole”. Pagliano again explains that students with vision impairment may also perform “kinesthetic re-enactments” by placing their hands over the teacher‟s, they observe and learn by touch. Allowing extra time to complete tasks and tests is another

effective teaching strategy that helps to ensure that these students are able to meet learning outcomes (British Columbia Ministry of Education, 2006).

The use of real and concrete objects in terms of resources also works towards furthering comprehension (Pagliano, 2005; Palmer, 2005). Using books-on-tape can also be beneficial for students with vision impairment (Richards, Hove & Afolabi, 2008). In order to ensure that learning outcomes are met, classroom teachers should access a myriad of resources to support students with vision impairment. Special materials and vision aids, such as tactile objects, tactile maps, tactile globes, Crammer abacus, and Braille rulers help to ensure that these individuals are able to successfully access learning. Palmer (2005a) stated that diagrams and maps must be adapted to suitable formats, such as Braille or tactile. The use of modified games may also be used to foster achievement. Using adaptive materials can greatly increase students with vision impairments' ability to achieve learning outcomes (Pagliano, 2005; Palmer, 2005).

According to Hatlen (1997), in order to meet regular curriculum learning outcomes, students with vision impairment need to be taught skills covered in the expanded core curriculum, such as assessing assistive technology and social skill instruction. Assistive technology, both low technology and high technology, helps to improve the basic skills of students with vision impairment, giving them the ability to access literature, attain information and complete assignments and tests (Allan & Stiteley, 2006). Technology allows these students to achieve learning outcomes in a variety of ways. Cooper & Nichols (2007) and Vik & Lassen (2010) added that students with visual impairment require specialized instruction in the use of computers with software such as Job Access With Speech (JAWS) and Non Visual Display Access

(NVDA), training in the use of different types of assistive technologies (such as closed circuit television systems and braille displays, and electronic magnifies) and training in the acquisition of orientation and mobility skills to enhance their success in mainstreamed institutions. These support services are critical in the education of students with disabilities including students with visual impairment because, lack of these necessary support services can render them socially and academically excluded and overly dependent (Tugli, Zungu, Ramakuela, Goon, &Anyanwu, 2013).

Technological developments during the last decades have significantly increased access to information in all formats with visual impairments including those with low vision. Kapperman and Stiken (2000) observed that the ability to access information is essential for success in education, employment and life. Therefore, much of the development of assistive technology has focused on providing access to information. In particular, devices to read and write braille and print have significantly improved with the application of new technology. Such devices include audio technology (tapes and tape recorders, auditory text, recorded texts and synthetic speech) as well as computer-based technology such as Braille embossers (specialized tactile printer) advanced CCTV, scanners and optical character recognition software (technology that scans printed text and provide the user with speech output), computer screen readers, Compact Disc (CDs) and multiple hardware and software innovations.

Gerber notes that a plethora of researchers and practitioners use computers and assistive technology can change the lives of pupils with visual impairments to a great extent by improving education and employment opportunities, enhancing social network and facilitating independence. In essence, assistive technology has potential to be the „„great equalizer"" for persons with visual impairments (Michaels & McDermott, 2003).

Non-electronic equipment can be very helpful with completing course work (Student Support Services, 2001). For example, students with vision impairment who can write can use dark-lined paper to lessen any eyestrain associated with written work (Allan & Stiteley, 2006).

The use of reading stands is also one of the instructional supports teachers use to assist learners with visual impairment in reading. This allows students to have their books as close to themselves as needed, without dealing with muscle fatigue. Aids for accomplishing mathematics tasks, such as braille rulers, abacus and Braille protractors, and help students to meet prescribe mathematics learning goals. A slate and stylus enable students with vision impairment to produce work in Braille, allowing them to take notes in class (Bishop & Rhind, 2011).

Orientation and mobility instruction is given to learners with visual impairment live safely and travel independently in the environment. An orientation and mobility instructor should have a solid foundation and expertise in the areas of education of students with visual impairment and child growth and development. These instructors should also demonstrate skills in human relations and communication (Richard, Hove & Afolabi, 2008). For optimal benefits, orientation and mobility training should not be relegated only to the school environment; students with low vision need to be able to safely and independently travel out in the community, giving them the opportunity for freedom and independence equal to their sighted peers (Bishop & Rhind, 2011).

Sachs and Silberman (2000) found that students with visual impairment often experience learning difficulties simply because they cannot easily use vision to process information. With this, it is necessary to consider their curriculum within the classroom setting in order to meet up with the teaching and learning processes. Jatau,

Uzo and lere (2002) revealed that the class teacher needs to adjust, to teach social norms that are valuable and necessary within the classroom setting.

An appropriate inclusive school environment for children with visual impairment should provide infrastructure that are disability friendly, teaching facilities (materials and equipment), human resources and other related services needed for the wellbeing of the students within school milieu (Jatau, Uzo & lere, 2002). Leonard Cheshire Disability (2011) stated some of the strategies for handling learners with visual impairment in the classroom. The strategies include:

a. Using large writing on the chalk board or visual aids. The use of coloured chalks is recommended. Let the children come close to the board or teaching aids so that they can see more easily.
b. Reading aloud what is written on the chalkboard
c. Preparing teaching aids that learners can read more easily such as large print materials. Other learners in the class could help prepare these or they can be produced by enlarging font sizes on computer printout. This can also help learners who have difficulties in reading.
d. Learners may have difficulties seeing the lines on writing papers. They can be given papers with thicker lines drawn on it.
e. Some learners will benefit from using magnifying aids. Two types are available. Ones that enlarge the whole page or line magnifiers, which are a useful aid to reading
f. Encouraging the learners to use a pointer or their finger when reading. Cover the rest of the page with paper except for the paragraph they are reading. Use a bookstand to avoid reflection.

g. Children with poor vision need to learn through touch as well as through hearing. They should be given a chance to handle objects.

h. Pairing the pupils or students with a seeing classmate who can assist him/her to organise their work. The partner can help find the correct page, repeat your instructions and so on.

i. Using verbal praise or touch to give the children encouragement.

j. Using the name of the pupils or students during class discussions so that the individual knows who is talking.

k. Computers offer particular support to learners with visual impairment. They can print out a large print copy, read text on the screen using the text on a voice synthesizer or convert it into braille.

l. When teaching mathematics, the teacher should make use of abacus, tactile geometrical shapes, talking calculator and braille ruler.

m. Lessons can be taped using a cassette recorder for later playback at home or as revision.

However, teachers find it difficult to provide instructional support to learners with low vision as often as it should be as a result of some challenges such as large class size, limited time, inadequate materials and others. The recent drive for enrolment into regular schools through the introduction of the FCUBE policy, the capitation grant and school feeding programme have made many regular schools in Ghana to experience a sharp increase in student enrolment. Avoke and Avoke (2004) place the number between 60 and 90 in an average class in the country. Such large class sizes according to Avoke and Avoke make it difficult for students with special needs to be effectively included in demonstration lessons since teachers are unable to offer support to such students. Ocloo et al. (2002) posit that in the rural and semi-urban

environment, everybody that offers him/herself for enrolment or the school is not denied access; this however, created a situation where children with various degrees of special needs are found in regular schools.

Hayford (2013) noted that the sharp increase in enrolment has led to overcrowding in both special and regular school in the country (Ghana). In a study, teachers reportedly taught classes with enrolment ranging from 35 to 85 pupils. The challenges imposed on teachers by large class size ranged from inability to make time for all the pupils including pupils with low vision, difficulty in marking class exercises to problems encountered with class control. Also, large class size adversely affects teachers‟ assessment of pupils‟ progress in the programme of study as well as the quality of their marking. Ocran (2011) reported that out of 104 teachers surveyed in basic schools in the Central Region, 79% of them taught classes with enrolment that ranged between 36 – 66 pupils. Only 21% of the teachers in that study handled classes with enrolment below 35 pupils. The findings from the studies confirm the Ministry of Education‟s assertion that there are variations in enrolments and many schools have not attained the national target of 35:1 pupil-teacher ratio. Consequently, teachers in these schools are not able to provide quality attention to all learners including those with special educational needs.

Large classes cause teachers to spend so much time on marking pupils‟ work that they tend to have very little time to prepare for teaching. By simple calculation, if a teacher has 35 pupils in his class and gives the pupils exercises in three different subjects, then, in a day he has 105 exercise books to mark. If the teacher uses a minimum of five minutes to mark a book then he will spend 525 minutes or 8 hours 45 minutes marking 28 every day. That is most basic school teachers spend more than a third of a

day marking pupils‟ work, which is not helpful to inclusive education because teachers may not have the energy to attend to the needs of children with disabilities or special educational needs during school hours (Hayford, 2013).

2.6 Challenges learners with visual impairment face

Most individual with visual impairments are rejected possibly because they might not have been regarded as normal in social instances. For example, many children with visual impairment tend to lack play skills, ask too many irrelevant questions, and engage in inappropriate acts of affection. Some of these individuals may exhibit other inappropriate anti-social behaviours, like rock moving their heads and hands strangely in space, and eye pock while sitting, walking and standing (Tirago, 2012).

Many concepts are learned through visual means, learners with visual impairments have difficulty learning some concepts. They tend to be more passive and less inclined to go in search of new experiences, they develop few learning experiences than sighted learners do. Learners with low vision may have restricted mobility and consequently limited experiences which may cause passivity and dependency and a learned helplessness. One aspect of psychological functioning that may affect these learners is self-esteem. Self-esteem is related to a person‟s feeling of self-worth and value. It is a critical ingredient for lifelong happiness, success, and better life (Scott & Murry, 2001).

Challenges in educational achievement

Many factors determine how visual impairments affect a child‟s learning experience. Age of onset and severity of vision loss, as well as presence of multiple disabilities are some of the factors that affect their learning. Children with visual impairments often have limited interactions with their environments, less reason to explore

interesting objects, and as a result miss opportunity to learn. In reading and writing, learners with visual impairment are able to read braille or use large print versions of text books. They cannot read normal size alphabets in the text book or in a manual which affects their reading speed. The majority of learners with visual impairments will require slightly more time than other learners to perform certain tasks. For example, given the learners with low vision to find an item in a page, they may be unable to quickly find an item or the first line on a page. It will often take them longer to completely make out what they are seeing or understand what is being discussed.

Most learners with sight problem show excessive head movements while looking at pictures or reading. While reading and writing most of the time they lose place. They have a problem with writing in a straight line and they write in a zigzag manner (Kebede, 2015). Teachers are not trained to accommodate learners with disabilities appropriately, support and supplemental materials are lacking. Studies have shown that much of the learning that occurs in classrooms around the world is superficial learning. Facts rules and formulas are memorized but often this information is not connected in a coherent frame work that would allow learners to make sense of it and to use it in new situations simply to acquire facts (Alonge, 2005).

Many materials found in general education class rooms may pose difficulties for learners with vision problems. For example, the size and contrast of printed materials that have a real effect on learners with visual problems. Special material and equipment can enhance the education of learners who have visual impairments. Some materials, for example, large printed materials are not appropriate for all and must be considered in light of individual needs (Smith & Polloway, 2008). According to the United States of American National centre for individuals with disabilities, it is

important for educational organizations and institutions to consider the need of people/learners with visual impairments. Learners with visual impairment most ats time cope with difficulties in the classroom in addition to reaching in the classroom. For example, a student with low vision may not be able to read a text on a board and they could miss the funny faces or expressions that often accompany a lively classroom discussion (Candido, 2008).

Engelbrecht, Oswald & Forlin (2006:121) point out the barriers to learning and participation. In schools for the visually impaired caused by different factors including:

a. A rigid curriculum,
b. Socio-economic deprivation,
c. Communication problem,
d. Negative attitudes towards the disable,
e. Inaccessible and unsafe built environment,
f. Inappropriate and inadequate support services,
g. Inadequate policies,
h. Non-recognition and the non-involvement of parents and
i. Inadequately and inappropriately trained teachers.

Purdue (2009) explains that the challenge regarding their educational achievement is brought about by exclusion, the barriers that get in the way of full acceptance and participation in education activities. These may include socio-cultural barriers such as physical and material barriers, for example poor building design, insufficient finances and lack of adequate awareness about surrounding environment. These may cause discrimination towards some individuals and groups to occur. The Ministry of

Education (MOE) (2002) and Ministry of Labour and Social Affairs (MOLSA) (2004) emphasize that the quality of education for students with disability may be affected by several variables that are observed in the school and out of the school, such as inflexible curriculum, inconvenient classroom, and physical facilities like seating arrangement, furniture and lack of teaching aids.

In addition, UNESCO (2007) elaborates on the inability of the curriculum to cater for the needs of these learners, insufficient preparation of teachers and education leaders, rigid and poor teaching methods and inadequate assessment procedures. As a result, schools and teachers find it difficult to accommodate learners with special needs and they try to make them to adapt to the school, instead of adapting schools to the needs of the learners. It is therefore necessary for teachers to accommodate learners with low vision to help successfully achieving positive learning outcomes. Students with low vision need preferential seating so they can have appropriate access to the blackboard, windows, and overhead screens when needed (Bishop & Rhind, 2011). Adjusting lighting in order to help complete assigned work is an important consideration, which can be achieved by adding extra lighting or dimming the lights, depending on the needs of the students (Palmer, 2005). Indeed, modifying the classroom environment maximizes the opportunity for students with low vision to learn alongside their classmates. Individuals with visual impairment must be taught specific skills that enable them to access learning and compete with their sighted peers on a level playing field (Bishop, 2006).

Challenges in adjustment to inclusion

There are many social and environmental barriers that learners with low vision experience, including people‟s lack of knowledge about diversity. Tefera (2002) asserts that these barriers adversely affect the socio emotional development of children with visual impairment. Some of those are the environment, attitude of others and lack of acceptance by others. The environment is a factor that significantly affects the psychological functioning of children with visual impairment. The development is affected by different kinds of environment, including educational placement. During the formative years, school is the main place for the social experience of these learners that puts a great deal of influence on their social development. It is, therefore, important to examine school arrangements based on how well they enhance social and emotional development.

However, the sighted peers have negative attitude towards the learners with visual impairment which affects their social skills. Many sighted learners in mainstream society are afraid of their peers who are visually impaired and do not want to get acquainted with children with them (NaiKwai-Lo, (2007). Bekele (2003) indicates that children with disabilities were regarded in a negative light by the sighted children. They were less likely to be selected as best friends or play mates, however, children in segregated classes had high levels of peer-relationship satisfaction. Sighted learners‟ attitude also contributes to poor academic performance of learners with visual impairment in an inclusive school. Nthama & Annie (2019) noted that learners who are not visually impaired may contribute to poor performance of learners with visual impairment. For example, learners with visual impairment may be rejected during the group work activities and sometimes may not be given a helping hand by their sighted peers in terms of reading to them when the teacher gives them work in

printed materials. On the other hand, USAID/Ethiopia (2011-2015) explains that stigma often leads to a denial of access to services such as education, employment and health care. The causes of visual impairment and overall functioning level of a child also determine how the visual impairment affects a child‟s development. In general, visual impairments have cognitive, academic, social emotional and behavioural effects.

In addition, most teachers express negative attitude towards learners with visual impairment. Ocloo & Subbey (2008) explain that, most of the head teachers reject the admission of learners with disabilities into their schools for the reason that such learners with disabilities will lower the academic standard of the school. Moreover, most teachers refuse the placement of the disabled in their classes with the notion that this may be unrewarding and burdensome. The rejection is stronger with those children with severe disabilities than for those with less severe disabilities. Negative school experiences of children with visual impairment have been linked to teachers‟ low level of knowledge of disabilities and intervention techniques and insufficient special education support (Scott & Murry 2001).

The regular classroom teacher is the primary educator of the child with visual impairment who is enrolled in his/her classroom. It is the teacher‟s responsibility to teach all the children in the classroom including the child with blindness or low vision. Nthama & Annie (2019) again observe that teachers are the major social agents during the teaching and learning process of the learners with visual impairment. Nthama & Annie (2019) stated that teachers‟ general characteristics and role can either have negative or positive impact on a child. For example, a teacher who has negative attitude will have negative views about teaching and interest on

lessons, marking and guiding learners on hands experience. Mastropier & Scruggs (2010) stressed that one of the most important determinants of inclusion success is the attitude of the general education teacher towards accommodating learners with disabilities. Although some teachers are positive about inclusion, some general education teachers become stressed by the need for individual planning time, additional training for inclusive teaching, and additional resources, in the form of personnel and specialized instructional materials.

Challenges in physical locomotion

Allen (2009) expresses the view that the greater the vision loss, the greater the delays in reaching, crawling and walking. A child with limited vision does not develop the ability to localize sound and move towards it until the end of the first year. Motor development is further delayed by the child‟s inability to learn skills related to judging distance, direction, body position and object position in space. The children often develop strange ways of walking and positioning themselves because they have no visual reference points or models.

Andrea and Farrent (2000) state that children with low vision can experience many negative consequences such as feeling like an outsider because they cannot take part fully in activities, feel less than capable because they do not understand visual concepts fully and feel clumsy because they drop things or bump into objects. All of these consequences can have the effects of lowering their self-esteem. Restricted movement within the environment, particularly for children with congenital visual impairment, can affect a child‟s development. Children with visual impairment often have limited interactions with their environment, less reason to explore interesting objects and as a result, miss opportunities to learn (The Gale Group, 2009).

Shapiro, Moffett, Lieberman and Dummer (2005) explain how the perception of competence, or the ways in which a person thinks about himself or herself, influence initiation and mastery attempt in various domains of achievement including social acceptance and physical appearance. Learners with visual impairment who have difficulty in performing sport and physical activity skills, often have lower self-perceptions. These poor self-perceptions are likely to lead to a reduction in confidence in movement and often extend beyond the athletic domain, resulting in adverse psychological and social consequences.

In order to ensure proper physical locomotion in regular school settings for the people with visual impairment they will require orientation and mobility, that is, the sense of where they are in relation to other objects and people in the environment and ability to move about within space. They need to know where furniture, doorways, bookshelves and the teacher‟s desk are in the classroom, in relation to their own location. In addition, they need to be able to move from the classroom to the auditorium, to the cafeteria and out of the bus in a timely manner. The task of the class teacher is to make sure that the classroom is specious enough, well arranged and furniture placed for proper learning opportunities for the individual with visual impairment (UNESCO, 2001; Mawutor & Selete, 2004).

2.7 Summary of literature review

The studies which formed part of the review acknowledged the theoretical framework. The literature review has highlighted a number of issues on learners with low vision, material resources provided, resource personnel services available, instructional supports and challenges learners with low vision face in the regular schools. In all these, the review looked at how to create an enabling environment for pupils with

visual impairment (specifically those with low vision) in order for them to participate actively and compete with their peers in regular schools. In achieving this, the review proposes that there is the need to provide support services for learners with low vision in the regular schools. A gap left is that there was no empirical study that highlighted the provision of support services for learners with low vision in the regular schools at the Bibiani-Anhwiaso-Bekwai Municipality.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the methodology of the study which consists of the research philosophy, research paradigm of the study, research design, population, sample size, sampling technique, instrumentation trustworthiness of the study, ethical considerations, data collection procedures, and data analysis.

3.2 Research philosophy

This study aims to examine the provision of support services for learners with low vision in basic schools in the Bibiani-Anhwiaso-Bekwai Municipality. This study was underpinned by the constructivist epistemology, which argues that meaning is constructed not discovered, so subjects construct their own meaning in different ways, even in relation to the same phenomenon (Gray, 2004). The philosophical and theoretical standpoints placed the study in the interpretivist paradigm. The interpretivist paradigm states that social reality is created jointly through meaningful interaction between the researcher and the researched-on agreement in the latter‟s socio-cultural context, (Grbich, 2007; Rugg &Petre, 2007). Interpretivist research acknowledge, feelings, experiences and view point of the researched as data and is collected verbally (Kusi, 2012). Therefore, in constructing knowledge about the provision of support services to learners with low vision in regular schools, the researcher engaged diverse participants with rich experiences of the issue under study in their natural contexts.

3.3 Research approach

The researcher adopted the qualitative approach in conducting the study. Qualitative approach was appropriate for this study because the study explored participants‟ social, academic, and communication lived experiences in an inclusive classroom. Findings of the study were not arrived at by statistical procedures and quantification but by the exploration of participants‟ experiences through interviews. Moreover the researcher used the primary instrument for data collection and analysis. Data were mediated through this human instrument, the researcher, rather than through some inanimate inventory, questionnaire or computer. Levitt, Bamberg, Creswell, Frost, Josselson and Suárez-Orozco (2018) noted that qualitative research method is used in research to explore people‟s lives, lived experiences, behaviours, emotions, and feelings as well as organizational functioning, social movements, cultural phenomena and interaction between nations.

Qualitative researchers use two key techniques to collect and analyse their data, namely: observing people as they go about their daily activities and recording what they do and conducting in-depth interviews with people about their ideas, opinions and experiences (Fraenkel & Wallen, 2009). Qualitative research approach presents a means of interacting with the relevant persons, and permits the researcher to interview them to identify their personal experiences and opinions on a subject.

3.4 Research design

The study employed descriptive case study research design to explore the provision of support services to learners with low vision in regular schools. A descriptive case study is one that is focused and detailed, in which propositions and questions about a phenomenon are carefully scrutinized and articulated at the outset. Creswell (2008)

defined a descriptive case study as an empirical inquiry which involves an in-depth exploration of a phenomenon in its real-life context through an extensive data collection. The main goal of the descriptive case study is to allow the researcher to assess a sample in detail and in depth, based on an articulation.The descriptive case study research design was also employed because it permits the use of multiple instruments for data collection. The instruments for data collection include observation and interview (Leedy & Ormrod, 2005; Fraenkel & Wallen, 2006). The use of the descriptive case study allows for easy description of data. For the purpose of this study, a descriptive case study was appropriate because the researcher would sampled from respondents on provision of support services available for learners with low vision in the Bibiani-Anwiaso-Bekwai Municipality as a basis for making generalizations.

3.5 Population

The target population for the study comprised all teachers and learners with low vision from the three selected schools in Bibiani-Anhwiaso-Bekwai in the Western-North Region of Ghana. The total population add up to fifty (50), constituting 18 learners with low vision, eight (8) males and ten (10) females and thirty-two (32) teachers comprising twenty (20) males and twelve (12) females.

Table 1: Population of learners with low vision

School	Population	Male	Female
Nzema Nkwantah M/A JHS	6	3	3
Bibiani Presbyterian JHS	7	3	4
Mframanyo M/A JHS	5	2	3
Total	**18**	**8**	**10**

Source: Data from field, 2022.

Table 2: Population of teachers

School	Population	Male	Female
Nzema Nkwantah M/A JHS	10	7	3
Bibiani Presbyterian JHS	12	5	7
Mframanyo M/A JHS	10	8	2
Total	**32**	**20**	**12**

Source: Data from field, 2022

3.6 Sample

A sample for the study was 25 participants, consisting of eighteen (18) learners with low vision, six (6) from Nzema Nkwantah M/A JHS, consisting of three (3) males and three (3) females, seven (7) from Bibiani Presbyterian JHS comprising three (3) males and four (4) females and five (5) from Mframanyo M/A JHS consisting of two (2) males and three (3) females. Seven (7) teachers comprising a male and a female from Nzema Nkwantah M/A JHS and Bibiani Presbyterian JHS. A male and two (2) females from Mframanyo, M/A JHS).This sample was considered appropriate because it was based on the working experiences of the teachers. The teachers who were sampled were those who have served for more than four years and could therefore provide the relevent information on the provision of suppport services for the learners with low vision. The learners were sampled based on their age range from the ages of thirteen (13) to seventeen (17) and have been in the school for at least one academic year. Creswell (2005) notes that selecting a large number of interviewees for a qualitative research, in particular will result in superficial perspectives. The researcher considered this sample most germane in gaining detailed responses and perspectives about the issue under study.

Table 3: The sample for the study

School	Sample size	Learners with low vision	Teachers
Nzemah Nkwantah M/A JHS	8	6	2
Bibiani Presbyterian JHS	9	7	2
Mframanyo M/A JHS	8	5	3
Total	**25**	**18**	**7**

Source: Data from field, 2022.

3.7 Sampling technique

Purposive sampling technique was employed to select the teachers. The choice of this technique was influenced by the fact that the teachers have served for longer period of time, at least four years working experiences and therefore can provide the necessary information needed for the study. In purposive sampling, particular settings, person or event are deliberately selected for the important information they can provide that cannot be obtained elsewhere (Maxwell 2008). Sarantakos (2000) also explained that this type of sampling allows the researcher to choose subjects who in his or her opinion are relevant to the research.

Census sampling technique was also employed to select the learners with low vision for the study. The purpose of this sampling focused on the target group of learners with low vision ranging from ages 13 to 17 years and have been in the schools for at least a year hence, they were in the best position to provide relevent information on provision of support services to the learners with low vision. Under this technique of data collection, results of the enquiry is likely to be exact and accurate. This is because the information is collected from each and everyone without ignoring anyone.

3.8 Instrumentation

Instruments used for the data collection in this study were semi-structured interview guide and observation.

Interview guide

Semi-structured interview guide was developed to collect data in the provision of suport services to learners with low vision. The choice of this instrument was influenced by its descriptive and interpretive paradigms of a case study. Interviews can be described as a form of conversation between two or more people (Avoke, 2005). As Gall et al. (2007) also stated, the advantage of interview is its adaptability because skilled interviewers make an effort to build trust and rapport with participants thus making it possible to obtain information that the individual probably would not reveal by any other data collection method and also can follow up a respondent„s answer to obtain more information and clarify vague situations. Interview was used because of its flexibility and the opportunity it offers interviewees to express their views, feelings and experiences freely and the interviewers have the freedom to divert from the items or questions in the schedule to seek clarification through probes during the interview process (Kusi, 2012).

Separate semi-structured interview schedules were designed for teachers and learners with low vision. The researcher chose one-on-one interview for the teachers whereas focus group interview was chosen for the learners. Focus group interview encourage participants to speak out so that the researcher can learn what the range of views of participants are, in order to generate a collective rather than an individual view of a phenomena (Bogdan & Biklen, 2007; Cohen, et al., 2007). O"Donoghue (2007) described a focus group interview as a face-to-face encounter between the researcher

and a group of participants with the focus on finding out participants" perspectives on their lives, experiences or situations as expressed in their own words on the main variables raised in each of the research questions. There were three focus groups; each group consisted of six learners with low vision. The participants at the various selected schools were interviewed on the key themes such as material resources available for supporting the learning needs of learners with low vision, resource services offered to learners with low vision, instructional support that are offered to learners with low vision and challenges learners with low vision face in regular schools. The schedules had five sections and elicited responses on the issues that were raised in the research questions. The first section dealt with the demographic information of the participants whereas the rest of the sections corresponded to the four research questions raised in the study. Each semi-structured interview schedule contained three main items with probes under each question. The technique of interview is of massive use and significance in qualitative research studies because it emphasizes on comprehensive and complete description of a situation. Fraenkel and Wallen (2003) also noted that qualitative research is designed to investigate the quality of relationships, activities, situations, or materials.

Observation

The second data collection instrument was non-participant observation. As a qualitative data gathering technique, observation is used to enable the researcher gain a deeper insight into and understanding of the experience observed (Best & Kahn, 2003). Observation is based on the premise that, for certain purposes, it is best to observe what actually happens. Observation provides additional source of data for verifying the information obtained by other data collection methods (Cohen, Manion, & Morison, 2000). The choice for this instrument was that, there were no

predetermined responses and the interviewer was free to further probe and explore emerging information from participants (Walliman, 2006). Non-participant observation was also employed with the view of enhancing the credibility of the findings of the study. The researcher observed learners with low vision and their teachers on the themes; material resources available for supporting the learning needs of learners with low vision, resource personnel services available and offered to learners with low vision, instructional support that are offered by teachers to learners with low vision and challenges faced by learners with low vision in regular schools. This is to gain insight into what regular schools actually do in terms of the provision of support services during teaching and learning in Bibiani-Anhwiaso-Bekwai Municipality in the Western-North Region of Ghana.

3.9 Pilot study

The research instruments of this study were pre-tested in the Bibiani Methodist JHS in the Bibiani-Anhwiso-Bekwai Municipalty to ascertain the reliability of the research instrument and procedures. The school was used because it has learners with low vision as the selected schools for the study. The participants for piloting included: four (4) learners with low vision and three (3) teachers. The piloting provided a good opportunity for the researcher to identify any weakness in the instruments, and to find out if the anticipated data analysis techniques were appropriate. The findings from the pilot study allowed the researcher to rework on the research instruments for the improvement in case of inconsistencies: typographic errors, language used, and any ambiguities were removed.

3.10 Trustworthiness of the study

According to Guba (1992), the four components of trustworthiness, namely, credibility, transferability, confirmability, and dependability are used to judge the quality of a study located in an interpretivist qualitative framework. The trustworthiness of the study was achieved as follows:

Credibilityrefers to the confidence one has in the truth of the findings (Pandey & Patnaik, 2014).This criterion was met through the use of triangulation. According to Cohen, Manion, and Morrison (2000), triangulation involves the use of two or more methods of data collection in a study of some aspects of human behaviour. The use of more than one method of data collection helps researchers to offset the limitations associated with one method (Creswell, 2003; Punch, 2005) and assists in determining the accuracy of the information gathered (Bush, 2002). The researcher employed semi-structured interview guide and non-participant observation in this study to ensure credibility.

Transferability in qualitative research corresponds to external validity in quantitative studies. Merriam (1998) writes that external validity is concerned with the extent to which the findings of one study can be applied to other situations. In order to achieve the transferability of the findings in this study, the researcher conducted the study in three different schools and described in detail the research setting as well as the contexts.

Shenton (2004) posits that **confirmability** relates to objectivity in quantitative studies which deals with ensuring, as far as possible, that the work‟s findings are the result of the experiences and ideas of the participants, rather than the characteristics and preferences of the researcher. I established the confirmability of the findings in this

study by playing back the audio to the participants to confirm their responses that the data were derived directly from them.

In qualitative studies, **dependability** refers to the consistancy of the data over similar conditions (Polit & Beck, 2012). To achieve dependability, researchers can ensure that the research process is logical, traceable, and clearly documented (Tobin & Begley, 2004). When readers are able to examine the research process, they are better able to judge the dependability of the research (Lincoln & Guba, 2000). Therefore, in this study the researcher has explained in detail the research process, highlighting how decisions were made in each phase to ensure dependability.

3.11 Data collection procedure

An introductory letter from the researcher's department of study, Special Education Department in the University of Education, Winneba, was sent to the head teachers concerned in selected schools in Bibiani-Anhwiaso-Bekwai Municipality in an effort to gain access to the schools. The letter stated the research topic and spelt out its purpose and objectives as well as the participants and the time that would be spent in the schools to collect the data. Primary data were collected by the researcher herself, with the assistance of two colleague who were trained teachers. The researcher personally visited the schools in advance as a familiarization exercise and introduced the purpose and nature of the study to the school authorities.

After the introduction, the researcher met the participants in each school and explained to them the research purpose and objectives, its significance and what was expected from them during the interview and observation. Participants were assured the freedom of participating in the study and opting out of it at any time if they so

wished. In addition, participants were informed that their responses would be used for research purpose only and they were assured of confidentiality and anonymity.

The data collection process involved three phases and it took approximately three months to complete it. The first phase involved one-on-one interviews with teachers and the second phase was focused group interviews for the learners with low vision in the three selected schools. Teachers were interviewed on one-on-one whereas learners with low vision were interviewed on a focused group to elicit responses from them.The interview guides were established based on the research questions posed for the study. The researcher conducted face-to-face interview with focus group by the use of guiding and prompting questions. There were three groups of learners with low visionand each group consisted of sixparticipants. The interview took place in the classroom. Equal opportunity was given to each group to respond to the same questions. Each interview section lasted for 35 minutes. All interview sessions were audio-recorded using a smart phone saved on my laptop. A backup of the audio files was saved on a flash drive in case the ones on my laptop got corrupted or mistakenly deleted.

The last phase of the data collection process involved observation with regards to the provision of support services for learners with low vision in inclusive educational classroom. Some lessons and examination sessions were observed in each school. When interacting with teachers and learners with low vision, the researcher acted as non-participant observer by not taking part in the classroom as learning and examination went on. The researcher took part as a non-participant observer with a small note book to record (the observation) information from participants on provision of support services for the learners with low vision. The researcher included

findings and interpretations in the recordings from the observation to help in data analyses.

3.12 Ethical consideration

In research, ethical issues are of high relevance and therefore require due concerns. To ensure a relationship which upholds mutual respect and responsibility in which participants are pleased to candidly respond to obtain valid results, the following considerations were made to promote and protect the rights and interests of participants at the different stage of the study.

The researcher sought approval by personally meeting the participants and explaining the purpose of the study to them. Verbal assurances of confidentiality and anonymity were also given to the participants before the commencement of the data collection. Participants were also informed of the right to withdraw from the study at any point in time if they deemed it necessary.

3.13 Data analysis

After the data collection, the interview made was transcribed and noted on a paper based on the code for each interview. The themes were derived from the data collected. Finally, the information gathered was grouped together and analyzed under each thematic content and discussed with the findings of other related studies. Verbatim expressions of the participants were used where necessary.

CHAPTER FOUR

DATA ANALYSIS

4.1 Introduction

This chapter presents the findings on the provision of support services to learners with low vision in selected basic schools in the Bibiani-Anhwiaso-Bekwai Municipality. Interview data was collected from twenty-five participants comprising seven teachers and eighteen learners with low vision. The analysis of data is presented according to the research questions. The themes were derived from the data collected. Section 4.1 introduces the chapter whilst 4.2 presents the demographic information of participants. Section 4.3 presents findings on research question 1; 4.4 presents findings on research question 2; 4.5 presents findings on research question 3; 4.6 presents findings on research question 4; and 4.7 concludes the chapter. In this analysis, the names of teachers were coded as T1 to T7 (Teacher-1 to Teacher-7). The research questions for the study were as follows:

1. How useful are material resources provided to learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?
2. What resource services are offered to the learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?
3. How do instructional supports meet the needs of learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?
4. What are the challenges learners with low vision face in the basic schools?

Table 4: Demographic Data of Teachers

Sex	Age	Working experience	Qualification
Male	52 years	25 years	B. Ed in Social Science
Male	40 years	15 years	B. Ed in Social Studies
Female	41 years	15 years	B. Ed in ICT
Male	50 years	22 years	B. Ed in English
Male	49 years	16 years	B. Ed in English
Female	39 years	11 years	Dip. In Basic Education
Female	42 years	12 years	B. Ed in Mathematics

Source: Data from field, 2022.

The data in Table 4 shows the sex, age, woking experience andacademic qualification of the seven teachers who participated in this research. The teachers have working experiences ranging from 11years to 25 years. Six of the teachers in the schools were Bachelor of Education holders which is followed by one teacherwith Diploma in Basic Education. This qualification background was considered adequate to the teachers selected. Although the teachers were professionals, but they were not trained to accommodate learners with learners with low vision.

Table 5: Learners

PARTICULARS	MALE	FEMALE
Age	14 years – 17 years	13 years – 15 years
Class	JHS 1-3	JHS 1-3
Number of learners	8	10

Source: Data from field, 2022.

The data in Table 5 shows the ages, classes and the sex of learners with low vision. The ages of the learners range from thirteen to seventeen which is considered appropriate to the study. And their classes range from JHS 1 to JHS 3 with eight males and ten females.

4.2 3 Research Question 1

How useful are material resources provided to learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?

Research question one focused on the usefulness of material resources provided for learners with low vision. Four major themes emerged from the analysis of data on research question one which included provision of optical devices, provision of non-optical devices, usefulness of optical devices, usefulness of non-optical devices and availability of providers of material resources.

4.2.1 Provision of optical devices

Concerning the provision of optical devices to learners with low vision, the following comments were made by the teachers and learners:

A teacher commented:

> "*Actually, in this school some of the learners with low* vision *are provided with eye glasses whereas one is using magnifier."* (Verbatim expression by T3)

One teacher also said:

> "*Here only two learners are provided with eye glasses to support them when reading"* (Verbatim expression by T5)

One teacher repleid:

> „„*In my school,books provided are not designed for visually impaired learners and they don't bring assistive devices to help these learners to access the books. Only one person uses eye glasses"* (Verbatim expression by T4)

One teacher explained:

> "*In this very particular school,* few *learners with low vision are provided with eye glasses which help them to see clearly from the board when reading and writing." (Verbatim expression T1*

A teacher said:

> *Learners with low vision who use eye lens can read the normal print as compared to those without any assistive devices. "*(Verbatim expression by T2)

A learner replied:

> *"I was using eye lens, but it is no more in good condition so I don't use it anymore."* (Verbatim expression by a learner)

One learner briefly responded:

> "*I personally use eye glasses in reading and writing in school" (Verbatim expression by a learner)*

Another learner commented:

> "*I am provided with magnifier in school to help me in reading."* (Verbatim expression by learner)

A learner said:

> *"The eye glass helps me to see clearly when reading and writing."* (Verbatim expression by a learner)

The quotations depict overlapping responses of teachers and learners with regards to the provision of optical devices to support learners with low vision. The optical devices that were provided included eye glasses/lens and magnifiers.

4.2.2 Provision of non-optical devices

With regards to the provision of non-optical devices the participants made the following comments.

One teacher said:

> "*Felt pens are used in writing on the chalk board. The use of felt pens helps in writing boldly and clearly on the board for the learners with low vision to see clearly from the board when reading and writing."*(Verbatim expression T1)

Another teacher commented:

> "*Here, the school has a reading stand which is used by some of the learners with low vision during reading."* (Verbatim expression by T3)

Another teacher remarked:

> "*We the teachers use strong felt pens to write on the board which helps in writing boldly for the learners with low vision to see clearly from the board when reading and writing."* (Verbatim expression by T4)

One teacher also said:

> "*Well, some of the learners with low vision are provided with large print materials in this school during instructional period"* (Verbatim expression by T5)

A learner also said:

> "*Teachers use felt pens to write on the board during teaching and learning and that helps me a lot."* (Verbatim expression by a learner)

The next learner replied:

> *"My teachers use felt pens to write on the board and it helps me see clearly from the board."* (Verbatim expression by a learner)

Another leaner said:

> "Sometimes, some teachers give me *large print materials in school during reading."* (Verbatim expression by a learner)

One learner responded:

> "*Large print materials are provided to some of us with low vision in this school when we are reading"*(Verbatim expression by a learner)

Finally, one learner said:

> *"I sometimes use reading stand when reading in the classroom."* (Verbatim expression by a learner)

This data elicits responses on the provision of non-optical devices to the learners with low vision. The participants explained that felt pens, reading stand and large print materials were provided to the learners with low vision.

4.2.3 Usefulness of optical devices

A teacher said:

> *"Learners with low vision who use eye lens can read the normal print as compared to those without any assistive device."*(Verbatim expression by T2)

One teacher replied:

> *"The use of the eye glasses by the learners with low vision helps them see clearly from the board when writing and reading." (*Verbatim expression T1)

A teacher responded:

> *"The use of the magnifiers by the learners with low vision helps increase the sizes of the letters for them to see clearly when reading."* (Verbatim expression by T6)

One learner responded:

> *"The eye glass helps increase the sizes of the letters which help me to see clearly without straining my eyes when reading."* (Verbatim expression by a leaner)

A learner remarked:

> *When I use the magnifier during reading it helps to read the normal print accurately."* (Verbatim expression by a learner)

Concerning the usefulness of optical devices by the learners with low vision, the responses of the participants indicate the eye glasses and the magnifiers help increase the sizes of the letters which enable them to see clearly and read accurately from the text books and chalkboard when reading.

4.2.4 Usefulness of non-optical devices

With regards to usefulness of non-optical devices by the learners with low vision, participants expressed the following views:

One teacher explained:

> "*The use of felt pens by the teachers help in writing boldly and clearly on the board for the learners with low vision to see clearly from the board when reading and writing."* (Verbatim expression by T1)

Another teacher remarked:

> "*The strong felt pens help in writing boldly on the board for the learners with low vision to see clearly from the board."* (Verbatim expression by T4)

A teacher replied that:

> "*The use of the large print materials by the learners with low vision helps them to see the letters clearly when reading."* (Verbatim expression by T5)

A teacher also commented:

> *"The use of reading stand by the learners with low vision helps them place their books on it in order not to hold the books when reading."*.(Verbatim expression by T6)

Another teacher responded:

> *"The reading stand helps them place their books on it so that reading can be easy in order not hold the books while reading."* (Verbatim expression by T7)

Learners commented on the usefulness of non-optical devices to the learners with low vision as follows:

The next learner replied:

> *"When my teachers use felt pens to write on the board it helps me see clearly from the board."* (Verbatim expression by a learner)

Another learner replied:

> *"The large print materials help me to read faster."* (Verbatim expression by a learner)

Finally, one learner said:

> *"The large print materials help me see clearly when reading."* (Verbatim expression by a learner)

From the responses given on the usefulness of non-optical devices by the learners with low vision it suggests that they helped the learners with low vision to learn in the regular classroom. Specifically, the large print materials and the reading stand help them to see clearly and read accurately. The use of felt pens on the board also enabled them to see clearly and wrote notes from the board and did class exercises as well.

4.2.5 Availability of the providers of the material resources

Concerning the availability of the providers of the material resources, the comments that were made by teachers and learners are presented as follows:

The first teacher answered:

> "*The felt pens are provided by the school and the eye glasses are provided by the parents."* (Verbatim expression by T1)

A teacher responded that:

> "*The parents provide the eye glasses and the school provides the large print materials".* (Verbatim quotation from T6)

One teacher remarked:

> "*The school provided the reading stand and the parents provide the large print materials."* (Verbatim expression by T2)

A teacher replied:

> *"The eye glasses are provided to the learners with low vision by their parents."* (Verbatim expression by T4)

Another teacher responded:

> "*The school provides the reading stand to the learners with low vision."* (Verbatim expression by T7)

Learners" responses on the providers of the material resources were as follows:

One learner replied:

> "*My parents provided me the eye glass which I use in school."* (Verbatim quotation from a leaner)

Another learner responded:

> "*The school provides the felt pens."* (Verbatim expression by a learner)

One learner remarked:

> "*My parent provided me the eye glasses."* (Verbatim expression by a learner)

Another learner replied:

> "*My teacher provided me the large print material."* (Verbatim expression by a learner)

A learner also commented:

> "*Sometimes the school provides the large print materials but they are not enough"* (Verbatim expression by a learner)

With regards to the providers of the material resources, teachers and learners provided contradictory responses. For example, whilst some teachers and students commented that large print materials were provided by the schools, others responded that they were provided by parents. From the above comments, it is clear that the few material resources were provided by parents, the schools, and teachers.

4.3 Research Question 2.

What resource services offered to the learners with low vision?

Research question two focuses on resource personnel services available and offered to learners with low vision**.** Four themes emerged from the analysis of data on research question two were: provision of orientation and mobility services, counseling services, referral services and large print materials.

4.3.1 Provision of orientation and mobility services

Teachers and learners expressed their views on the provision of orientation and mobility services. The responses that were given by participants on the theme are presented as below:

One teacher responded:

> *"I personally sometimes help some learners with low vision to make their way out when walking in the school environment and classroom as well."* (Verbatim expression by T2)

A teacher also replied:

> *"With the little knowledge I have on orientation and mobility skills as a regular teacher, I teach the skills to the learners with low vision and it helps them to locate important places such as canteen, classroom, place of convenience and head teachers' office."* (Verbatim expression by T3)

Another teacher commented:

> *"Actually, I sometimes ask their sighted friends to guide them to move to wherever they want to go within the school premises."* (Verbatim expression by T6)

A student answered:

> *"One of my teachers used to teach me some skills in moving out within the school environment and it has helped me to move independently in and around the school environment"* (Verbatim expression by a learner)

Another student replied:

> *"My sighted friends sometimes guide me to locate some places such as place of convenience, staff common room and I.C.T laboratory."* (Verbatim expression by a learner)

One student answered:

> *"With the skills of orientation and mobility, it has helped me to perform some daily activities independently both in school and at the house."* (Verbatim expression by a learner)

From the above responses by the participants, it is clear that the regular teachers were the major resource persons available in the schools and rendered the services of orientation and mobility to the learners with low vision which helped them to locate places such as classrooms, head teachers‟ Office, canteen, place of convenience independently in the school without any challenge. Also, the sighted peers were sometimes used as guides to help them move in the school environment.

4.3.2 Provision of counselling services

On the provision of counselling services, the participants provided the following responses:

The first teacher responded:

> *"The Guidance and Counselling Unit in this school meets all the learners with disabilities on monthly bases and renders counselling services such as choice of schools, subject combination and career choice".* (Verbatim expression by T1)

Another teacher remarked:

> *"I sometimes render counselling services to the learners with low vision to accept their conditions not to allow themselves to be underrated by others and isolate themselves from their peers."* (Verbatim expression by T7)

A teacher replied:

> *"Our school is not able to render counselling services to the learners with low vision due to limited time available. They have not made provision on the time table for counselling services."* (Verbatim expression by T5)

A teacher also replied:

> *"Well, I personally do advise some of the learners with low vision to learn hard and compete with their sighted peers since disability is not inability".*(Verbatim expression by T3)

Another teacher responded:

> *"I personally give direct instructions about teaching and learning in the classroom but I don't render counselling services to the learners with low vision."* (Verbatim expression by T4) *and*

A learner commented:

> *"One of my teachers sometimes calls me during break time and advises me to study hard because he knows I can do better irrespective of my disability".*(Verbatim expression by a learner)

Another learner explained:

> *"In my school the teachers don't render any counselling services to us. We only come to school to learn and after that we depart to our homes.".*(Verbatim expression by a learner)

One learner said:

> *"Sometimes one of our teachers meet those of us with disabilities and counsel us to make the right choices of schools and courses which will lead us to better career in future."* (Verbatim expression by a learner)

Another learner answered:

> *"Our teachers don't provide any counselling services to us in this school".* (Verbatim expression by a learner)

The responses from the participants reveal that the majority of the learners with low vision were receiving counselling services by the School Counselling Unit on choices of schools and courses leading to better career in future whereas other learners with low vision did not receive counselling services in their schools.

4.3.3 Provision of referral services

The respondents expressed their views on the provision of referral services to the learners with low vision. The responses they provided are presented as follows:

One teacher explained:

> *"Our outfit is unable to provide referral services to the learners with low vision but when we realize the learner's condition is becoming severe, we inform the head teacher so that he informs the child's parents about how the condition is becoming severe so that the parents take the necessary action."* (Verbatim expression by T1)

A teacher also said:

> *"Well, sometimes the Special Educational Needs Officer from the Education Office visit the school and identify some learners suspected of disabilities and makes referrals to the hospital for further assessment and diagnosis."* (Verbatim expression by T4)

A teacher responded:

> *"Actually, there is one particular child in my class who used to complain of painful eyes to the extent of crying so I invited the mother and upon interrogation and advice the child was referred to the hospital for further examination and assessment."* (Verbatim expression by T2)

A learner responded:

> *"One time a team from Education Office and Ghana Health Services came to our school to do health screening exercise and from there some of us were referred to hospitals to the specialists for further assessment."* (Verbatim expression by a learner)

Another learner said:

> *"In my school no one comes here for referrals and the teachers here don't refer any of us to hospital for assessment."* (Verbatim expression by a learner)

One learner commented:

> *"There was a time an Officer came here and one of our colleagues was referred to the specialist and later on he was sent to school for the blind since his condition was severe."* (Verbatim expression by a learner)

A learner responded:

> *"For me I have not seen anyone here to make a referral before. It's my parents who have been taking me to a prayer camp for prayers."* (Verbatim expression by a learner)

A learner answered:

> *"My teacher one time invited my father and told him to send me to the hospital to see a specialist concerning my eye problem."* (Verbatim expression by a learner)

The responses of the participants on the provision of referral services indicate that the majority of learners with low vision received referral services to hospitals for assessment by some resource persons, but few learners with low vision did not have the opportunity of getting the referral services.

4.3.4 Provision of large print materials

With regards to the provision of large print materials, the participants made the following comments:

A teacher responded:

> *"Frankly speaking, the teachers here are not able to provide the large print materials to the learners with low vision frequently, because of the cost involved. My head teacher said the capitation grant is not enough to provide adequate large print materials for them."* (Verbatim expression by T3)

Another teacher commented:

> *"As a matter of fact, here in this school there are few large print materials for the learners with low vision and they are not even in good condition. Most of them have torn off and it is not helping them."* (Verbatim expression by T4)

One teacher remarked:

> *"Well, this school the teachers don't provide the large print materials often to the learners with low vision due to inadequate funds in the school so we sometimes inform the parents concerned to bear the cost of the provision of the materials to their wards. Some of them pay for the cost involved but others refuse to pay.* (Verbatim expression by T6)

A teacher commented:

> *"There are no large print materials in this school for the learners with low vision so during examination session we read for them."* (Verbatim expression by T7)

One learner responded:

> *"Our teachers don't provide any large print materials for we the learners with low vision. So, I personally had not seen one before in this school."* (Verbatim expression by a learner)

Another learner remarked:

> *"For my school the teachers provide us with the large print materials but they are inadequate so*

> *sometimes we use them sometimes we don't use."*
> (Verbatim expression by a learner)

One learner commented:

> *Some of us with low vision are only provided with large printed text during the examination time by the teachers."* (Verbatim expression by a learner)

From the comments of the participants on the provsion of large print materials, it is quite worrying that the majority of the learners with low vision were not provided with large print materials. The few learners who were provided with large print materials were not receiving them often as it should be, due to inadequate funds to procure them.

4.4 Research Question 3.

How do instructional supports offered to learners with low vision meet their learning needs?

Research question three focuses on the instructional support teachers offer to learners with low vision. Five themes emerged from the analysis of data in relation to research question three. These were allowing extra time to complete task and its effectiveness, use of appropriate instructional materials and its effectiveness, allowing learners with low vision to participate fully in teaching and learning and its effectiveness, seating arrangement and its effectiveness and writing boldly on the chalkboard, verbalizing it and its effectiveness.

4.4.1 Allowing extra time to complete task and its effectiveness

With regard to this theme, allowing extra time to complete task, the participants expressed the following views:

A teacher responded:

> *"I don't support them often by allowing the learners with low vision extra time to complete their task due to limited time available"*(Verbatim expression by T4)

One teacher replied:

> *"I personally, support them by giving them extra time to complete their work, but sometimes the available time does not permit that so it becomes difficult for me to give extra for them to complete their task."* (Verbatim expression by T5)

A teacher remarked:

> *"By allowing extra time for them to complete their work sometimes it helps and sometimes it doesn't help because of the way the time table has been structured. I have to leave the class for another teacher as soon as my lesson is ended."* (Verbatim expression by T7)

Another teacher said:

> *When I give them extra time to complete their work, it helps them get interest in the subject taught but due to our busy schedules I cannot do it often."* (Verbatim expression by T6)

One teacher said:

> *"We do not support them often by giving extra time due to the limited time on the time table."* (Verbatim expression by T4)

Another learner explained:

> *"Sometimes when I am not able to complete my work on time my teachers give me extra time to complete it but it is not often and even the time given is not enough."* (Verbatim expression by a learners)

A learner also answered:

> *"My teachers don't help me by giving extra time often as it should be due to the limited time available."* (Verbatim expression by a learner)

Per the comments made by the participantson allowing extra time to complete task and its effectiveness, teachers giving extra time to the learners with low vision is found to be a burden to them due to the limited time available and their busy schedules. As a results, allowing extra time by the teachers was not effective to the learners in the schools.

4.4.2 Use of appropriate instructional materials and its effectiveness

This theme ilicited data on the use of appropriate instructional materials and its effectiveness. The participants made the following comments.

One teacher said:

> *"Due to inadequate funds to purchase cardboard I find it Difficult to prepare TLMs for most of the topics that I teach."* (Verbatim expression by T2)

Another teacher responded,

> *I sometimes make my teachings practical by allowing the learners with visual impairment to explore the materials in order to participate in the lesson* (Verbatim expression by T3)

A teacher responded:

> *"Our services on provision materials are not often done as it should be due to inadequate teaching materials."* (Verbatim expression by T6)

One learner answered:

> *"They don't help me regularly by providing materials, they complain about inadequate materials in the school."* (Verbatim expression by a learner)

Another learner commented:

> *"My teachers don't help me often by giving me large prints materials."* (Verbatim expression by a learner)

Fromthe comments made by the participants on the use of appropriate instructional materialsand its effectiveness indicate that instructional materials were not enough to be used often to support learners with low vision. Therefore, instructional materials was not effectively used inthe schools.

4.4.3 Allowing learners with low vision to participate actively in teaching and learning and its effectiveness.

With regard to the theme allowing learners with low vision to participate fully in teaching and learning and its effectiveness, the participants expressed the following views.

A teacher answered:

> *"The time allocation is limited, may be a period is about forty minutes and the time a child with an eye problem will use to read a sentence will take about five munites of the lessons time. So most times we ignore them and we don't try to help or interact with them when it comes to asking questions like going to the board to read and write because we already know they have problem. We don't even call them to read ."*(Verbatim expression by T2)

One teacher remarked:

> *"We cannot provide our services to the learners with low vision by allowing them to participate actively in the lessons often, as a results of large class size. We normally pay attention to the sighted ones since they are the majority in the class."* (Verbatim expression by T5)

A learner responded:

> *"My teachers pay much attention to the sighted learners more than we the learners with low vision since we are few in the class."* (Verbatim expression by a learner)

One learner responded:

> *"My teachers don't involve me much in their lessons they complain I can't read well due to my inability to see well."* (Verbatim expression by a learner)

Another learner remarked:

> *"When my teacher involves me much during classroom activities it helps me understand his lessons better but they don't involve me often."* (Verbatim expression by a learner)

With regards to allowing learners with low vision to parcipate actively in teaching and learning and its effectiveness the responses indicate that the majority of the learners with low vision were not allowed to particapate fully in teaching and learning often. The teachers concentrate much on the sighted learners since they are the majority in the class. So it is clearly seen that the above instructional support was not effectively used.

4.4.4 Provision of appropriate seating arrangement and its effectiveness

Concerning the provision of appropriate seating arrangement and its effectiveness,the participants made these comments:

A teacher replied:

> *"I give the learners with low vision preferential seating in the classroom to help them see clearly from the chalkboard." (Verbatim expression by T1).*

One teacher responded:

> *"We provide our services to the learners with low vision often by giving appropriate seating arrangement by pairing the sighted peers with the learners with low vision to assist them"* (Verbatim expression by T5)

A learner said:

> *"My teacher asks me to sit where I prefer in the classroom to help me see from the board."* (Verbatim expression by a learner)

A learner replied:

> *"My teacher sometimes pairs me with a sighted classmate to assist me in class."* (Verbatim expression by a learner)

Concerning the provision of appropriate seating arrangement and its effectiveness, it is obvious from the comments that learners with low vision were pairing with their sighted classmates to enable them to be assisted in class and preferential seating was also given for them to see clearly from the chalkboard and work independently. One can conclude from the above that the provision of appropriate seating arrangement was very effective in the schools.

4.4.5 Writing boldly on the chalkboard, verbalizing it and its effectiveness

The participants made the following comments with regards to writing boldly on the boardchalk board, verbalizing it and its effectiveness .

Another teacher commented:

> *"For me, I write boldly on the chalkboard and verbalize what is written so that if they are not able to see clearly they can hear what is written on the board. I do prepare teaching aids that the learners with low vision can read more easily."* (Verbatim expression by T2)

A teacher responded:

> *I write boldly on the chalkboard so that learners with low vision can see it clearly".*(Verbatim expression by T4)

One teacher replied:

> *"I normally verbalize most of my teachings because of the learners with low vision in my class".*(Verbatim expression by T5)

A teacher remarked:

> *"For me, I write boldly on the chalkboard and verbalize what is written. I do prepare teaching aids that the learners with low vision can read more easily."* (Verbatim expression by T2)

A learner said:

> *"One of my teachers writes boldly on the chalkboard for me to see it clearly."*(Verbatim expression by a learner)

Another learner replied:

> *"Some of my teachers write boldly on the chalkboard so that I can see it well also verbalize what is written on the board".*(Verbatim expression by a learner)

One learner responded:

> *"Some of my teachers mostly read aloud what they write on the chalkboard for me to hear* (verbatim expression by a learner)

Concerning the legibility of writing on the chalkboard, verbalizing it and its effectiveness the comments made by the participants indicate that some of the teachers wrote legibly on the board and verbalized most of their teachings and it helped them to understand the lesson.

4.5 Research question 4

What are the challenges learners with low vision face in the schools?

Five themes also emerged from the analysis of data on research question four which were academic challenges, social challenges with the sighted peers, challenges in

physical locomotion, availability of support to overcome the academic challenges and availability of support to overcome the challenges in physical locomotion.

4.5.1 Academic challenges in reading and writing

With regards to the academic challenges on reading, the participants expressed their views as follows:

A teacher responded that:

> *"There are several challenges but the most prominent among them is that some of the learners with low vision are unable to see clearly from the board. And some of them omit letters or words when they write."* (Verbatim expression by T1)

A teacher remarked:

> *"Some learners with low vision complain of not seeing clearly from the chalkboard. Some also omit some of the letters when writing."* (Verbatim expression by T2)

A teacher responded:

> *"Most of them complain on not seeing from the board and as a result they write slowly and it affects their academic performance."* (Verbatim expression by T3).

Another teacher said,

> "*Those who complain of not seeing clearly from the board always write slowly. At the same time the academic performance of learners with low vision is also very poor due to their inability to write correctly."* (Verbatim expression by T4).

A learner remarked:

> *"I like teachers to give me special attention during teaching and learning but there is inadequate support from them."* (Verbatim expression by a learner).

A learner commented:

> *"Sometimes I have to move closer to the chalkboard and strain my eyes before coming back to write in my book."* (Verbatim expression by a learner).

Another learner said:

> *"I sometimes write mistakes and some of my teachers mark me down."* (Verbatim expression by a learner).

One learner answered:

> *"I don't get much attention from my teachers so this affects my academic performance negatively."* (Verbatim expression by a learner).

It is evident from the comments of the participants, both learners and teachers, that learners with low vision encountered academic challenges on reading and writing in inclusive educational settings. It was revealed that learners with low vision found it difficult to see clearly from the board especially when the weather becomes cloudy and the classroom gets dark. Thus, they had difficulty in writing in that they often omitted some letters from the words and sentences they wrote mistakes which affects their academic performance.

4.5.2 Social challenges with the sighted peers

The following responses were provided by participants in relation to the social challenges with sighted peers.

A teacher responded:

> "*Learners with low vision who are been teased by the sighted young ones and sometimes feel emotionally sad in school* (Verbatim expression by T5)

One teacher confirmed:

> *"Students with low vision who are been teased by the sighted young ones feel sorry and become embarrassed in school."* (Verbatim expression by T7).

One learner said:

> *Sometimes some of my sighted peers tease me by giving me names which makes me feel I am not part of them*. (Verbatim expression by alearner)

The responses given by the participants on the social challenges with the sighted peers reveal that some learners with low vision were teased and consequently they face emotional difficulties and fell they were not part of their peers.

4.5.3 Challenges in physical locomotion

Concerning the challenges in physical locomotion the participants made the comments below.

A teacher responded:

> *"Some learners with low vision usually kick against the desks when walking through the classroom. This makes them feel embarrassed."* (Verbatim expression by T5).

Another teacher replied:

> *"The poor structure of the school building negatively affects the movementof learners with low vision because sitting in a structure like this with a dark classroom, the learners find it difficult to see clearly."* (Verbatim expression by T7)

Another learner responded:

> *"My classroom is overcrowded and spaces in between the furniture are small which makes me kick the furniture when walking through the classroom."* (Verbatim expression by a learner).

It is obvious from the comments of the participants that learners with low vision found it a challenge to navigate their way through the classroom due to poor arrangement of desks and poor lighting system. The observation confirmed that some of the classrooms were not conducive, particularly for the learners with low vision. Learners with low vision could not see clearly and move freely in and around their classroom. In one of the schools, sitting arrangement was not convenient even for sighted, the rows between furniture were very narrow to pass through and sit down due to large class size. This affects mobility of learners with low vision.

4.5.4 Availability of support services to overcome the academic challenges on reading and writing.

With regards to availability of support services to overcome the academic challenges on reading and writing, the participants expressed the following views.

A teacher responded:

> *"After writing notes on the board, I call them to check what they have written guide them to make the necessary I also give them learners with low vision preferential seating."* (Verbatim expression by T1).

One teacher said:

> *"When preparing teaching and learning materials the motives are large so that pupils with low vision can identify them easily."* (Verbatim expression by T2)

Another teacher commented:

> *"For me, I teach I.C.T. so when it is time for practical I try to enlarge the size of the document and application on the monitor screen so that those with low vision can see clearly."* (Verbatim expression by T5)

One learner said:

> *"I normally ask my sighted mates to read for me if the teacher did not read for me."* (Verbatim expression by a learner)

Another learner:

> *"My teachers sometimes give me extra time to complete my work. My teachers also ask me to sit where I can see from the board in the classroom."* (Verbatim expression by a learner)

One learner commented:

> *"Sometimes my teachers ask my sighted mates to assist me in some activities."* (Verbatim expression by a learner)

Results from the analysis of the data on availability of support services to overcome academic challenges indicate that teachers assisted learners with low vision to correct the mistakes they made when writing by giving them individual attention. Some of the learners with low vision also were able to see from the board because of preferential seating.

4.5.5 Availability of support services to overcome the challenges in physical locomotion

The following responses were provided by the participants with regards to the availability of support services to overcome the challenges in physical locomotion

A teacher replied:

> *"I have taught the students with low vision on how to walk through the classroom without kicking on the furniture. Some of them have practiced and gotten used to it."* (Verbatim expression by T3)

A learner commented:

> *I sometimes ask my sighted mate to lead me to my desk when the room is dark.*(Verbatim expresion by a learner)

Another learner remarked:

> *"One of my teachers has taught me how to walk through the classroom without bumping on the furniture so I am becoming used to."* (Verbatim expression by a learner)

From the responses of the participants on the availability of support services to overcome the challenges in physical locomotion indicate that some of the learners with low vision were able to navigate their way through the classroom because of the repeated directions from teachers and practice.

4.6 Conclusion

This chapter presented the results from the analysis of data. The analysis was done in line with the research question. In some cases, teachers and students provided contrasted views whereas in others, their responses agreed. Overall, nineteen major themes emerged from the analysis of data with five themes under research question one, four themes under research question two and five themes each under research questions four and five. These included provision of optical devices, provision of non-optical devices, usefulness of optical devices, usefulness of non-optical devices, availability of providers of material resources, provision of orientation and mobility services, provision counselling services, provision of referral services, provision of large print materials, allowing extra time to complete task and its effectiveness, use of appropriate instructional materials and its effectiveness, allowing learners with low vision to participate actively in teaching and learning and its effectiveness, appropriate seating arrangement and its effectiveness, writing boldly on the

chalkboard, verbalizing it and its effectiveness, academic challenges on reading and writing, social challenges with the sighted peers, challenges in physical locomotion, availability of support services to overcome the academic challenges on reading and writing, and availability of support services to overcome the challenges in physical locomotion.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter presents the discussion of findings of the study which aimed at investigating the provision of support services to learners with low vision in selected basic schools in the Bibiani-Anhwiaso-Bekwai Municipality. The discussion highlighted the major findings of the research and inferences made from them in view of findings from related previous studies. The discussion was guided by the research questions and the themes that were raised to guide the study.

5.2 Research question 1.

How useful are material resources provided to learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?

Five major themes emerged from the research question one included provision of optical devices, provision of non-optical devices, usefulness of optical devices, usefulness of non-optical devices and availability of providers of the material resources.

5.2.1. Provision of optical devices

The findings on the provision of optical devices to learners with low vision indicated that eye glasses and magnifiers were the optical devices available in the schools.This was confirmed during the observation where some of the learners were using eye glasses during teaching and learning and terminal examination sessions in some of the schools. Eye glasses and magnifiers which are optical devices use lenses to increase a person‟s residual vision. They are normally prescribed by a medical specialist. This finding is in line with Hallahan, Kauffman & Pullen (2009) who contented that the

child is taught to use spectacles, magnifiers and any assistive devices to improve the use of vision. Hallahan et al. (2009) further explained that pupils who have low vision should be made efficient readers with optical devices to enable them access print independently thus enabling them to develop solid and meaningful academic literacy skills. Learners with low vison require the use of prescribed spectacles which are very essential for most individuals with low vision, especially those in regular classrooms and they must be encouraged to see specialists such as optometrists, opticians who will diagnose and prescribe the right material that will suit their condition.

Reading stand which can be adjusted to suit the reader allows students to have their books as close to themselves as needed, without dealing with muscle fatigue also play a role in inclusive educational settings for learners with low vision.

5.2.2 Provision of non-optical devices

Concerning the provision of non-optical devices, the analysis indicated that felt pens, large print materials and reading stand were provided in the schools. This was confirmed during the observation by the researcher where some learners with low vision were using large printed text during teaching and learning and terminal examination sessions in some of the schools. However, the material resources such as the large print materials, felt pens were insufficient and they were not in good condition. Ocloo (2003) noted that many pupils with low vision need some form of materials or equipment in order to learn. For instance, a strong felt pen in a particular colour enables the child with low vision to see what has been written. Non-shining papers with either no lines or very strong and well-spaced lines are very useful to many children with visual impairment. Working papers and books with enlarged print ease the task of reading for most children with low vision.

Generally, learners with visual impairment are able to read and use large print versions of text books. They cannot read normal size alphabets in the text book or in a manual. Unegbu (2006) affirmed that instructional materials and equipment for supporting pupils with low vision include tables, chairs, vehicles, tape recorders, earphones, braille machines and papers, large print materials, felt-pens, visually impaired specialists among others. In order to support students with vision loss, material resources such as large prints need to be employed. For example, printed text can be adapted through increasing the font size, bolding the text, increasing contrast, adding colour, and adjusting spaces between characters. However, the extent of these adaptations depends solely on the severity of visual defects and the needs of the student concerned (Scruggs, Mastropieri, Berkeley & Graetz, 2010). It is important to consult a specialist teacher on preparation of materials prior to the lesson, because different students use different materials depending on the degree of the visual impairment (Spungin, 2002).

5.2.3 Usefulness of optical devices

Concerning the usefulness of optical devices, the analysis revealed that the eye glasses and magnifiers help increase the sizes of the letters which enable them to see clearly and read accurately from the text books and the chalkboard when reading. Optical devices play a key role in enhancing vision and reducing visual disability in pupils with low vision. Magnifiers of all shapes and sizes are other useful devices which help significantly to ease the problem of reading in children and adults with low vision (Ocloo, 2003). Optical aids help individual with low vision function effectively in their environment. This involves standard prescription spectacles, optical low vision devices for distant vision, and it is necessary to attend to students with low vision and give their required spectacles (Ocloo, 2003). Work in American

indicates that at least 40% of children with low vision need spectacles. Refraction should always be carried out before vision assessment (Ocloo, 2003). Optical device like magnifiers for near task can be used for reading a book or newspaper, reading labels signs or prices in shops, using tools for example measuring, threading a needle and identifying money.

5.2.4 Usefulness of non-optical devices

On the usefulness of non-optical devices to the learners with low vision, the findings of the study showed that the non-optical devices helped the learners with low vision to learn in the regular classroom. Specifically, the large print materials help them to see clearly and read accurately. The use of the large print materials by the learners with low vision enhances their reading efficiency, and it is easier for most of them than the normal print. Turnball et al (2002), say that students with visual impairment are able to learn using their visual senses if print is altered for their benefit. They need to have print magnified, contrast enhanced or typed font and size changed. Large print font size helps in making the reading faster for learners with visual impairment however, 14 point fonts are more legible, faster to read and are preferred to the 12 point fonts, (Benard et al, 2002).

Again, the findings revealed that the reading stand helps them see and read accurately. The reading stand is a stand for a work to lean on and which bring the reading material or the work closer to the eye of the learner with low vision, so as to help to keep a person in good posture. It also helps keep the person from getting a sore back and a neck from leaning down close to his/her work. Aids for accomplishing Mathematics tasks, such as braille rulers, abacus and braille protractors, help students to meet prescribed Mathematics learning goals (Bishop & Rhind, 2011). A slate and

stylus enable students with vision impairment to produce work in braille, allowing them to take notes in class (Richard, Hove & Afolabi, 2008).

The analysis further indicated that the use of felt pens on the board also enabled learners with low vision to see clearly and write notes from the board and did class exercises as well.This result confirms the findings of Ocloo (2003) who noted that many pupils with low vision need some form of materials or equipment in order to learn. For instance, a strong felt pen in a particular colour will enable the child with low vision to see what has been written. Non-shining papers with either no lines or very strong and well-spaced lines are very useful to many children with visual impairments.

Availability of providers of material resources

With regards to the availability of providers of material resources to the learners with low vision it is clear from the analysis that the few material resources were provided by the parents and the schools. Education is viewed as the shared responsibility of the home and the school. This is in line with Gadagbui (2012) who notes that when parents and teachers partner, positive attitudes towards school can be encouraged and grooming children to upgrade themselves to higher levels can be done. The importance of parental support for any child cannot be over emphasized. This is because parents are the first social agents and co-teachers, mentors and they care for the development of their children. These attributes are very crucial in home-school partnership. Gadagbui further explains that parent-teacher partnership is more crucial for families with children with disabilities because of the “special needs” they have which have to be attended by both institutions and for the parents to reinforce learning and carry-it-out to the home for a continuity.

Parents of children with visual impairment offer a lot towards the education of their wards, and are potential sources of information about the academic ability of the students. They are familiar with their wards and know their educational needs, and can decide for their children. Moreover, parents provide the necessary information about social, physical and emotional development (Garner & Davies, 2001; Webster & Roe, 1998). Having this information, a teacher strives to structure and modify his or her teaching to help student with visual impairments in the class (Spungin, 2002).

5.3 Research question 2.

What resource services are offered to learners with low vision in basic schools in the Bibiani-Anhwiaso-Bekwai Municipality?

Four themes that emerged from the data of this research question were: orientation and mobility services, provision of counselling services, provision of referral services and provision of large print materials.

5.3.1 Provision of orientation and mobility services

Concerning the provision of orientation and mobility services, it is clear that the regular teachers were the major resource persons available in the schools and provided the services of orientation and mobility to the learners with low vision. The skills in orientation and mobility taught by teachers helped some of the learners with low vision to locate some important places such as classroom, library, place of convenience and staff common room independently. Mobility is very crucial when it comes to the education of children who are visually impaired. According to Ocloo (2003), orientation and mobility should be taught to the pupils who are visually impaired to ensure independent movement among these children. Wolffe (1999) contends that orientation and mobility (O & M) training is an important skill that

allows a person with visual impairment to safely access his or her environment, both indoors and outdoors. Besides, Corn and Sacks (1994), assert that, orientation and mobility is one of the most important tools a person with a visual impairment receives. The orientation and mobility techniques help client learn to become independent in most of their lives.

It was also noted in the analysis that the sighted peers of the learners with low vision were used as guides to move in and around the school premises.This findings in line with Curtis, Emerson and Kim (2009) who were of the view that, techniques that may be used immediately is the sighted guide technique also called human guide that can be used with or without a cane as a means of moving with another individual. This author indicated that when the sighted guide techniques are used correctly with a proficient sighted guide, travel is very safe and efficient. The guide can be a constant source of information about the environment. However, Corbett, Haneline, Penrod and Smith (2010) argued that sighted guide travel used as the only mobility system may foster dependence rather than independence.

5.3.2 Provision of counselling services

With reference to the provision of counselling services, the findings revealed that the majority of the learners with low vision received counselling services by the School Counselling Unit on choices of schools and courses leading to better career in future. Some of them were also counselled to accept their challenges and learn hard whereas other learners with low vision did not receive counselling services in their schools. Counselling services had been touted to be a cornerstone on which inclusive education for learners with low vision needs to grow and develop. Counselling approaches to learners with low vision have traditionally been oriented towards

helping them resolve a variety of emotional conflicts that are, by implication, more or less adaptive and neurotic. Ocloo (2003) noted that counselling services help the child with low vision to adjust and accept the challenges the impairment imposes on him/her. He observed that many children with visual impairment believe that a miracle might occur to restore their sight and as a result do not accept their conditions. Any attempt to help them settle down for serious work is seen as an act of discrimination. Such clients must be counseled to get over this dilemma and face the world in its new form. The essence is to guide the client to come to term with the disability and move along with others.

5.3.3 Provision of referral services

With regards to the provision of referral services the findings of the study indicated that the majority of learners with low vision were receiving referral services to hospitals for assessment by some resource personnel, but few learners with low vision did not have the opportunity of getting the referral services. Boulevard & Rosa (2016) noted that sometimes some students exhibit some physical signs and complaints of their eyes which makes it necessary for referrals and assessment.

To identify and assist learners with low vision at the early stage is necessary in the schools beacuse early identification necessitates early intervention. Torreno (2010) who opines that early identification of impairments among students is extremely important because early intervention will be most effective. Sometimes it is unclear whether a child has a vision or hearing problem or not. Physical signs of vision problems include eyelids drooping over one or both eyes, or eyelids that do not completely cover the eyes when the child closes them. If a child has a clear squint eyes, has jerky eye movements, or has eyes that do not move together, teachers should

make a referral to a pediatric ophthalmologist. Teachers‟ ability to identify pupils with visual impairments in the classroom also leads to the identification of their learning needs.

5.3.4 Provision of large print materials

The findings of the study on the provision of large print materials revealed that the majority of the learners with low vision were not provided with large print materials. The few learners who were provided were also not receiving them often as it should be, due to inadequate funds to procure them. The use of the large print materials by the learners with low vision enhanced their reading efficiency, and it is easier for most of them than the normal print. Turnball et al (2002) say that students with visual impairment are able to learn using their visual senses if print is altered for their benefit. They need to have print magnified contrast enhanced or typed font size changed.

It was observed that there were no aides or resource teachers attached to the regular classroom teachers to support the learners with low vision in the schools. However, Boulevard & Rosa (2016) further explain that the aide of students with visual impairment typically learns how to produce some braille or large print materials and takes responsibility for day-to-day assignments that the teacher of students with visual impairment cannot accommodate. The teacher of students with visual impairment works with the aide to provide training in this area (Boulevard & Rosa, 2016). Scruggs, Mastropieri, and McDuffie (2007) reported that there is benefit in co-teaching which includes communication among students and teachers to enhance teaching.

5.4 Research question 3.

How do instructional supports meet the learning needs of learners with low vision in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?

The research question three focused on the instructional support offered to learners with low vision to meet their learning needs. Five themes emerged from the data analysis were: allowing extra time to the learners with low vision and its effectiveness, use of appropriate instructional materials and its effectiveness, allowing learners with low vision to participate fully in teaching and learning and its effectiveness, seating arrangement and its effectiveness and writing boldly on the chalkboard, verbalizing it and its effectiveness.

5.4.1 Allowing extra time to complete task and its effectiveness

On the allowing extra time to complete task and its effectiveness, the findings indicated that allowing extra time to the learners with low vision by the teachers was found to be a burden to them due to the limited time available with their busy schedule. The learners with low vision were not given extra time often to complete their work. Learners who are visually impaired need additional time to help complete task in the inclusive educational settings. Allowing extra time to complete tasks and tests is effective teaching strategy that helps to ensure that these students are able to meet learning outcomes (British Columbia Ministry of Education, 2006). Students in this category characteristically work more slowly and experience difficulty working with details.

The majority of learners with visual impairments require slightly more time than other learners to perform certain tasks. For example, given their low vision, they may be unable to quickly find an item or the first line on a page. It often takes them longer to

completely make out what they are seeing or understand what is being discussed. Some learners with a visual impairment gain an overall image from fragments they perceive whereas sighted learners gain this insight "at a glance". In addition, they will often be required to use specialized equipment (telescope, magnifiers text enlarger), which is more time consuming. Learners who are partially sighted normally write using the standard graphic code. Corrective eye wear or lenses can at times provide sufficient support. Reading printed characters is also made possible through optical instruments, such as a hand-held or eye-wear –mounted telescope, magnifier and closed-circuit television (CCTV) magnifiers. It should be noted, however, that in most cases, their pace of reading is slower (Savard, 2008).

5.4.2 Use of appropriate instructional materials

The analysis on the use of appropriate instructional materials and its effectiveness indicated that instructional materials were not enough to be used often to support learners with low vision. Therefore, instructional materials were not adequate in the schools to support learners with low vision.During the observation it was confimed that there were few instructional materials available and they were not in good condition.This finding can be linked to the conclusion of Masuku (2010), that inadequate teaching and learning materials in Swaziland schools implies non-preparedness of the country towards the implementation of inclusive education. However,teaching with instructional materials is critical in learning because the materials help learners to see, hear and manipulate them as they learn. Sacks and Silberman (2000) found that students with visual impairment often experience learning difficulties simply because they cannot easily use vision to process information. With this, it is necessary to use appropriate instructional materials.

Instructional materials help to improve communication and make the teacher‟s work easier because he talks less.

Assistive technology devices, both low technology and high technology, help to improve the basic skills of students with vision impairment, giving them the ability to access literature, attain information and complete assignments and tests (Allan & Stiteley, 2006). Technological developments during the last decades have significantly increased access to information in all formats with visual impairments including those with low vision. Kapperman & Stiken (2000) observed that the ability to access information is essential for success in education, employment and life. Therefore, much of the development of assistive technology has focused on providing access to information. In particular, devices to read and write braille and print have significantly improved with the application of new technology. Such devices include audio technology (tapes and tape recorders, auditory text, recorded texts and synthetic speech) as well as computerized based technology such as braille embossers (specialized tactile printer) advanced CCTV, scanners and optical character recognition software (technology that scans printed text and provide the user with speech output), computer screen readers, Compact Disc (CDs) and multiple hardware and software innovations.

Gerber (2003) notes that a plethora of researchers and practitioners use computers and assistive technology can change the lives of pupils with visual impairments to a great extent by improving education and employment opportunities, enhancing social network and facilitating independence. In essence, assistive technology has potential to be the „„great equalizer‟‟ for persons with visual impairments (Michaels & McDermott, 2003).

Again, it was noted in the analysis that the use of appropriate instructional materials was not effective in the schools because there were inadequate instructional materials. Instructional materials are essential for effective teaching and learning. This is because in a mainstreamed setting, instructional materials are used by the teacher to facilitate learning for the individual child (Obi & Mensah, 2005). But this becomes a problem in most schools due to inadequate funds to procure them. The Ministry of Education and Ghana Education Service must see to it that the capitation grants and other logistics reach schools on time for teachers to procure the needed materials for teaching. Deku & Vanderpaye (2008) were of the view that the choice of instructional materials greatly influences any educational programme. They continued that, materials available influence content, quality, and general efficiency of the instructional programme. Teachers and schools must be provided with relevant materials to the needs of learners including those with low vision.

5.4.3 Allowing learners with low vision to participate actively in teaching and learning and its effectiveness.

With regards to allowing learners with low vision to participate in teaching and learning and its effectiveness, the findings indicated that learners with low vision were not allowed to participate actively in teaching and learning often. The teachers concentrated much on the sighted learners since they are the majority in the class. Involving learners with low vision in teaching and learning makes them develop interest in a lesson and make them feel they are part of the class. The American Foundation for the Blind (2005) and Richard, Hove & Afolabi (2008) stated that students who are visually impaired may require individual instruction in order to understand what is expected of them. Learners with Visual impairment may also benefit from pre-lesson instruction for more difficult concepts. According to Pagliano

(2005), confirming instructions can assist in ensuring comprehension. Teachers therefore, need to allow these individuals to solve problems and complete tasks on their own (Pagliano, 2005). Pagliano further stated that "students with vision impairment benefit from doing tasks on their own via "learning by doing". They are guided through the actions until they have gained expertise of the task and that they must be "explicitly taught how to make connections between parts and the whole".

5.4.4 Seating arrangement and its effectiveness

Concerning the seating arrangement and its effectiveness, the findings of the study revealed that learners with low vision were paired with their sighted classmates per the instructions of the teachers to enable them to navigate through pages when reading and preferential seating was also given. This made it very effective in the schools. This finding is supported by Leonard Cheshire Disability (2011) who notes that one of the strategies for handling learners with visual impairment in the classroom is pairing the pupils or students with a seeing classmate who can assist them to organise their work. The partner can help find the correct page, repeat your instructions and so on. However, many sighted learners in mainstream society are afraid of their peers who are blind or visually impaired and do not want to get acquainted with children with visual impairments (NaiKwai-Lo 2007). Nthama & Annie (2019) further argued that learners who are not visually impaired may contribute to poor performance of learners with visual impairment. For example, learners with visual impairment may be rejected during the group work activities and sometimes may not be given a helping hand by their sighted peers in terms of reading for them when the teacher gives them work in printed materials.

The findings further indicated that learners with low vision were given preferential seating in the classroom by teachers which helped them to overcome some of their learning difficulties. This finding is in agreement with Bishop & Rhind (2011) who noted that students with low vision need preferential seating so that they can have appropriate access to the blackboard, windows, and overhead screens when needed. It is also necessary to consider the classroom environment of students with visual impairment to help with successfully achieving positive learning outcomes (Allan, 2002).

5.5.5 Writing boldly on the chalkboard, verbalizing it and its effectiveness.

The analysis on writing boldly on the chalkboard, verbalizing it and its effectiveness, it was indicated that teachers mostly write boldly on chalkboard verbalize what is written on the board in most of their teachings. This finding agrees with Richards, Hove & Afolabi (2008) who opined that verbalizing all instructions in detailed form ensures that students comprehend the expectations of required assignments and projects. It is also in line with Salisbury (2008) who stated that students with visual impairments rely mainly on verbal information for their learning. Most of learners with low vision mostly depend on verbal information to meet their learning outcomes due to their inability to see clearly from the chalkboard and read normal print.

5.6 Research question 4.

What are the challenges learners with low vision face in basic schools in Bibiani-Anhwiaso-Bekwai Municipality?

Five themes that were raised under this research question four were; academic challenges in reading and writing, social challenges with the sighted peers, challenges in physical locomotion, availability of support services to overcome the academic

challenges in reading and writing, and availability of support services to overcome the challenges in physical locomotion.

5.6.1 Academic challenges in reading and writing

Concerning the academic challenges in reading and writing by learners with low vision, it was found in the analysis that some of learners with low vision found it difficult to read from the chalk board as a result of inadequate source of light. This finding is in line with Candido (2008), who notes that learners with visual impairments often deal with challenges in the classroom as well as getting to the classroom. For example, a student with low vision might not be able to read a text on a board and they could miss the funny faces or expressions that often accompany a lively classroom discussion.

It was further indicated that some students who were not able to see clearly from the board normally write slowly and often make mistakes which in turn lead to poor academic performance. In reading and writing, learners with visual impairment are able to read braille or use large print versions of text books. They cannot read normal size alphabets in the text book or in a manual which affects their reading speed. The majority of learners with visual impairments require slightly more time than other learners to perform certain tasks. For example, given the learners with low vision to find an item in a page, they may be unable to quickly find an item or the first line on a page. It will often take them longer time to completely make out what they are seeing or understand what is being discussed. Purdue (2009:807) explains that the challenge regarding their educational achievement is brought about by exclusion, the barriers that get in the way of full acceptance and participation in education activities. These may include socio-cultural barriers such as physical and material barriers, for example

poor building design, insufficient finances and lack of adequate awareness about surrounding environment. These may cause discrimination towards some individuals and groups to occur. The Ministry of Education (MOE) (2002:14) and Ministry of Labour and Social Affairs (MOLSA) (2004:16) emphasize that the quality of education for students with disability may be affected by several variables that are observed in the school and out of the school, such as inflexible curriculum, inconvenient classroom, and physical facilities like seating arrangement, furniture and lack of teaching aids.

In addition, UNESCO (2007) elaborates on the inability of the curriculum to cater for the needs of these learners, insufficient preparation of teachers and education leaders, rigid and poor teaching methods and inadequate assessment procedures. As a result, schools and teachers find it difficult to accommodate learners with special needs and they try to make them to adapt to the school, instead of adapting schools to the needs of the learners.

5.6.2 Challenges in physical locomotion

With regards to the challenges in physical locomotion the analysis indicated that some learners with low vision sometimes kick against furniture when walking in the classroom. During the observation, it was confirmed in one of the schools that the classroom environment was not conducive, particularly for learners with low vision to move freely. The windows of the classroom in the front side of the wall were very narrow, which means that there is always dim- light in one side of the class room. In addition to this, almost all classroom walls were painted with blue and brown colours and there is no source of artificial light. Learners with low vision could not see clearly from the chalkboard and could not move freely in and around their classroom. Andrea

and Farrent (2000) state that children with low vision can experience many negative consequences such as feeling like an outsider because they cannot take part fully in activities, feel less than capable because they do not understand visual concepts fully and feel clumsy because they drop things or bump into objects. All of these consequences can have the effects of lowering their self-esteem.

The findings also revealed that some learners with low vision who kick against furniture when walking in the classroom sometimes feel embarrassed and it affects them emotionally. Shapiro, Moffett, Lieberman and Dummer (2005) explain how the perception of competence, or the ways in which a person thinks about himself or herself, influence initiation and mastery attempt in various domains of achievement including social acceptance and physical appearance.

Learners with low vision may have restricted mobility and consequently limited experiences which may cause passivity and dependency and a learned helplessness. One aspect of psychological functioning that may affect these learners is self-esteem. Self-esteem is related to a person‟s feeling of self-worth and value. It is a critical ingredient for lifelong happiness, success, and better life (Scott & Murry, 2001).

5.6.3 Social challenges with the sighted peers

The analysis with regards to the social challenges with the sighted peers also revealed that some learners with low vision were been teased by the sighted learners by giving them names. There are many social and environmental barriers that learners with low vision experience, including people‟s lack of knowledge about diversity. Tefera (2002) asserts that these barriers adversely affect the socio emotional development of children with visual impairment. Some of these are the environment, attitude of others and lack of acceptance by others. The environment is a factor that significantly affects

the psychological functioning of children with visual impairment. The development is affected by different kinds of environment, including educational placement. During the formative years school is the main place for the social experience of these learners that puts a great deal of influence on their social development. It is, therefore, important to examine school arrangements based on how well they enhance social and emotional development.

Again, it was clear from the analysis that some learners with low vision who were being teased sometimes feel sorry, emotionally sad and embarrassed in school. This finding is in line with USAID/Ethiopia (2011-2015) which explains that stigma often leads to a denial of access to services such as education, employment and health care. Many factors determine how visual impairments affect a child‟s learning experience. Age of onset and severity of vision loss as well as presence of multiple disabilities are some of the factors that make each child‟s situation unique. The causes of visual impairment and overall functioning level of a child also determine how the visual impairment affects a child‟s development. In general, visual impairments have cognitive, academic, social emotional and behavioural effects. These poor self-perceptions are likely to lead to a reduction in confidence in movement and often extend beyond the athletic domain, resulting in adverse psychological and social consequences.

5.6.4 Availability of support services to overcome academic challenges in reading and writing.

The analysis of the study on the availability of support services to overcome academic challenges in reading and writing revealed that learners with low vision were given preferential seating in the classroom by the teachers which helped them to overcome

some of their learning difficulties. This finding is supported by Bishop &Rhind (2011) who noted that students with low vision need preferential seating so they can have appropriate access to the blackboard, windows, and overhead screens when needed. It is also necessary to consider the classroom environment of students with visual impairment to help with successfully achieving positive learning outcomes (Allan, 2002).

5.6.5 Availability of support services to overcome the challenges in physical locomotion

The analysis with regards to the availability of support services to overcome challenges in physical locomotion indicated that some of the learners with low vision were able to navigate their way through the classroom due to repeated directions from teachers and practice. In order to ensure proper physical locomotion in regular school settings for the learners with visual impairment they require the services of orientation and mobility, that is, the sense of where they are in relation to other objects and people in the environment and ability to move about within a space. They need to know where furniture, doorways, bookshelves and the teacher‟s desk are in the classroom, in relation to their own location. In addition, they need to be able to move from the classroom to the auditorium, to the cafeteria and out of the bus in a timely manner. The task of the class teacher is to make sure that the classroom is spacious enough, well arranged and furniture placed for proper learning opportunities for people with visual impairment (UNESCO, 2001; Mawutor & Selete, 2004).

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

In this chapter, summary, conclusions, recommendations and suggestions for further studies were presented.

6.1 Summary

The study was conducted in the Bibiani-Anhwiaso-Bekwai Municipality of Ghana. The purpose of the study was to examine provision of support services for learners with low vision in basic schools in the Bibiani-Anhwiaso-Bekwai Municipality. Based on this, the study explored the following:

1. The material resources available for supporting the learning needs of learners with low vision
2. Resource services offered to learners with low vision
3. Instructional support that meet the needs of learners with low vision
4. Challenges learners with low vision face.

The study was a qualitative research that employed descriptive case study as a design. The population of interest was fifty (50) comprising learners with low vision and teachers in three selected schools. Data was collected using semi-structured interview and observation technique. A sample of twenty-five (25) participants, comprising eighteen (18) learners with low vision were census sampled and seven (7) teachers were purposively sampled. The choice of census sample of the learners with low vision was focused on their age ranges from 13 years to 17 years. And the choice of purposive sample of the teachers was also based on their working experiences, thus

those who have served for four years and above therefore, could provide the relevant information on the study in basic schools in Bibiani-Anhwiaso-BekwaiMuncipality. The data collected were analyzed qualitatively using thematic approach.

The following findings came to light: The results revealed that the schools were not having sufficient material resources to meet the learning needs of learners with low vision. It was again revealed that the few material resources that were available in the schools were not in good condition. The finding of the study showed that few learners with low vision were using eye glasses and large print materials which were provided by the schools and parents.

Moreover, the findings of the study on resource personnel services offer revealed that regular teachers were the resource personnel available in the schools and provided the services to the learners with low vision. The analysis also revealed that there were no aides or resource teachers attached to the regular classroom teachers to support the learners with low vision in the schools. Majority of the learners with low vision were given the services on orientation and mobility which was beneficial to them. The findings also indicated that majority of the learners with low vision did not receive the services on counselling, referral and provision of large print materials from the teachers.

Furthermore, on the instructional support, the findings of the study revealed that teachers provided instructional support such as writing boldly on the chalkboard and verbalizing it, seating arrangement was done to favour learners with low vision. However, learners with low vision were not often allowed to participate actively in teaching and learning, materials provided were inadequate and extra time was not often allowed for them to complete task due to limited time available.

Finally, it was clear from the findings of the study that learners with low vision encountered many challenges such as academic challenges, social challenges with sighted peers and challenges in physical locomotion which affected their learning needs and overall development. The findings also revealed that some of the teachers provided support services to learners with low vision in some schools to overcome some of the challenges.

6.2 Conclusion

The current findings lead to conclude that none of the schools had access to services of resource teachers, hence the regular teachers could not attend to persons with low vision in their classrooms effectively because they were not trained to accommodate learners with low vision. It was also necessary for the authorities to see to it that teachers with knowledge in Special Education be sent to the schools and appropriate teaching and learning materials are supplied to the schools.

6.3 Recommendations

It is recommended that:

1. The schools should provide enough material resources to support learners with low vision to meet their learning needs.
2. Bibiani-Anhwiaso-Bekwai Municipal Education Office should provide schools with trained teachers who have adequate knowledge in Special Education to support learners with low vision in the regular schools. And extensive training of regular teachers on inclusive education in inclusive schools be planned and implemented in order to maximize the participation of learners with visual impairments in both social and academic activities.

3. The schools should provide adequate teaching and learning materials (TLMs) for the learners with low vision and reduce large class size in order for the teachers to have enough time to provide instructional support often.
4. It is finally recommended that the learning environment, both classrooms and school compound should be adapted and equipped for free physical locomotion from place to place for learners with visual impairment.

6.4 Suggestions for further research.

a. This study was conducted in Bibiani-Anhwiaso-Bekwai Municipality and therefore further studies could be extended to the other districts/municipalities/metropolis.
b. The study could not cover senior high schools in the municipality. Similar studies could be carried out to cover those areas.

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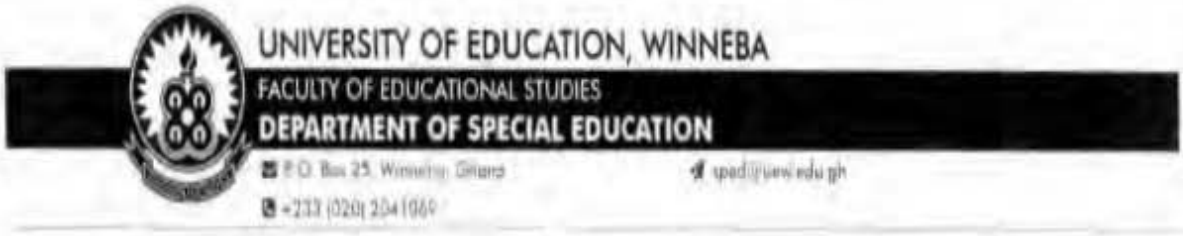
APPENDIX A:

INTRODUCTORY LETTER



18th August, 2022

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER OF INTRODUCTION: MS. SABBINA ADDAE DONKOR

I write to introduce to you, **Ms. Sabbina Addae Donkor** an M.Phil. Student of the Department of Special Education with index number 202114073.

She is currently working on her thesis on the topic: **"Provision of Support Services for Learners with low Vision in Selected Schools in the Bibiani-Anhwiaso-Bekwai Municipality."**. She needs to conduct interview and do observation in your school.

I would be grateful if you could give her the needed assistance.

Thank you for the consideration and assistance.

Yours faithfully,

.....

MRS. FLORENCE AKUA MENSAH
(Ag. Head of Department)

APPENDIX B:

UNIVERSITY OF EDUCATION, WINNEBA
DEPARTMENT OF SPECIAL EDUCATION
INTERVIEW SCHEDULE FOR TEACHERS

This interview schedule is designed for data collection for a study that is examining the provision of support services for learners with low vision in selected regular basic schools in the Bibiani-Anhwiaso-Bekwai Municipality. This is in partial fulfilment for a Masters" Degree in Special Education at the University of Education, Winneba.

I would appreciate it if you could answer the following interview questions. Your responses will be used for research purposes only and your confidentiality and anonymity are fully assured. Thank you.

SECTION A: BIOGRAPHIC INFORMATION

1. Please, what is your age range?

20-25 [ ] 26-30 [ ] 31-35 [ ] 36-40 [ ] 41 and above [ ]

2. Which class do you teach? ……
3. How long have you taught learners with low vision in an inclusive context? ……...
4. How many years have you been a teacher?
   ……
5. What is your highest academic qualification?
   ……
6. What is your professional qualification?
   ……

SECTION B: MATERIAL RESOURCES PROVIDED TO LEARNERS WITH LOW VISION

7. What types of material resources are provided for them?
8. Who provides these material resources?
9. How do the material resources benefit learners with low vision in your school?

SECTION C: RESOURCE PERSONNEL AVAILABLE FOR LEARNERS WITH LOW VISION

10. What resource personnel are available for learners with low vision in your school?
11. What types of services do the resource persons provide for learners with low vision?
12. How often are their services provided for learners with low vision?

SECTION D: INSTRUCTIONAL SUPPORTS PROVIDED BY TEACHERS TO LEARNERS WITH LOW VISION

13. What types of instructional support do you offer to learners with low vision?
14. How often do you provide instructional support?
15. How effective are your instructional supports meet your learners‟ learning needs?

SECTION E: CHALLENGES ENCOUNTERED BY LEARNERS WITH LOW VISION

16. What are some of the challenges encountered by learners with low vision in your school?
17. How do these challenges affect their learning and overall development?
18. How do the supports you provide to learners with low vision help them to overcome their challenges?

APPENDIX C:

UNIVERSITY OF EDUCATION, WINNEBA
DEPARTMENT OF SPECIAL EDUCATION
INTERVIEW SCHEDULE FOR LEARNERS WITH LOW VISION

I am Sabina Addae Donkor, a master student at the University of Education, Winneba. I am conducting a research on the provision of support services for learners with low vision in selected regular basic schools in the Bibiani-Anhwiaso-Bekwai Municipality. I would be glad if you could answer the following questions for me. Your responses will be used for research purpose only. Thank you.

SECTION A: BIOGRAPHIC INFORMATION

1. What is your age?
2. Which class are you?
3. What is your gender?

SECTION B: MATERIAL RESOURCES

4. Mention some of the materials that help you in school?
5. In what ways do the materials you mentioned help you in school?
6. Who gave you those materials?

SECTION C: RESOURCE PERSONS

7. Mention some of the people who help you in school.
8. How do they help you in school?
9. How often do they help you?

SECTION D: INSTRUCTIONAL SUPPORTS

10. Mention some of the things your teacher does in class to help you to learn.
11. How often does your teacher help you in class?
12. How do the things your teacher does in class help you to understand his/her lessons?

SECTION E: CHALLENGES OF LEARNERS WITH LOW VISION

13. Mention some of the challenges you have in school?
14. How do the challenges affect your life and studies in school?
15. In what ways do you overcome these challenges?