UNIVERSITY OF EDUCATION, WINNEBA

ASSESSING SUPPORT SERVICES AVAILABLE FOR LEARNERS WITH LOW VISION IN SELECTED SCHOOLS IN THE MPOHOR DISTRICT.

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of the requirements for award of the Master of Philosophy (Special Education) In the university of education

MAY, 2020

DECLARATION

Candidate's Declaration

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

SIGNATURE: .....

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SUPERVISOR'S DECLARATION

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

SUPERVISOR'S NAME: DR. YAW NYADU OFFEI

SIGNATURE: .....

DATE: .....

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DEDICATION

To my children Elizabeth, Dugbatey, Ogerh, Korkor, Jacob, Tettegah, and Mawujingua.

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ABSTRACT

The purpose of this descriptive case study was to access the support services available for learners with low vision in selected schools in the Mpohor District. Twenty-five (25) teachers and five (5) head teachers were purposively sampled for the study. A semi-structured interview guide and observation were used to collect data. Data were coded and analysed using thematic approach. Results of the study revealed that majority of the schools did not have instructional materials for pupils with low vision. Also the few instructional materials that were available in the schools were outmoded. Again, results of the study indicated that pupils with low vision were given permanent seats in front of the classroom. Teaching Learning Materials (TLMs) were made large enough so that the pupils with low vision could identify them clearly and easily. Writings on the chalk board were larger enough to motivate them to read. It came to light that instructional adaptation was very necessary in educating pupils with low vision in the regular schools.The study recommended that the schools should provide enough of audio-visual aids to support pupils with low vision academically. Also teachers should use appropriate teaching methods that meet the unique needs of pupils with low vision. The District education Office should provide schools with professionally trained personnel to support pupils with low vision in the classroom.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Students with visual impairments have unique educational needs which are most effectively met using a team approach involving professionals, parents and students themselves where possible. As a Special Education Coordinator in the Mpohor District one of my core duties is to screen the learners within the district. It is in the course of my duty that I suspected a significant number of learners with visual impairment (low vision) across the length and breadth of the district. 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 for such learners and it appears there are insufficient support services.

In Ghana, most children with low vision attend regular schools without any tangible support (Agbenyega, 2003). A survey conducted by the Ghana Eye Care Programme of the Ministry of Health (1995) confirmed that Ghana has about 30,000 children of school age who had low vision and therefore needed special assistance and educational help to come to terms with their disability. Meeting the special educational needs of these children of school age is still at an early stage of development in most countries including Ghana. A UNESCO survey carried out in 1986/87 found that 32 out of 51 countries that replied to a questionnaire, less than 10% of the school-age population was enrolled in special education. In another 44 countries, the figure was under 3% (Ocloo, 2011). The stark reality underlying these figures is that the great majority of children and young people with special

educational needs do not receive any appropriate education, if they are offered any education at all.

Inclusion of students with Special Educational Needs (SEN) into general education classroom is a much discussed topic worldwide. The Salamanca Declaration of 1994 stated that children with special needs should have access to general education which should aim at integrating them into child centered pedagogy able to address their unique needs (UNESCO, 1994). Educating students with special needs in the regular schools demand adequate support services. An essential condition for the social inclusion of visually impaired individuals is their involvement in the society. The success of inclusive education however depends on the availability of resources and support services in the schools. Inclusive schools require well equipped resource rooms which are manned by well qualified personnel. In addition, successful inclusion depends on the availability of support services like low vision aids, special educators, large print, close circuit television, counselors, psychologist and social workers.

Again, inclusive education hinges on the effective utilization of resources to achieve maximum results (Smith, 2007). According to Friend (2008), pupils with low vision are pupils with moderate to severe visual impairments (low vision). They 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. Koeing and Holbrook (2000) postulated that 90% of individuals with vision loss have limited vision and just 10% are functionally blind. Pupils with low vision are often disregarded in the majority of individuals who are visually impaired.

Difficulties of pupils with low vision are often not apparent as they are for pupils who are blind. Nonetheless, pupils with low vision require direct instruction in literacy, visual efficiency, assessing the core curriculum and compensatory skills (Koeing & Holbrook, 2000). 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. However, literature shows 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).

UNESCO (2000) has also stressed that the importance of support services is to ensure that all students who are included benefit from the school programme, if not them 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 and Deshler (1997) have noted that issues concerning child support, guidelines or directions play central roles in inclusive education classroom teaching and learning. 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).

The study by Avoke and Yepkle 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. Also, data available at the Mpohor District Education Office revealed that a significant number of children in the

inclusive schools in Mpohor District have learning needs which hinder their academic performance (Mpohor Education Office, 2014). This trend suggests that pupils need to be adequately supported if they are to progress academically. In line with this is the increasing shift in emphasis into inclusive education (Hayford, 2013).

According to Ocloo, Hayford, Agbeke and 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. Hence the researcher seeks to access the support services available for learners with low vision in the selected schools in the Mpohor District.

1.1 Statement of the Problem

In order to guarantee a successful learning environment for individuals with low vision it is envisaged that inclusive schools will have requisite support services for pupils with low vision. Lack of or insufficient support services may affect the pupils' participation in learning and result in general poor performance (Ocloo, 2010). Ultimately, the rights of these pupils to quality education as enshrined in the constitution of Ghana and the Disability Act 715 of 2006 would be violated. When support services are not available the pupils with low vision will not be able to participate successfully in learning. Basic schools in Mpohor District are among schools where pupils with low vision are receiving education in an inclusive education classroom. However, support services in the form of skilled personnel, materials and equipment, which are crucial for meeting the personalised learning needs of these pupils seems not to be available.

Furthermore, teachers in these inclusive schools appear not to have adequate training and experience as well as lack of personnel to assist them to remedy the differential needs of the pupils with low vision. The problem is that if these pupils'

learning needs are not addressed, they would continuously perform poorly, fail and repeat classes and some may eventually drop out of school. It is in this context that the researcher wanted to look at available support services to help address the learning needs of these pupils so that they can progress academically. The current study sought to assess the support services available for pupils with low vision in inclusive classrooms at the Mpohor District.

1.2 Purpose of the study

The purpose of the study was to explore the support services available for learners with low vision in the selected schools in Mpohor District.

1.3 Objectives of the study

The objectives which guided the study were:

1. Identify instructional materials available for learners with low vision in the Mpohor District.
2. Find out personnel supports available for supporting learners with low vision in Mpohor District.
3. Explore the adaptations made for pupils with low vision in regular schools in the Mpohor District.

1.4 Research Questions

The following research questions were raised to guide the study.

1. What instructional materials are available for learners with low vision at Mpohor District?
2. What types of personnel supports available for learners with low vision at Mpohor District?

3. What are the adaptations made for pupils with visual impairments in regular schools in the Mpohor District?

1.5 Significance of the Study

It is expected that the results of the study would outline various kinds of instructional materials teachers provide to pupils with low vision in inclusive schools in the Mpohor District of the Western Region. In addition, the results of the study would help reveal support services for pupils with low vision and how these enable teachers in inclusive schools to effectively meet the learning needs of these pupils. The findings would assist parents, itinerant/resource teachers and the Ghana Education Service (GES) to have solutions to address the limited support services for pupils with low vision in the inclusive classrooms in the District.

The findings of the study would also add to the body of literature concerning instructional materials available for the pupils with low vision in general education in Ghana particularly, in inclusive schools at the Mpohor District. Also, the finding would reveal the challenges of teachers in the schools with regards to teaching and learning and the adaptations for pupils with visual impairments in regular schools.

1.6 Delimitation of the Study

The study covers only schools in Mpohor District and pupils with low vision due to the peculiar interest of the researcher.

1.7 Limitation of the Study

The main limitation of this study was that data were collected from only general classroom teachers who were from Mpohor District of the Western Region.

1.8 Operational Definition of Terms

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

Support services: Assistance given to parents and schools in assisting children with special needs in education to adjust to the environment and activities in order to overcome barriers to learning and development.

Pupils with low vision: Individuals who cannot see well even with correction and this adversely affects their educational performance.

Regular Teachers: Trained professionals in the field of education who teach in regular schools. They are not specifically trained to deliver special education services.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter would review related literature of earlier studies conducted on support services for pupils with low vision in the regular schools. The literature would be review from books, journals and research articles. The literature would be review under the following strands:

- Theoretical framework of the study.
- Instructional materials available for learners with low vision.
- Personnel supports available for learners with low vision.
- Adaptations for pupils with visual impairments in regular schools.
- Summary of literature review.

2.1 Theoretical Frame Work of the Study

Teti (2008) noted that a model is a philosophical content that talks about, a set of variables and a set of logical and quantitative relationships. Similarly, Greenblatt (2013) who describe models as a framework for thinking and acting suggest that any profession in which people intervene in the lives of others must have a "model" of practice which guides those interventions. The suggestion of Bullock and Selz, is critical because models provide a framework for selecting, sequencing, and organizing interventions (Boer, Niel-Ingvar, Van Baalen & Kumar, 2004), and they guide the process of decision-making, and assist in answering questions in research (Mezirow, 2000). 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 the social model of disability was adopted.

The social model theory of disability was propounded by Mike Oliver in 1983. According to Oliver, the social model of disability was never meant to be an all-encompassing explanation of everything that a disabled person experiences (Oliver, 2013). The selection of the social model of disability was to explain how it relates and influences societal contribution to the education of children with disability. Avoke (2005) stated that the social model views social restrictions for the disabled as consequence for their dysfunction. It is the social systems or set ups that act as barriers to the participation of the disabled. The social model of disability considers the environment which has disabled the individual not the condition. Underling this social principles to disability are the belief 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 Avoke (2005) on the social model of disability, it can be inferred that participation of persons with disabilities in their own society are restricted due to barriers put in place by social systems. This in turn affects the person`s academic work and performance as well as the service provisions put in place for them. In other words, the model sees disability as environmental challenges that limit ones desire to perform a function involving those with low vision from maximum participation in society as well as defining the services in place for them. The social model emphasizes that it is the environment that limits access and opportunities for work, education, and social participation of persons with disabilities.

The social prejudices, discrimination, and stigma are inherent parts of the social model (Smart, 2001). In effect, majority of persons with disabilities become restricted with regard to access, participation, and adequate provision to quality

education. The social model of disability as already explained, is a reflection of human right and equality. 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; Fraser, Meltzen, Ryba, & Neilson, 2000). Within the social model, 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 live (Barnes & Thomas, 2004).

Since the 1990's the disability movement began to argue that the plight of disability rests on reframing the environment and society and not in "normalization" or "care" as found in the medical model. This formed the basis of the social model, which perceived disability as the result of any behaviour or barrier in society that prevents people with impairments from being able to play an equal role in life (Oliver, 2013). 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). Unlike the medical mode, the social model sees disability as human right issues. Disabled people's organization (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 model, society and people must change their attitudes and perception about persons with disabilities (Finkel-Stein, 2001).

This particular model is relevant to this study in that it emphasizes that states ensure education for persons with disabilities and special needs as an integral part of the education system. 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. Education in mainstream schools presupposes that provision of adequate and other appropriate support services exist to enhance education of individuals with low vision.

1.3 Instructional Materials Available for Learners with Low Vision

DeLee (2015) asserted that as many students with disabilities take advantage of higher education, colleges and universities should be prepared to provide necessary accommodations and support services for their overall success. The author further explained that for students with disabilities to succeed in universities, they required the support of disability support staff to complement lecturers' efforts at accommodating them in the teaching and learning process. Many students with disabilities attribute their adjustment in educational environments to the support of disability units (Matshedisho, 2010). Providing needed support services may motivate students with disabilities to take up meaningful roles in interactions and to maintain their enrollment in higher education and ultimately to graduate (Heindel, 2014). In spite of the important role of support services in the education of students with disabilities, ensuring that students with disabilities obtain the necessary disability

support services needed to be successful in higher education is one of the largest challenges of universities (Cowthon & Cole, 2010).

Furthermore, students with visual impairments require specialized instruction in the use of computers with appropriate software such as Job Access With Speech (JAWS) and Non Visual Display Access (NVDA). They also need 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 (Cooper & Nichols, 2007; Vik, & Lassen, 2010) to enhance their success in regular institutions. These support services are critical in the education of students with disabilities including students with visual impairment. The lack of these necessary support services can render them socially and academically excluded and overly dependent (Tugli, Zungu, Ramakuela, Goon, & Anyanwu, 2013).

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, and visually impaired specialists 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’’ (p. 278). Mamiseishvili and Koch (2012) also found out that students who experienced mobility challenges or suffered from depression, psychiatric disorders, or dyslexia did not persist after three years. The researchers concluded that even though students with disabilities had high aspirations, without proper planning and assistance students could fail to succeed. The authors suggested that administration and disability support services work together to

examine and address possible problems that might exist considering the high percentage of non-returning students discovered.

In Ghana, 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. 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 require spectacles (Ocloo, 2011).

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 things like 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).

Moreover, if a videotape for example has to be shown, it is wise 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 watch 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 handle what they learn. Instructional materials help to improve communication and make the teacher work easier because they talk less (Ocloo, 2011). Many pupils with low vision need some form of materials or equipment in order to learn. These include: 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 will be very useful to many children with visual impairments. Working papers and books with enlarged print will ease the task of reading for most children with low vision.

A study in America indicates that at least 40% of children with low vision need spectacles. Refraction should always be carried out before vision assessment (Ocloo, 2011). Best (1992) and Keeefe (1995) 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 will enable the child to copy from close range instead. Secondly, a teacher can make simplified drawing for the child with low vision from a 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, 2011).

Additionally, the Task Force on Special Needs Education (2006) notes that learners with special needs 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 a strong felt pens which will assist them effectively. Heward (2006) on the other hand observed that no category of handicap requires greater coordination and provision of resources than in the area persons who are blind or visually impaired. UNESCO (2008) noted that learners must be provided with learning materials in formats that will meet their individual learning needs.

Randiki (2005) advised 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, Natalie Baraga (1973) discovered 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

Students with visual impairments use tactile and kinesthetic input to learn about their environments. Such input should not be thought of as "lesser senses" to use in the absence of vision, but as another system through which learning takes place (Heward, 2000). Tactile and kinesthetic input can provide students with information about objects they come in contact with and use. Any visual materials used in classrooms need to be adapted for use by students who do not have the visual skills required for the task. Charts, models, maps, and graphs will have greater educational value for students with visual impairments if they can be "read" using the sense of touch.

Teachers must be aware that students with visual impairment have deficits in conceptual experiences and understanding due to absence of visual ability. Therefore adaptations of teaching materials becomes 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, 1996; 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 releief image or diagram that can be easily felt (UNESCO, 2001).

Adapting written texts

In order to support students with vision loss, instructional materials 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, 1996; 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 their visual impairment (Spungin, 2002).

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

Assistive technology

Assistive technology for the blind or visually impaired includes "low tech to high tech'' tools. These low-tech include pencil grips, highlighters, paper stabilizers and high-tech has to do with computers, voice synthesizers and braille readers (Smith, 2012). Rose, Bracket and Maxan (2006) explained assistive technology devices as any piece of material item, or product system (software) used to improve the functional capabilities of persons with visual impairment.

According to Weiter and Hastein (2003), instructional materials on ICT, material devices or printed paper all aim to fulfil a purpose. Firstly, there is a target to fulfil 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 area: Computer Access, Compositing 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. As Kapperman and Stiken (2000) observed, 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. 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. This can be done 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 careers 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 the assistive technology market continues flourishing with devices and software that make the visual world significant more accessible to person with impairment. Educators need to evaluate their applicability and effectiveness to literacy related needs (Mastropieri & Scruggs, 2010).

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 impairment 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 advance means for students with visual disabilities. While the device was often found in libraries, it was too bulky and expensive to be made available to students in the classroom. Today, there are portable stand-alone OCR devices and devices that can attach to other computers and scanners (Kurzweil & Gilder, 2002).

There are numerous assistive technology devices that can assist persons with severe disabilities, ranging from very simple to very complex. Candido (2008:25) expressed the opinion that we have come a long way in using technology and

particularly the internet for education. Candido further explained that it is also true that technology has enhanced the lives of people with low vision in a variety of ways. This is due to the fact that people with disabilities such as a visual impairment can be served in effective ways by enrolling in online classes. However online classes are not all designed in a way that best suits this particular group of people. The audience of adult learners with disabilities, particularly people with visual impairments, could perhaps be an untapped audience for institutions of higher education.

While access to the internet is relatively easy for learners with sight, many learners with visual impairment may have difficulty if included without special support (Polloway, Patton & Serna, 2008).). Barraga and Erin (1992) cited in Kumsa (2006) explained that the environment can be made accessible for the individual with low vision in three ways, by increasing the size of the material itself, by bringing the image on the material closest to the eye and by using a device or protection to magnify the size of the material. Special materials and equipment can enhance the education of learners with visual impairment. Spungin (2005) added that these materials which can be used by learners with low vision, like magnifying lenses for distant and near vision, Closed Circuit Television (CCTV), adjustable reading tables and even the facility of bright light, according to the need of learners, are not available. For the legally learners who are blind, Braille reading and writing materials like; slate and stylus, Braille paper, thermoforms, guiding white sticks and Braille typing machines are not appropriately available. Specialized lighting-lamp and lights with various type of illumination may enhance the visibility of the working surface, material positioning devices like page holder or book stands and slant boards which can enable better positioning of material to decrease the distance, angle and glare.

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 (Rukwaro 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 talk less (Ocloo, 2011).

2.4 Personnel Available for Supporting 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 alongside special education programmes to help individuals with special needs benefit from the training they get from school (Avoke *et al*., 1998). For Lewis and Doorlag (1995) 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, Guzman, Stephens, and Boggs (2007) 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).

Parents contribute to the education of their children, and are potential sources of information about the academic ability of students with visual impairments. Parents are familiar with their wards and know their educational needs, and can decide for their children. They also 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 student with visual impairments 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 also have a right to be notified 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.

Vaughn et al. (2007) and Downing (2008) are also of the view that parent teacher collaborative practices are not as comprehensive as they could be. Other professionals like psychologists and other therapists are used to their own offices and being consulted when there are problems. In inclusive education, the expectation is that all professionals will work together in a collaborative partnership where there are no hierarchies. Cooperation, then means that there has to be compromise from all partners so that they can work towards a common goal. Downing further argues that, co-operation may, however, appear impossible, since others may feel superior to others and this collaboration will be about whose last word it will be. It will take some time getting used to working with one another. In schools, parents fear approaching their children's teachers and psychologists and therapists may be most feared both by

parents and teachers alike, as they are considered to be far too well-educated than ordinary folk.

Another support service given to pupils with low vision in the regular classroom is the itinerant or resource teacher services. This service aims at placing and supporting visually impaired individuals in regular classrooms to enable them achieve the best in learning. Resource teachers are specialists who are trained and attached to the district education offices and they go from school to school to identify, assess children and plan management programmes for regular teachers to enable them support pupils with low vision in their teaching and learning (Special Education Department, 2007). Baine (2001) pointed out that these specialists are consultants who travel from school to school to assist teachers in methods of assessment, instructions, materials preparation and equipment building.

Okyere and Adams (2003) opined that in most of the mainstream schools in Ghana, specialist teachers of the visually impaired provide resource room support. The bulk of the teaching is done by the regular classroom teachers while the exercises of the visually impaired are transcribed by the resource teacher for the regular teacher to mark. In another area of support, specialist teachers also help the students identify landmarks to help them orient themselves to their environment. According to Gearheart and Weishahn (1980), in the itinerant support service programme, the regular classroom teachers retain primary responsibility but special education teachers provide supportive or supplemental assistance to both the student and his teacher or teachers. Under this plan, the child with visual impairment lives at home and attends classes in the local public school with other neighbourhood sighted peers and most of the school curriculum is taught by the regular classroom teachers while the itinerant

teacher for children with low vision provides special education modifications required by each child (Tuttle & Tuttle, 2004).

The resource teachers provide in-service training for the other teachers on how to manage the visually impaired child in learning. The techniques and methods of teaching some subjects are demonstrated for regular classroom teacher to adopt. In the community, the resource teachers target the schools, the clinics as well as going to homes to educate students and parents on disability issues. The provision of these services in most cases help pupils with low vision to adjust in the general education and they benefit from their education (Okyere & Adam, 2003). St Joseph`s Educational Centre for the Blind (2008) reported that the resource teacher encourages realistic understanding of the individual child's needs and abilities, thus helping the child realize his/her highest potential. Some aspects of the role of the resource teachers are; (a) to recommend any child/youth suspected of having a vision problem to be checked by an ophthalmologist or optometrist (b) To recommend access to specialized equipment and materials to support children/youth who are visually impaired, monitor the functioning of such equipment and arrange for the provision of appropriate vision specific teaching aids (c) preparing materials in alternate format or adapt environment to ensure access to information for the student with low vision.

Scruggs, Mastropieri, and McDuffie (2007) reported that there is a benefit in co-teaching which includes communication among students and teachers to enhance teaching. 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 defeats. 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 (Friend, 2008).

According to Ocloo (2003), the inclusion of children with low vision in Ghana uses the itinerant teaching approach in the basic school system in only six districts out of the 170 Metropolitan, Municipal and District Assemblies. The itinerant support service is one of the service delivery and placement alternatives for children who are handicapped. It is an educational support service provided by itinerant teachers for children who are handicapped but receiving their education in the regular classroom.

The itinerant teacher programme for the visually impaired 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. Cruikshank and Chapman (1967) added that itinerant support services include a programme in which children who are disabled remain in their regular classroom and are given special assistance through the visiting special teacher who advises and assists the classroom teacher and often work with the child in a more or less tutorial capacity.

Bines and Lei (2011) stated that an educational team is accountable for the education of students with special needs. Following this philosophy, a collaborative team, made up of classroom teachers, special support teachers, administrators, school psychologists, parents and students, must meet to outline the skill and ability levels of the students, the goals and objectives for their learning, the recommended support services and any required adaptations, strategies, specialized materials and assistive

technology (Pagliano, Carannante, Rossi, Gramiccia, Gradoni, Faella, & Gaeta, 2005).

In terms of appropriate educational support, Manitoba Education offers Alternate Format Services (AFS). These services support the education of students who are print disabled by providing books in alternate formats, such as audio files, Braille, large print and electronic text. Alternate format materials are available for students who are blind, visually impaired, as well as those who are physically disabled or learning disabled. In order to meet the unique needs of the visually impaired individuals, students must have specialized services, books and materials in appropriate media (including braille), as well as specialized equipment and technology to assure equal access to the core and specialized curricula. The alternate formats enable them to most effectively compete with their peers in school and ultimately in society (Martin & Barth 2013).

With respect to communication needs, relationships are important for pupils with visual impairments and the classroom can be a wonderful place for its development. It is for this reason that Ocloo (2003), argued that it is necessary for the teacher to provide experiences to develop and enrich language by providing and promoting the understanding of basic concepts leading to the acquisition of both receptive and expressive language. It is however, the duty of the peripatetic teacher or consultant teacher or the itinerant teacher to determine with the regular teacher, the appropriate means or methods of reading instruction in either print or braille or using audio reading. For students with vision impairment to be successfully included in regular schools and make them socially accepted, positive social interaction with their sighted peers is essential (Celeste, 2007; Hatlen, 2004). Sukhraj-Ely (2008) stated that these students are unable to learn social interaction skills “casually and incidentally”,

in order to socially function with their sighted peers. They must be taught proper social interaction skills (Celeste, 2007). Hatlen (2004) added that if social interaction skills are not learned, students with vision impairment often become social isolates, which is the opposite to the desired effect of inclusion.

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. Again, pupils who are visually impaired should be given basic guidance and counseling services to encourage them to accept their conditions. The guidance and counseling services should also be focused on vocational and employment opportunities and skills for meaningful leisure. The more severe the visual impairment, the more orientation and mobility instruction will be needed. The range of orientation and mobility techniques vary greatly.

Education is viewed as a shared responsibility of the home and the school. 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. To develop a high quality visual learning environment, each school's community members, teachers, support staff, parents and learners with disability must work together in a consistent, coordinated and corporative manner. Kumsa (2006:20) also stated that it is the responsibility of the whole school/community to act as a unified team to minimize visual ability problems and to maximize child participation. Studies conducted by Sharma and Furlonger (2010:295) have found that within the field of mentoring collaboration with colleagues and administrative support can increase new general education teacher commitment. Furthermore, collaboration among general and special educators has been found to be

the only factors that relate to teachers' positive response towards inclusion. In the past years it has been shown that, educational policies tend to support the integration of children with disability into regular schools. Although this argument is accepted by some literatures. There are some other evidences that indicate that the benefits to integration may not be as great as expected.

Kabeto, (2015) studied the academic experiences of learners with low vision in Ligaba integrated primary school, Ethiopia, at the University of South Africa. It was found that a growing number of family support specialists and urban educators are moving away from the terminology of "parent involvement". This is because in reality, many parents and families still feel isolated and are not getting enough support through care, education and training for their children who are disabled. Persons with disabilities are still side-lined in mainstreaming decision making in most societies. Quality education is fostered by collaboration between educators and families. Coordination of all team members, including family members, helps to assure a shared focus on learners' success. An appropriate service provision should be a collaborative process involving the child, the parent and relevant service providers from the Departments of Education, Health, and Community Services. Human Resources and Employment, Justice and other relevant agencies should also play a big role.

Preparing teachers for regular class teaching has undergone a major pedagogical shift in recent years (Forlin, Loreman, Sharma, & Earle, 2009). Training institutions are now required to ensure that pre-service teachers are competent to cater for the needs of an increasing range of learners with diverse needs. Teachers of learners with visual impairment must be able to provide support and collaborate with family members and other members of the instructional team who work with learners.

They must be able to convey professional opinions in a diplomatic, collaborative manner in order to ensure that appropriate programmes are recommended for the student with a visual impairment (Mberimana, 2018).

Most educational discussions on inclusion concentrate on the efficiency of practical matters, educational organization and practice, such as the curriculum, teaching methods and attitudes in the school or individual systems, without taking into account the broader dimension to inclusion which transcends these narrow school or individual based considerations (Engelbrecht 2003:5). Comprehensive low vision services cannot really be offered by a single service provider. It is more often a team approach which requires the skills of appropriately trained ophthalmologists, optometrists, ophthalmic nurses and rehabilitation workers. (Truitt & Suvak 2001:23-30).

2.5 Curriculum adaptations for Pupils with Low Vision in Regular Schools

The learning that occurs in regular schools relies on vision, putting students who are visually impaired at a disadvantage (Martin & Barth 2013). 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 visually impaired child (Palmer, 2005).

The American Foundation for the Blind (2005a) and Richard, Hove and Afolabi, 2008) stated that students who are visually impaired may require individual instruction in order to understand what is expected of them. Visually impaired

students 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 (2005) further stated that "students with vision impairment benefit from doing tasks on their own via "learning by doing" (p. 351). 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 notes that students with vision impairment may also perform "kinesthetic re-enactments" (p. 352), by placing their hands over the teachers, 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). According to Bishop (1996), 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 (Bishop, 1996; Pagliano, 2005; Palmer, 2005a).

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. 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).

Reading stands allow 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).

Electronic technological devices are excellent tools students can use to gain access to the core curriculum. Using other assistive technology, such as speech synthesis and braille translation software, give students with vision impairment a myriad of opportunities, such as using a word processor and assessing the internet, to access prescribed learning outcomes (Rex, Wormsley, & DP, 1994). Assistive technology, in all its forms, allows students with vision impairment to achieve the same learning outcomes expected of their sighted peers (Glodowski, 2006).

For students with visual impairment to complete assigned work and meet learning objectives, assignments and textbooks need to be adapted into an appropriate format. Pagliano (2005) stated that expecting these young people to transcribe work from an overhead or a blackboard will result in visual fatigue. Depending upon the degree of their visual impairment, students must be given copies of their work in appropriate formats, such as braille or large print. If hard copies are not available, work on the blackboard and any other visual presentation must always be read aloud (Windows, 2005). Assignments and textbooks in the appropriate format enable students with vision impairment to achieve learning goals (Richards, Hove & Afolabi, 2008).

It is also necessary to consider the classroom environment of students with visual impairment to help with successfully achieving positive learning outcomes (Allan, 2002). 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, 1996).

Bishop & Rhind (2011) noted that ensuring social inclusion demands commitment from the entire school community. Evidence shows that students who are visually impaired do not develop social competence via observation and the ability to read non-verbal cues. In order for these students to meet social learning outcomes,

training is vital (Celeste, 2007). Positive social skill training is critical to the development of social competence. Social interaction skills, such as establishing and maintaining relationships, regulating emotions and understanding emotional cues need to be directly taught (Celeste, 2007). Students with vision impairment need instruction in understanding other people's behaviour, comprehending their own behaviour, problem solving and conflict resolution (Palmer, 1998).

Educating sighted peers about the effects of visual impairment can help them understand the differences and obstacles that students with visual impairment face, which can assist in promoting inclusion (Bishop, 1997; MacCuspie, 1996; Pagliano, 1998). Feedback, from both teachers and sighted students, regarding unsuitable behaviour is necessary for students with visual impairment to evaluate their inappropriate behaviour and thus amend their actions (Peavey & Leff, 2002). Students who are visually impaired also need to understand the concept of personal space, so as not to make others feel uneasy in their presence. Ongoing intervention is required to ensure that appropriate behaviours are continually reinforced in order to enhance their performances (Celeste, 2007).

According to Corn and Erin (2010) modifications for children with visual impairment should include learning strategies and instructional materials and equipment in order to enable children access information readily. Generally, teaching and learning materials for children with visual impairment must have some distinguishable characteristics which contain accurate information and must be appropriate to the lesson and the age of the children involved (Ocloo, 2011). Using adequate teaching or instructional materials as play materials help the child with visual impairment to develop good muscle tone, manipulative skills and increase the child's attention span. Ocloo stipulated that, children with visual impairment who do

not access useful instructional materials tend to develop emotional problems, have problems with social adjustment and self-expression. Thus interaction with teaching or instructional materials builds a store of knowledge of information and develops the curiosity to learn.

Research outcome indicates that, support services and adaptations for pupils with visual impairment in regular schools are of necessity and help to meet the learning needs of students who are visually impaired (Owusu-Amoako, 2015). Many factors are required for successful support and adaptation, yet many barriers exist that often prevent a positive support and adaptation for pupils with visual impairment.

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 & Afoladi, 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).

Leonard Cheshire Disability (2011) stated some of the strategies for handling learners with visual impairment in the classroom. The strategies include:

- 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.
- Reading aloud what is written on the chalkboard
- 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.

- Learners may have difficulties seeing the lines on writing papers. They can be given papers with thicker lines drawn on it.
- 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
- 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.
- Children with poor vision need to learn through touch as well as through hearing. They should be given a chance to handle objects.
- 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.
- Using verbal praise or touch to give the children encouragement
- Using the name of the pupil's or students during class discussions so that the individual knows who is talking.
- 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.
- When teaching mathematics, the teacher should make use of abacus, tactile geometrical shapes, talking calculator and Braille ruler.
- Lessons can be taped using a cassette recorder for later playback at home or as revision.

2.6 Curriculum adaptations for individuals with visual impairment.

Generally, students with low vision are able to learn using their visual sense; however, they may need to have print magnified, contrast enhanced, or type font or size changed (Turnbull et al., 2002). Students in this category characteristically work more slowly and experience difficulty working with details. Research has revealed that students with low vision have the same range of intellectual ability as other students they typically have had fewer opportunities to acquire information usually learn visually (Pogrund & Fazzi, 2002). For example, students generally learn maps by looking at them. Although students who are visually impaired can learn by feeling a raised map, this method is not as efficient as seeing it. 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/learning processes (Sacks & Silberman, 2000). Students with visual impairment vary in their social and emotional development. Some students encounter little difficulties making friends, interacting appropriately with peers and adults, and developing a positive self-concept. Other students need support in these areas (Sacks & Silberman, 2000). 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).

2.7 Educational Provision for Individuals with Visual Impairments in the Inclusive Classroom.

There are sensitive educational gadgets and services that are needed by the students who are visually impaired for successful inclusion. These range from equipment's/facilities to educational arrangement and provision of services which include:

- Orientation and mobility
- Portable note taker
- Larger format books
- Slate and stylus
- Magnifying glasses
- Specialised computer software
- Electronic Braille writer
- Perkins Brailler (Nsagha, 2012)

Classroom instruction for the visually impaired 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 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 specious enough, well arranged and furniture placed for proper learning opportunities for the visually impaired (UNESCO, 2001; Mawutor & Selete, 2004).

Teaching learning process would need to be modified to accommodate students with visual impairment. For visual clarity, you might need to use a whiteboard with a black

felt tipped marker instead of a traditional chalkboard, or provide the student with paper that has heavy black line instead of traditional light blue ones.

2.8 Summary of the literature review

The literature review has pointed out a number of issues on pupils with low vision, instructional materials available for learners with low vision, personnel supports available for learners with low vision and the adaptation of pupils with low vision in the regular school. 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 meaningfully with their peers in regular schools. In achieving this, the review proposes that there is the need to provide support services and adaptations for pupils with low vision in the regular schools. There was no empirical study that highlighted the support services available for pupils with low vision in the regular schools at the Mpohor District and therefore left a gap.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section explains the methods used to obtain information for the study. These include; research design, population, sample, sampling technique(s), instruments, procedure for data correction, trustworthiness and credibility and data analysis.

3.1 Research Approach

The study adopted a qualitative research approach to investigate the support services available for learners with low vision in the selected schools in the Mpohor District. 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. Levitt, Bamberg, Creswell, Frost, Josselson and Suárez-Orozco, (2018) explained that a 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.

Qualitative research focuses on subjective information, such as feelings, experiences or opinions - data that cannot be scientifically quantified. Avoke (2005) stipulated that realistic researchers believe that gaining knowledge from sources that have "intimate familiarity" with an issue is far better than the objective distancing approach that characterizes quantitative approaches.

3.2 Research Design

Descriptive case study research design of qualitative methodology was adopted for the study which sought to investigate the support services available for learners with low vision in the selected schools in the Mpohor District. 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. 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 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 support services available for pupils with low vision in the Mpohor district as a basis for making generalizations.

3.3 Population

The target population for the study consisted of fifty (50) teachers, comprising thirty-five (35) males and fifteen (15) females from five selected schools in Mpohor District in the western region of Ghana.

Table 1: Population of the study.

School	Population	Male	Female
Ebenezer Meth. Sch.	9	7	2
Edaa Basic Sch.	10	5	4
Ghana- China Sch.	11	7	4
St. Gabriel Ang. Basic Sch.	12	11	2
Nopp. Jhs	8	5	3
Total	**50**	**35**	**15**

Source: Field Data, 2019

3.4 Sample size

The sample for the study was twenty (20) teachers. Twelve (12) male teachers five (5) of them were head teachers and eight (8) females teachers. This sample was considered appropriate because it rendered services directly to the pupils with low vision in their schools and could therefore provide relevant information on the support services available for pupils with low vision.

Table 2: Sample Size of the study

School	Sample size	Head teachers	Teachers
Ebenezer Meth. Sch.	4	1	3
Edaa Basic Sch.	4	1	4
Ghana- China Sch.	4	1	3
St. Gabriel Ang. Basic Sch.	4	1	2
Nopp. Jhs	4	1	3
Total	**20**	**5**	**15**

Source: Field Data, 2019

3.5 Sampling Techniques

Purposive sampling technique was used to select the regular school teachers and head teachers. The choice of this technique was influenced by the fact that the teachers were providing direct support to students with low vision in the regular schools at Mpohor District. According to Maxwell (2008), in purposive sampling, particular settings, person or event are deliberately selected for the important information they can provide that cannot be obtained elsewhere. 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.

3.6 Instrumentation

The instruments used for data collection were semi-structured interview and observation.

Interview

A semi-structured interview guide was developed to collect data from teachers and headmasters involved in the study. This was so because there was the need to get different perspectives about the support services available for learners with low vision in the selected schools in the Mpohor District. The researcher chose focus group interviews because it encourages 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 five focus groups; each group consisted of six teachers.

These teachers at the various selected schools were interviewed on the key themes such as instructional materials that are available for learners with low vision, type of personnel available for supporting learners with low vision, and the adaptations for pupils with visual impairments in regular schools. In the interviews, the researcher included probes and prompts to aid further exploration of his own line of questioning. The probes and prompts helped to explore and develop views of respondents and to prevent respondents from going off the main line of questioning (Rodgers, 1999). Digital camera was used to record the proceedings of the interview. The interview took place during the respondents' free time. Under each of the interview guide there were questions under each of the themes with probes to help obtain vital information from the respondents.

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 &Wallen (2003) further stated that qualitative research is designed to investigate the quality of relationships, activities, situations, or materials.

Observation

The researcher utilized observation to record what was observed during data collection. Observation was used to complement the interview. The researcher, using an observation carried out direct observation of head teachers and class teachers on support services available for pupils with low vision in inclusive education classrooms at the Mpohor District. Observation provide additional source of data for verifying the information obtained by other data collection methods (Cohen, Manion, & Morison, 2003). The choice for this instrument was that, there were no predetermined responses and the interviewer was free to further probe and explores emerging information from respondents (William, 2006).

3.7 Trustworthiness and Credibility

Qualitative research requires checks and balances to ensure that the standards of scientific inquiry are met. Rather than validity and reliability, qualitative research often uses trustworthiness and credibility (Creswell & Miller, 2000). Trustworthiness results from the rigor used in systematically collecting and analyzing data for the purpose of describing or explaining phenomena as accurately and completely as possible (Patton, 2002). Credibility refers to the confidence one has in the truth of the findings (Pandey & Patnaik, 2014).). Authenticity, on the other hand, turns the mirror upon the researcher to provide reflexive opportunities to disclose personal perspectives and biases. Additional criteria, also referenced by Patton (2002), support the strength and believability of qualitative research, including transferability (the ability of other researchers to apply the findings to their own work), dependability (the stability of findings over time), and conformability (the internal coherence of data in relation to findings and interpretations). Hays & Singh, (2011) indicated that participants' in-depth interviews need to be conducted in natural settings to reflect the reality of life experiences more accurately than do laboratory settings. Responses were recorded directly from participants at the class room in the Mpohor District to ensure the trustworthiness and credibility of the findings.

3.8 Data Collection Procedure

The researcher sought permission from heads of the various schools, whose teachers and students participated in the study, with an introductory letter from the Department of Special Education. Primary data were collected by the researcher himself, with the assistance of two colleague 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. The researcher scheduled the

appropriate appointments with the school administration authorities with regard to school schedules.

The most appropriate times were fixed to administer research questions through interviews and observations with the sampled respondents beginning with the head teachers and teachers. A focused group interview was conducted to elicit responses from the respondents. 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 four groups; each group consisted of five respondents. The interview took place in the classroom. During the interview, proceedings were recorded through the use of video recording and note taking. Equal opportunity was given to each group to respond to the same questions. Each interview section lasted for 35 minutes.

Again detailed observation was conducted through observation of support services available for pupils with low vision in inclusive education classrooms at the Mpohor District. When interacting with head teachers and class teachers, the researcher acted as non-participant observer by not taking part in the classroom as learning went on. The researcher took part as a non-participant observer with a small note book to record (the observation) information from respondents on support services available for pupils with low vision. The researcher included findings and interpretations in the recordings from the observation to help in data analyses

3.9 Ethical Considerations

To ensure that participants' health, safety, respect, and fidelity were upheld, the researcher did not ask participant to mention names that reveals personal information. The following considerations were made to promote and protect the rights and interests of participants at the different stage of the study. As a procedure to

gain access to the school, an introductory letter was sought from the Department of Special Education, University of Education, Winneba.

The researcher told the participants of their right to participate voluntarily or withdraw from the study at any stage if they deemed it appropriate to do so. To try to make participants informed before signing the letters of informed consent, the purpose of the study, the risk and benefit of the study were explained to them. Participants were also verbally assured that there would be confidentiality in the handling of any data or information obtained from them.

3.10 Data Analysis

After the fieldwork, the data collected from observation checklist and interview guide were organized according to selected pertinent aspects of the study. Qualitative data were analyzed according to the themes of the study. Thus data for the study was analyzed based on each theme drawn from the research question posed. Verbatim expressions of respondents were included. All responses collected from respondents were coded with the emerging themes from the translation and transcription of the data collected.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter presents the results and discussions of findings from the study. The analysis reflected on the themes that emerged from the interview data collected on the themes of the research questions.

4.1 Research Question 1: What instructional materials are available for learners with low vision?

To answer this research question, the data collected during focus group interviews were used. Four themes that emerged from the data were: availability of recorders among pupils with low vision, accessibility of reading stands among pupils with low vision, and availability of notice board for pupils with low vision, and accessibility of fund TLMs preparation.

Availability of recorders for students with low vision

Base on the availability of recorders in the various schools selected. The following responses were made by the teachers:

One teacher stated:

> *No we don't have at all after all I have not seen recorder for low vision individuals before* (Verbatim expression by a teacher).

Another teacher commented:

> *No we don't have one here.* (Verbatim expression by a teacher)

Another teacher added;

> *No we don't have one here.* (Verbatim expression by a teacher)

One teacher said:

> *I have heard of recorders in training colleges but I have not seen some before.* (Verbatim expression by a teacher)

One teacher added:

> *I haven't seen some before.* (Verbatim expression by a teacher)

Another teacher added;

> *Me too, I have not seen some before.* (Verbatim expression by a teacher)

It was noted that there were no recorders available for pupils with low vision in the various schools selected for this study. From the comments of the teachers, pupils with low vision have never seen a recorder before. The majority of the teachers have very little knowledge on recorders which could have negative effects on the academic performance of students with low vision.

Accessibility of reading stands for pupils with low vision

This theme elicited data on accessibility of reading stands for pupils with low vision. The teachers in groups outlined the views on whether pupils with low vision have access to reading strands.

One teacher noted:

> *No I don't know what reading stands are.*(Verbatim expression by a teacher)

Another teacher added;

> *When we talk of reading stands, they are normally made of metal or wood normally books are placed on it so that reading can be easy so that the person will not hold the book before reading that is what I know about reading stands.* (Verbatim expression by a teacher)

Another teacher explained;

> *No we don't have. It's somehow very stressful because sometimes you may be teaching and a child with low vision will come forward claiming he or she can't see from the back. It destructs the class a lot* (Verbatim expression by a teacher)

One teacher explained;

> *When we talk of reading stands, though we don't have in this school but in churches and other places, it's made of wood or metal where books are placed on it so that it can be read without holding the book. That's what I know about reading stands which we have none here* (Verbatim expression by a teacher)

Availability of TLMs, notice board among pupils with low vision

Base on the availability of TLMs, notice board for students with low vision, below were the responses elicited from the teachers.

Three teachers affirmed:

> *We have no TLM for them*. (Verbatim expression by teachers)

A teacher said;

> *As in teaching and learning materials (TLMs) when we use pictures with large shapes it enables the pupils to see faster.* (Verbatim expression by a teacher)

Another teacher also came in and said that:

> *Yes that's what we do here for students with low vision, when using TLMs too we write boldly in different colors that can be easily seen.* (Verbatim expression by a teacher)

Another teacher replied:

> *Yes we have one*. (Verbatim expression by a teacher)

Another teacher expressed;

> *Yes we have a notice board (pointing to a blackboard nearby).* (Verbatim expression by a teacher)

Availability of writing and reading guides for pupils with low vision

A teacher responded that:

> *It's difficult for them also to use text books so we just draw on the cardboard and paste for them to see*. (Verbatim expression by a teacher)

Another teacher replied:

> *What we just do is that at times we allow them to take the front seats, at times too we write boldly on the board for them we also read widely for them to write on their own.* (Verbatim expression by teacher)

Availability of funds to purchase Teaching and Learning Materials (TLM)

A teacher commented that:

> *For the money, we don't know the amount and we don't know how and what goes into it. What we know is that the headmaster provides the materials we need.* (Verbatim expression by teacher)

Another teacher added;

> *For us the teachers we just tell the headmaster what we need and he will provide it for us but we are not given physical cash to go and purchase the items ourselves.* (Verbatim expression by teacher)

Other two teachers commented;

> *As for the money, it is not really sufficient.* (Verbatim expression by teacher)

Another added:

> *We go for the cardboard from the headmaster then we do the* Teaching and Learning Materials (TLM) *ourselves. So grants are provided from the headmaster.* (Verbatim expression by teacher)

Another teacher said:

> *We pay for the drawing; we pay people to do the drawing.* (Verbatim expression by a teacher)

One teacher replied:

> *No we weren't given any grant for Teaching and Learning Materials (TLM) preparation so sometimes we teach without Teaching and Learning Materials (TLM)* (Verbatim expression by teacher).

It was also noted during observation by the researcher that the instructional materials were not sufficient to meet the learning needs of pupils with low vision. The few ones available were not in use which made it difficult for students with low vision follow lesson delivery.

4.2 Research Question 2. What types of personnel are available for supporting learners with low vision?

To answer this research question the data collected during focus group interview were used. Three themes that emerged from the data were: accessibility of classroom environment to pupils with low vision. Individual support services for pupils with low vision and the indirect services used by regular class teachers to support pupils with low vision.

Accessibility of the classroom environment to pupils with low vision

A teacher explained;

> *We give students with low vision a permanent front seat and also when we are doing our* Teaching and Learning Materials (TLM)*, we make sure that the motives or the shapes are large enough so that the pupils with low vision can identify clearly and easily.* (Verbatim expression by a teacher).

Another teacher added:

> *For me I teach ICT in the case when practical is going on, I try to enlarge the size of documents and applications on the monitor screen so that those at the back can see clearly from behind.* (Verbatim expression by a teacher).

Another teacher said;

> *After writing notes, we call them to check what they've written and correct their mistakes by calling them one on one and let them know what they have written.* (Verbatim expression by a teacher).

A teacher answered;

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

Another teacher added;

> *For my class, it's very small and not spacious neither the reflection of light is clear. The classroom is always dark that student with low vision have to move to the board to strain their eye before going to write back in their books which doesn't help them at all.* (Verbatim expression by a teacher).

Another teacher added;

> *When it comes to the sitting arrangements, since the majority are not pupil with low vision the arrangement is normal, some of them when they are coming from outside they pass through the furniture. Some of them have practiced and got used to it.* (Verbatim expression by a teacher).

Two teachers explained:

> *For the classrooms furniture arrangement, it is arranged to suit those with clear eye sight. Those with low vision mostly kick against the desks because one are too packed in the inside of the classroom so thinking he or she is passing her way out, there will be desk which will block him or her and let that child fall later he or she will end hurting him or herself. The furniture arrangement in the classroom are not positioned so well to fit those with low vision and it's not the doing of the teacher, well there is a teacher and you have to see to the sitting arrangements of the class, the class itself is too small; it's not spacious so how best can you arrange the seats. And how we always see that he is not the only child in the class, there are other children also in the class paying*

attention to that individual or two. We really do consider that, we consider the majority. (Verbatim expression by teachers).

Individualized support services for pupils with low vision

One teacher answered:

It's on and off because at times do, at times too we don't. it's because of the way our time table is structured, one can't leave class during lessons to help a student with low vision so what we do is during break time we call them one on one and spend about five to ten minutes what you think can help the child. (Verbatim expression by a teacher).

Another teacher responded:

We don't do it as often as it should be because sometimes we run out of time with busy schedules due to the way our time table is structured so we at times help them after school which we need to first seek the permission from their parents. The children too are not ready to learn because when you call them they will not even come so we just don't do it often. (Verbatim expression by a teacher).

A teacher responded;

Yes, here our output counts. Yes one has to give and mark exercises then after that go to the various classes to teach and other teachers too will have their lessons after yours so we don't have enough time to make teaching effective for low vision students here. (Verbatim expression by a teacher).

One teacher added;

The time table has been structured period by period so in this case one has to leave class immediately as soon as the next teacher is in. (Verbatim expression by a teacher).

One teacher explained:

The only service we get is the Special Need Coordinator from the office who comes to us and maybe ask some questions but apart from that there has not been any service given to us. We haven't even had any training or workshop on how to handle these children, after the training we had in Training College that's all. (Verbatim expression by a teacher).

Another teacher contributed:

> *I have had the opportunity to receive training from one of the special education coordinators who comes round to talk to us about how to handle and teach the special children like visual impaired and hearing impaired. That's the service I have received so far*. (Verbatim expression by a teacher).

Two teachers commented;

> *Apart from the one we had in college we've not had any orientation on this again.* (Verbatim expression by teachers).

It was also obvious during the observation that experienced teachers were not available to assist pupils with low vision in the selected schools.

4.3 Research Question 3: What are the adaptations for pupils with low vision in regular schools?

To answer this research question, the interview data collected were used. The themes identified from interactions with the focus groups regarding the kind of curriculum adaptation were: inclusion of instructional adaptation, relationship of teaching and the experiences of people with low vision and the use of computer with adopted software packages.

Inclusion of instructional adaptation for pupils with low vision

A teacher said;

> *The issue is that the instructional adaptation itself we don't know what it is so we don't do that in our school, we don't also know how it will conducted also, the effect it will bring or the effect that have to be used in additional instruction. And since we don't do it, we don't know what it is. We teach the curriculum as it is on the time table, we teach the whole class so we don't consider those with low vision, we teach them all together. We don't even know how to adopt it, the timetable is rigid, there is no flexibility on the time table that you can say that I have to adopt, no, we can't do it, we don't know how to it.* (Verbatim expression by a teacher).

Another teacher added;

> *We also don't do it because the timetable as she has already said is not in our favor to do it, the time given and assigned for each subject is minimum, it's very limited and that you can't say you are teaching this and teaching that so there is no adaption, we don't adopt to any other curriculum.*
> *We just use the normal curricular whether they get it or not we are done. They just pass through without any adjustment.* (Verbatim expression by a teacher).

Another teacher said:

> *The issue is also that we are not many, a class can contain three or two disabled students, so we don't see the reason why that particular students should be given any special time.* (Verbatim expression by a teacher).

A second teacher said;

> *So as my colleague teacher said since they are not many in the class, little attention is given to such people and that is not helping people of low vision. The inclusive system of the other people as those with clear vision try to learn effectively but they don't get that opportunity.* (Verbatim expression by a teacher).

The first teacher said:

> *The time allocation is limited, maybe a period is about thirty minutes and the time a child with an eye problem will use to identify and pronounce a word will take about quarter 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 for them to even correct their mistakes, due to this we can't also access them effectively on their academic progress.* (Verbatim expression by a teacher).

Another teacher commented;

> *There are some students they are like that and they are also not serious because they feel they can't compete with those without impairment in class. They just sit down and listen during general lessons and when you give them ample time to do work some take the opportunity to run away. We had one child like that whom we*

> *give extra time to teach him then suddenly he started running away when we call him because he was not ready and those who were ready to avail themselves too don't do anything profitable so we just leave them and move on like that.* (Verbatim expression by a teacher).

Two teachers commented;

> *It's an issue here* (Verbatim expression by a teacher).

Another teacher remarked;

> *I also had one in my class and such had no zeal to learn due to his problem so I just ignore him without giving him any concentration. All that the other teachers also say is that 'that is how this child is', 'let the rest do the right thing then we mark them', so we leave that child to do whatever he wants whiles others are learning.* (Verbatim expression by a teacher).

One teacher added;

> *Because we don't know the instructional adaptation, we don't also know how to adapt to suite them so it is a problem for us too.* (Verbatim expression by a teacher).

Relationship of teaching and the experiences of people with low vision.

Four teachers answered that;

> *Most a times we do it generally so we don't consider their experience when we are revising their applicants. As for those with disability, sometimes we look over especially with lesson notes and all that, we just do it generally like the general students. We don't allocate any time for them to also have the experience in the teaching and have flexible learning*. (Verbatim expression by teachers).

Another teacher explained;

> *Sometimes we do consider them but time wouldn't permit you to do that like a child in my class, he has this problem. If we are to teach from the known to the unknown. It means already the child has something in him or her that have to be built on but here is the case if I should write, it's going to be a problem meaning I would have to say it, read it, and bring it out verbally for the child the child to hear to also come out to answer verbally but here is the case, the rest can hear me clearly, when I write they can also read*

what is written. And I can't be writing at the same time go to that individual without vision because he or she can't see from the blackboard meaning whatever I write, I have to repeat again, repeat it to his or her hearing and you know children. Teaching children is not easy, it could be that when you are writing you can reading but the child won't pay any attention, the child will be playing or doing his own thing which you won't even have time on that child. I just ask the whole class to read and since most of the pupils can read, we move on with our lessons whether the child was able to read or not. And after all the class size is big some about fifty. (Verbatim expression by a teacher).

The use of computer with adopted software packages

One teacher responded;

The usage of computers is a very good thing that if it is done in the school it will help but unfortunately there is lack of computers here, and even if these computers were to come, the software that will suit learners these pupils will not be on it so I don't see the essence it will enhance in academic performance of the pupils with low vision. At first we didn't even have electricity to use computers, the electricity came about year ago. (Verbatim expression by a teacher).

Another teacher added;

At that time too the computers were in but there was no electricity to use them, we had to use generators which each day we needed to fuel it which cost a lot of money. We only use them once in a blue moon. The software was also not available in the computers so we just teach as usual for the benefit of the majority of students. (Verbatim expression by a teacher).

Another teacher proposed:

This place doesn't allow us to also tax these children to pay this amount or that so supposing we were using generators, we can't afford enough money to buy fuel for use so in this case there is nothing we can do but to leave it. (Verbatim expression by a teacher in Group).

Two teachers concluded;

It is a very serious problem. (Verbatim expression by teachers).

It was noted during observation that there weren't enough curriculum adaptations for pupils with low vision in the selected regular schools.

CHAPTER FIVE

DISCUSSION OF FINDINGS

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 that were raised to guide the study.

5.1 Research Question One: What instructional materials are available for learners with low vision at Mpohor District?

Research question one focused on the instructional materials are available for learners with low vision. The results revealed that majority of the schools did not have instructional materials for pupils with low vision. The respondents indicated that there were no recorders for pupils with low vision the schools. The finding were supported by Salisbury (2008) who stated that students with visual impairments rely mainly on verbal information for their learning; audio devices should be incorporated to aid the teaching process. 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). Spungin (2002) added that a videotape for example has to be shown, it is wise 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 watch it. For a film with sub titles, a classmate or teacher can read aloud to the class to help those with visual impairment. 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, CCTVs, felt-pens, visually impaired specialists among others.

Again the results of the study revealed that the few instructional materials that were available in the schools were outmoded and some also needed major repairs. (Heward, 2000) who found out that any visual materials used in classrooms need to be adapted for use by students who do not have the visual skills required for the task. Charts, models, maps, and graphs will have greater educational value for students with visual impairment if they can be "read" using the sense of touch. Teachers must be aware, that students with visual impairments have deficits in conceptual experiences and understanding due to absence of visual ability. Therefore adaptations of teaching materials becomes paramount, if they have to learn all the things other students without visual impairments learn in the class. To help achieve this, students should be taught physically using concrete experiences (Bishop, 1996; 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).

The findings on the availability of TLMs which include writing, reading guides, and notice board for pupils with low vision revealed that there were insufficient teaching learning materials available in the selected school. This finding was supported by Bishop (1997); Mastropieri and Scruggs, 2010) who stated that, the availability of TLMs, notice board for pupils with low vision are insufficient in

regular schools. In order to support students with vision loss, instructional materials 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. Ocloo (2011) suggested that teaching with instructional materials is critical in learning because the materials help learners to see, hear and handle what they learn. Instructional materials help to improve communication and make the teacher's work easier. Ocloo further added 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 will be very useful to many children with visual impairment. Working papers and books with enlarged print will ease the task of reading for most children with low vision.

Reading stands allow 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, 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).

Best (1992) and Keeefe (1995) suggested that teachers can use materials to support pupils with low vision through the following ways:

> 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 will enable the child to copy from close range instead. Secondly, a teacher can make simplified drawing for the child with low vision from a 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.

The Task Force on Special Needs Education (2006) noted that learners with special needs including those 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 a strong felt pens which will assist them effectively. Randiki (2005) advised that those local artisans should be incorporated so that they are able to make and repair some of these devices. Natalie Baraga (1973) found 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. Natalie Baraga (1973) further explained that pupils with 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.

It was revealed during observation that the instructional materials were not sufficient to meet the learning needs of pupils with low vision. 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 will be very useful to many children with visual impairments.

The findings of current the study also revealed that magnifiers of all shapes and sizes and other useful devices were not available in selected schools and thus created reading problems students with low vision. Optical devices play a key role in enhancing vision and reducing visual disability in pupils with low vision. They include standard prescription spectacles optical low vision devices for distant vision and optical low vision devices for near vision. Aduwa-Ogiogbaen and Imogie (2005) asserted that materials and resources including, opaque projectors, still pictures, maps, charts, graphs and many more are not available in schools. Incorporating these tools and materials present, support and reinforces teaching. Office of Special Education Programme (2000) noted that pupils with low vision are often able to rely on large print materials for the assistance.

5.2 Research question 2: What types of personnel are available for supporting learners with low vision at Mpohor District?

Research question two found out the type of personnel that are available for supporting pupils with low vision. The finding of the study revealed that students with low vision were given permanent seat in front of the classroom. Lewis and Doorlag (1995) argued that these support services are offered to pupils and students with disabilities to supplement special education programmes. These include psychological services, counselling services, physical and occupational therapy as well as recreation and diagnostic medical services. The researcher added that the support services offered to a student with disability 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.

Kumsa (2006) who found out that the environment can be made accessible for the individual with low vision in three ways, by increasing the size of the material itself, by bringing the image on the material closest to the eye and by using a device or protection to magnify the size of the material. Special materials and equipment can enhance the education of learners with visual impairment. Special Education Department (2007) added that another support service given to pupils with low vision in the regular classroom is the itinerant or resource teacher services. This service aims at placing and supporting visually impaired individuals in regular classrooms to enable them achieve the best in learning. Resource teachers are specialists who are trained and attached to the district education offices and they go from school to school to identify, assess children and plan management programmes for regular teachers to enable them support pupils with low vision in their teaching and learning. Baine (2001) pointed out that these specialists are consultants who travel from school to school to assist teachers in methods of assessment, instructions, materials preparation and equipment building.

Allan (2002) added that it is necessary to consider the classroom environment of students with visual impairment to help with successfully achieving positive learning outcomes. Students with visual impairment 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).

On the individualized support services for pupils with low vision the results of the study revealed that the Special Need Coordinator from the office and few parents sometimes come round to assist them. This finding is in line with Gearheart and

Weishahn (1980) who found that the bulk of the teachings are done by the regular classroom teachers while the exercises of the visually impaired are transcribed by the resource teacher for the regular teacher to mark. In another area of support, specialist teachers also help the students identify landmarks to help them orient themselves to their environment. Gearheart and Weishahn further argued that during the itinerant support service programme, the regular classroom teachers retain primary responsibility but special education personnel provide supportive or supplemental assistance to both the student and his teacher or teachers. Under this plan, the child with visual impairment lives at home and attends classes in the local public school with other neighbourhood sighted peers and most of the school curriculum is taught by the regular classroom teachers while the itinerant teacher for children with low vision provides special education modifications required by each child (Tuttle, 1986).

The resource teachers provide in-service training for the other teachers on how to manage the visually impaired child in learning. The techniques and methods of teaching some subjects are demonstrated for regular classroom teacher to adopt. In the community, the resource teachers target the schools, the clinics as well as going to homes to educate students and parents on disability issues. The provision of these services in most cases help pupils with low vision to adjust in the general education and they benefit from their education (Okyere & Adam, 2003).

Ocloo (2011) found out that the integration of children with low vision in Ghana uses the itinerant teaching approach in the basic school system in only six districts out of the 170 Metropolitan, Municipal and District Assemblies. The itinerant support service is one of the service delivery and placement alternatives for children who are handicapped. It is an educational support service provided by itinerant

teachers for children who are handicapped but receiving their education in the regular classroom.

The itinerant teacher programme for the visually impaired 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. Cruishank (1967) defined itinerant support services as a programme in which the children who are handicapped remain in their regular classroom and are given special assistance through the visiting special teacher who advises and assists the classroom teacher and often work with the child in a more or less tutorial capacity. Again, Ocloo (2003) argued that it is necessary for the teacher to provide experiences to develop and enrich language by providing and promoting the understanding of basic concepts leading to the acquisition of both receptive and expressive language. It is however, the duty of the peripatetic teacher or consultant teacher or the itinerant teacher to determine with the regular teacher, the appropriate means or methods of reading instruction in either print or braille or using audio reading. For students with vision impairment to be successfully included in regular schools and make them socially accepted, positive social interaction with their sighted peers is essential.

Education is viewed as a shared responsibility of the home and the school. The researcher suggested 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. To develop a high quality visual learning environment, each school's community members, teachers, support staff, parents and learners with disability must work together in a consistent, coordinated and

corporative manner. Kumsa (2006) stated that it is the responsibility of the whole school/community to act as a unified team to minimize visual ability problems and to maximize child participation. Studies conducted by Sharma and Furlonger (2010:295) have found that within the field of mentoring collaboration with colleagues and administrative support can increase new general education teacher commitment.

Earleharma, Sharma and Loreman (2009) have found that a growing number of family support specialists and urban educators are moving away from the terminology of "parent involvement". This is because in reality, many parents and families still feel isolated and are not getting enough support through care, education and training for their disabled children. Persons with disabilities are still side-lined in mainstreaming decision making in most societies. Quality education is fostered by collaboration between educators and families. Coordination of all team members, including family members, helps to assure a shared focus on learners' success. An appropriate service provision should be a collaborative process involving the child, the parent and relevant service providers from the Departments of Education, Health, and Community Services. Human Resources and Employment, Justice and other relevant agencies should also play a big role. Hamzeh (2008) agreed that preparing teachers for regular class teaching has undergone a major pedagogical shift in recent years. Training institutions are now required to ensure that pre-service teachers are competent to cater for the needs of an increasing range of diverse learners. The teachers of learners with visual impairment including those with low vision must be able to provide support and collaborate with family members and other members of the instructional team who work with learners. They must be able to convey professional opinions in a diplomatic, collaborative manner in order to ensure that appropriate programmes are recommended for the student with visual impairment.

The results of the finding were in support with UNESCO (1994) that an educational team is accountable for the education of students with special needs. Following this philosophy, a collaborative team, made up of classroom teachers, special support teachers, administrators, school psychologists, parents and students, must meet to outline the skill and ability levels of the students, the goals and objectives for their learning, the recommended support services and any required adaptations, strategies, specialized materials and assistive technology. Downing (2008) also argued that parent-teacher collaborative practices are not as comprehensive as they could be. Other professionals like psychologists and other therapists are used to their own offices and being consulted when there are problems. In inclusive education, the expectation is that all professionals will work together in a collaborative partnership where there are no hierarchies. Cooperation, then means that there has to be compromise from all partners so that they can work towards a common goal. Downing (2008) further found that, co-operation may, however, appear impossible, since others may feel superior to others and this collaboration will be about whose last word it will be. It will take some time getting used to working with one another. In schools, parents fear approaching their children's teachers and psychologists and therapists may be most feared both by parents and teachers alike, as they are considered to be far too well-educated than ordinary folk.

Spungin (2002) found that parents offer a big contribution to the education of their children, and are potential sources of information about the academic ability of students with visual impairments. Parents are familiar with their wards and know their educational needs, and can decide for their children. They will also provide 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 impairments in the class. Engelbrecht et al., (2004) agreed that parents are also given a major role to play. Instead of 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. It was found that 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 et al., 2007). Parents play important roles as mediators towards the school, by giving information and resolving problems when teachers/learners do not understand their child's needs (Lightfoot et al., 1999). 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.

Support services students with disabilities including students with visual impairment, receive in mainstream institutions include, note-taking, alternative test formats, extended time on texts, reading texts to students, adaptive technology, preferential classroom seating, alternate test locations, taped notes/text and providing tutorial support (Cowthon & Cole, 2010; DeLee, 2015; Kurth & Mellard, 2006). A comprehensive service for pupils with low vision cannot be offered by a single service provider. It is more often a team approach which requires the skills of appropriately trained ophthalmologists, optometrists, ophthalmic nurses and rehabilitation workers (Truitt & Suvak 2001).

It was also revealed that qualified personnel were not available to identify and assist pupils with low vision at the early stage in the selected schools. This finding is in line with Torreno (2010) who opines 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, has jerky eye movements, or has eyes that do not move together, teachers should see a pediatric ophthalmologist. Teachers' ability to identify pupils with visual or hearing impairments in the classroom also leads to the identification of their learning needs.

Again it was observed that resource teachers were not attached to the schools where pupils with low vision were being included to render direct services to both teachers and pupils with low vision. Hornby, Atkinson and Howard (1997) cited in Nel, Müller and Rheeders (2011) are of the opinion that this support includes a speech therapist, a psychologist, an occupational therapist as well as a remedial teacher who is prepared to provide the other teachers with in-service training. Kanaitsa (2010) noted that in-class support models undertaken by special educators have a number of advantages, including the transfer of skills to the classroom teacher, increased collaborative planning and greater opportunities for pupils to keep pace with classroom work.

It was also observed that there was no councilor in any of the schools. Counseling approaches to special needs children 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 counseling 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.

5.3 Research question 3: What are the adaptations for pupils with visual impairments in regular schools in the Mpohor District?

The analysis indicated that the inclusion of instructional support in instructional adaptation for pupils with low vision was very necessary in educating pupils with low vision in the regular school. 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 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 equipments), human resources and other related services needed for the wellbeing of the students within school milieu.

Mawutor and Selete (2004) added that the classroom instruction for the visually impaired 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 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 specious enough, well arranged and furniture placed for proper learning

opportunities for the visually impaired. Teaching learning process would need to be modified to accommodate students with visual impairment. For example, you might need to identify the text books you plan to use in class prior to the start of the school year so they can be ordered in Braille, large-print, or audiotape format. For visual clarity, you might need to use a whiteboard with a black felt tipped marker instead of a traditional chalkboard, or to provide the student with paper that has heavy black line instead of traditional light blue ones.

Turnbull et al., (2002) found that pupils with low vision generally are able to learn using their visual sense; however, they may need to have print magnified, contrast enhanced, or type font or size changed. Students in this category characteristically work more slowly and experience difficulty working with details.

It was obvious from the comments of the participants that the use of computer with adopted software packages was not common in the selected schools. The few schools that have computers did not have access to electricity. Again it was revealed that only one school had access to a well-furnished computer laboratory which was serving a lot of benefit to the entire school community. Wormsley and Baker (1994) found that electronic technological devices are excellent tools students can use to gain access to the core curriculum. Using other assistive technology, such as speech synthesis and braille translation software, give students with vision impairment a myriad of opportunities, such as using a word processor and assessing the internet, and to access prescribed learning outcomes. Assistive technology, in all its forms, allows students with vision impairment to achieve the same learning outcomes expected of their sighted peers (Glodowski, 2006).

Cooper and Nichols (2007) and Vik and Lassen (2010) added that students with visual impairment require specialized instruction in the use of computers with appropriate

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 the

potential to be the ‘‘great equalizer’’ for persons with visual impairments (Michaels & McDermott, 2003).

It was noted during observation that there were not enough curriculum adaptations for pupils with low vision in the selected regular schools. O'keeffe, McCarthy and Carter (2007) who noted that, teachers need to be equipped with skills in screening, identification and management of children who are blind and have low vision. O'keeffe et al., (2007) observed that teachers who go through the College of Education have some limited basic information of special needs in general. They do not have in-depth knowledge on the specific areas of disability such as low vision and consequently are not able to cater for all the children. The data analysis further revealed that adapting instructional materials to meet the needs of pupils with low vision burdened the work of regular teacher.

Furthermore, Fisher and Ryndak (2001) and Armstrong (2000) noted that adapting the curriculum involves differentiating instruction to provide learners with a variety of ways to process information and demonstrate what they have learned, in order to "match" the way in which each learner learns most effectively. This demands time and commitment in order to serve pupils with low vision effectively in inclusive settings. Teachers have to spend time and energy in addressing diversity in the teaching and learning situation.

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 Mpohor District of Ghana. The purpose of the study was to investigate the support services available for learners with low vision in the selected schools in the Mpohor District. Based on this, the study explored the following:

- The instructional materials available for learners with low vision.
- Personnel supports available for supporting learners with low vision
- Adaptations for pupils with visual impairments in regular schools.

The study adopted qualitative research approach with descriptive design. The population for the study was 50 teachers made up of 35 males and 15 females. Data were collected using semi-structured interview guide and observation technique. Purposive sampling technique was used to select the regular school teachers and head teachers. The choice of this technique was influenced by the fact that the teachers were providing direct support to students with low vision in the regular schools at Mpohor District. The data collected were analyzed qualitatively using thematic approach.. The following findings came to light:

The results revealed that majority of the schools did not have instructional materials for pupils with low vision. It was also revealed that the few instructional materials that were available in the schools were outmoded and some also needed

major repairs. The respondents indicated that there were no recorders for pupils with low vision in the schools. The findings from the study showed that magnifiers of all shapes and sizes and other useful devices were not available in schools and thus created reading problems among children and adults with low vision

It was also evident that pupils with low vision were given permanent seat in front of the classroom. Also it was found that TLMs were made large enough so that the pupils with low vision could identify clearly and easily. Writings on the chalk board were large enough to motivate pupils with low vision to read. On the Individualize support services for pupils with low vision. The results of a study revealed that the Special Need Coordinator from the office and few parents sometimes came round to assist them. It was also obvious during the observation that much qualified personnel were not available to assist pupils with low vision in the selected schools. Again it was observed that resource teachers were not attached to the schools where pupils with low vision were being included to render direct services to both teachers and pupils with low vision.

Lastly, on the adaptations for pupils with visual low vision in regular schools, the finding of the study revealed inclusion of instructional adaptation for pupils with low vision was very necessary in educating pupils with low vision in the regular school. It was obvious from the comments of the participants that the use of computer with adopted software packages was not common in the selected schools. The researcher added that technological developments during the last decades have significantly increased access to information in all formats with visual impairments including those with low vision. It was noted during observation that there weren't enough curriculum adaptations for pupils with low vision in the selected regular schools.

6.2 Conclusions

The present findings concluded that although few schools had access to services of resource teachers, majority of the schools lack such access hence teachers could not attend to persons with low vision in their classrooms. It was also necessary for the authorities to see to it that resource and teaching learning materials are supplied to the schools.

6.3 Recommendations

It is recommended that: The schools should provide enough of audio-visual aids to support pupils with low vision academically. Teachers should be encourage to use appropriate teaching methods that meet the unique needs of pupils with low vision. Mpohor District should provide schools with professionally trained teachers to support pupils with low vision in the classroom.

6.4 Suggestions for Further Research

1. Students views on support services provided by teachers in inclusive education schools.
2. Effectiveness of audio-visual aids in inclusive education schools in Ghana.

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APPENDIX A

INTRODUCTORY LETTER

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DEPARTMENT OF SPECIAL EDUCATION
P. O. Box 25, Winneba, Ghana
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March 13, 2019

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Dear Sir/Madam,

LETTER OF INTRODUCTION

I write to introduce to you Mr. Thomas Dugbatey Lawerh an M.Phil student of the Department of Special Education of the University of Education, Winneba, with registration number 8170150018.

He is currently working on his thesis on the topic: ***"Investigation into the support services available for learners with low vision in the selected schools in the Mpohor District".***

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

Thank you.

Yours faithfully,

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

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APPENDIX B

INTERVIEW GUIDE FOR TEACHERS

Availability of Instructional Materials

1. What are some the materials used in teaching pupils with low vision?

Prompts:

a. Are there available recorders in your school?

b. How are reading stands accessible for pupils with low vision?

c. What writing and reading guides are offered to pupils with low vision.

d. What optical devices are accessible for use by pupils with low vision?

e. How effective are pictures with large shapes use in teaching pupils with low vision.

Availability of Human Resource Supports

2. What human resource supports are available for pupils with low vision?

Prompts:

a. What do regular teachers do to support pupils with low vision to learn effectively in the classrooms?

b. How is individualized teaching practiced to help pupils with low vision?

c. What indirect services are giving to the regular class teacher in supporting pupils with low vision is practiced in my school.

d. Which teacher is attached to your school to help pupils with low vision to learn?

e. How do you collaborate with other teachers in teaching pupils with low vision? Environmental Adaptations

3. What changes are done within the school surroundings to support pupils with low vision?

Prompts:

a. How does buildings in the school support pupils with low vision?

b. What can you say about the furniture arrangement in the classrooms?

c. How effectively is the classroom environment designed to support free movement of pupils with low vision.

d. How does the layout of the school compound support the mobility of pupils with low vision?

e. How well does the school's playgrounds allow pupils with low vision to meet and play with the sighted ones

Curriculum/Instructional Adaptations

4. What changes are made in the curriculum to support pupils with low vision?

Prompts:

a. How effective are the use of additional instructional support included in the instructional adaptations?

b. How well teaching is related to the experiences of the pupils with low vision.

c. what can you say about the use of computers with adapted software packages to enhance success in the school curriculum for the pupils with low vision