UNIVERSITY OF EDUCATION, WINNEBA

ACADEMIC EXPERIENCES OF LEARNERS WITH LOW VISION AT AVAKPEDOME UNIT FOR THE BLIND

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DECLARATION

Student's Declaration

I, AGBAGBA SAVIOUR KODJO, hereby declare that this thesis is my own effort 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 in this University or elsewhere.

Signature……..…....…..……

Date…….……

Supervisor's Declaration

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

Name of Supervisor: DR. AWINI ADAM

Signature……..…....…..……

Date…….……

DEDICATION

I dedicate this thesis to my entire family.

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I am most appreciative for the efforts of all who in diverse ways contributed to a successful completion of my thesis particularly Dr. Adam Awini who supervised the work. I also appreciate the knowledge gained from the lecturers in the Department of Special Education and the Faculty of Educational Studies as a whole.

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ABSTRACT

The purpose of the study was to investigate the academic experiences of learners with low vision at Avakpedome Unit for the Blind. The purposive sampling technique was employed to select a sample of 6 learners. Interview was used to collect data for the study. The data collected was coded and analyzed qualitatively using the thematic approach. Per their experiences on the teaching methods used to teach them, learners with low vision indicated that the teaching methods were not varied and not appropriate enough to cater for their academic needs. It was also revealed that the curriculum did not take into consideration their special educational needs with reference to the curriculum as they felt they were compelled to use the curriculum of the learners without low vision. It was also revealed that the learners go through a lot of stress in their assessment. The researcher recommended that in-service training and workshops should be organized at regular and close intervals for teachers in the units and schools for the blind; teaching and learning resources for the learners with low vision should be provided. Also, the curriculum should be well adapted to suit the needs of the learners with low vision. Low vision aids should also be provided and opportunity should be given to learners with low vision to have their questions in large prints to improve academic performance.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Academic experiences for individuals with low vision globally can be traced as far back as the 17th century. According to Getzel (2008), academic experiences have to do with all that the learner goes through in the school system aimed at ensuring academic success. Learners with low vision go through a lot of experiences in their academic work all over the world in their quest to achieve academic excellence. Academic experiences are of grave concern as they require carefully planned academic activities to help learners with low vision to benefit from the academic environment fully. Education before now was not considered important for persons with visual impairment.

According to the American Foundation for the Blind (2013), in order to meet the unique needs, students with visual impairment 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 curriculum, to enable them to most effectively compete with their peers in school and ultimately in society. The education of the blind and individuals with visual impairment has a very interesting history. In Ghana, the blind were seen as liability in their families and their communities. This in effect meant that no provisions were made for their development. Most of these individuals were killed or overprotected, misdiagnosed and undereducated such that they led a life that was segregated and debased (Ocloo, 2011).

The case of learners with low vision at Avakpedome Unit for the Blind is not different. This setting has more learners with low vision than those with no residual vision. There is therefore the need to study into their experiences to identify what these learners go through so as to strategize to improve on their academic experiences in the school. These experiences are in relation to the curriculum adaptations, teaching methods, teaching and learning resources and assessment. International bodies and organizations such as UNESCO (1994) on the Salamanca statement which was supposed to ensure that every child of school going age attends school. In addition, many learners encounter hurdles while navigating their school experience: however, for those with disabilities, managing coursework with accommodations could present additional challenges.

Young people with visual impairment are not left behind in the protection of the rights to quality education of all persons with disability. Schools are expected to accommodate all learners regardless of their physical, intellectual, social, emotional, linguistic or other conditions (UNESCO, 1994, Framework for Action on Special Needs Education).The Salamanca Declaration of 1994 proposes that all persons with special needs including those with visual impairment have access to regular schools. According to the American Foundation for the Blind (2013), in order to meet the unique needs, learners with visual impairment must have specialized services, books and materials in appropriate media (including braille), as well as specialized equipment and technology to ensure equal access to the core and specialized curriculum, to enable them to most effectively compete with their peers without visual impairment in the school. In terms of the curriculum, the Avakpedome Unit for the Blind has followed the same curriculum in the mainstream public-school system with some modifications. In Ghana, majority of children in special schools for the

blind were with low vision (Avoke, 2008). It is clear that school children with low vision cannot function effectively and as a result they require more help. The need for the education of learners with visual impairment and for that matter children with low vision at Avakpedome Unit for the Blind where the better part of the student population tends to be those with low vision is of grave importance.

At the Avakpedome Unit for the Blind, issues relating to how the curriculum is modified to cater for the learning needs of children with low vision is paramount as these children do not seem to fully benefit from instructions.

1.2 Statement of the Problem

Available literature suggests that learners with low vision are likely to be perceived as different and are prone to being bullied, ostracized and neglected (Ocloo, 2011). Despite the numerous research work conducted on learners with visual impairment, little is known about the academic experiences of these learners with low vision in particular on how the curriculum is modified to meet the diversity in the classroom. This prompted the researcher who has worked with learners with low vision. After observing the poor academic achievements of learners with low vision over the years the researcher had to find out exactly what the learners' experiences are with regards to teaching methods, curriculum adaptations, teaching and learning resources and their assessment needs. The issue of academic experiences is worth looking at, as the subject has a direct relationship with academic work of the learners with low vision in the school and reveals exactly what learners with low vision experience in their academic life at school.

1.3 Purpose of the Study

The purpose of the study was to find out the academic experiences of learners with low vision at Avakpedome Unit for the Blind.

1.4 Objectives of the Study

The objectives of the study were to:

1. Examine the teaching methods used to teach learners with low vision at Avakpedome Unit for the Blind.
2. Explore how the curriculum is adapted to teach learners with low vision at Avakpedome Unit for the Blind.
3. Identify the teaching and learning materials used in teaching learners with low vision at Avakpedome Unit for the Blind.
4. Find out how learners with low vision are assessed at Avakpedome Unit for the Blind.

1.5 Research Questions

The following research questions guided the study:

1. What teaching methods are used to teach learners with low vision at Avakpedome Unit for the Blind?
2. How is the curriculum adapted to teach learners with low vision at Avakpedome Unit for the Blind?
3. What teaching and learning materials are used to teach learners with low vision at Avakpedome Unit for the Blind?
4. How are learners with low vision assessed at Avakpedome Unit for the Blind?

1.6 Significance of the Study

The results of the study would reveal the experiences of learners with low vision with regards to the teaching methods employed to teach them. This would better inform the Ghana Education Service, Special Education Division to better equip the teachers to improve on the teaching methods. This would help to meet the diversity of learners in the classroom particularly learners with low vision. This would help in the academic experiences of these learners. The results of the study would also reveal the curriculum adaptations that are available for learners with low vision. This would help policy makers to better sensitize teachers on how to better adapt the curriculum to suit the needs of learners with low vision.

The results of this study would reveal the teaching and learning materials teachers used in order to develop concepts and skills in learners with low vision. This would in turn inform policy makers to provide relevant and adequate teaching and learning materials to the various schools having learners with low vision and provide them on time for their benefit. The study would also help to know what learners with low vision go through when it comes to assessment. This will better inform educational managers of learners with low vision to take a second look at assessment concerns and equip teachers to acquire the skills of assessing learners with low vision in a fair manner for improvement in the assessment scores in the classroom. Lastly, the results of the study would add to existing literature to assist future researchers who might be interested in delving into such research areas and also the recommendations arising from the study would serve as guidelines for policy makers to attend to the needs of learners with low vision.

1.7 Delimitation of the Study

Even though there are other units for the blind in the country, the researcher based the study on learners with low vision at Avakpedome Unit for the Blind as the researcher already has a rich experience working with learners with low vision in the school and thereby stand to get more reliable and objective responses. Additionally, there are two main categories of learners with visual impairment but the researcher is interested in those with low vision because they form the majority of learners in Avakpedome Unit for the blind. There are also a diversity of issues pertaining to learners with low vision, however the researcher took interest in the academic experiences because that was the main aim of the learners being in school.

1.9 Limitation of the Study

Despite the usefulness of the study, it had a limitation that need to be mentioned. The study was limited to the use of a small sample size. This situation affected the generalization of the study as the number of learners who possessed the unique characteristics to be used for the study were few.

1.10 Definition of Terms

Academic Experiences: In the study, it refers to all that the child with low vision goes through in the educational environment which helps him/her to achieve academic excellence.

Blind: One who has no vision to perform visual task. For the purpose of the study it refers to the inability of the individual to see.

Low vision: In the study, It refers to a condition in which one is partially sighted thus he/she is unable to use the eye to effectively perform.

Residual vision: In the study, it refers to the vision left for the individual to use for visual tasks

Visual impairment: It is a condition in which the eye becomes defective thereby making it to function partially or completely dysfunctional. For the purpose of the study, it is the condition which limits the functioning of the eye.

1.11 Organization of the Study

This research work is divided into six chapters. The first chapter is the introduction. It provides the background information on the topic, the statement of the problem, objectives of the research, the research questions, and limitation of the study, delimitation of the study and organization of the study. Chapter two deals with the Theoretical framework, review of related literature for the study and discussion of the relevant literature on the main strands of the research problem. Chapter three constitutes the methodology employed to conduct the study. Chapter four also presented the results and findings of the study based on the research questions. Chapter five dealt with the discussions of the findings. The sixth chapter dealt with the summary of the findings, the conclusions and recommendations made by the researcher.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presented the Theoretical frame work for the study and also the review of literature under these strands and their respective sub -strands:

a. What teaching methods are used to teach learners with low vision at Avakpedome Unit for the Blind?
b. How is the curriculum adapted for Learners with Low Vision at Avakpedome Unit for the Blind?
c. What Teaching and Learning Resources are used to teach learners with Low vision at Avakpedome Unit for the Blind?
d. How are Learners with Low Vision Assessed at Avakpedome Unit for the Blind?
e. Summary of literature review

Theoretical Framework

The 'Zone of Proximal Development' (ZPD) was used in the research. It is shown below:

Vygotsky's Zone of Proximal Development (ZPD)

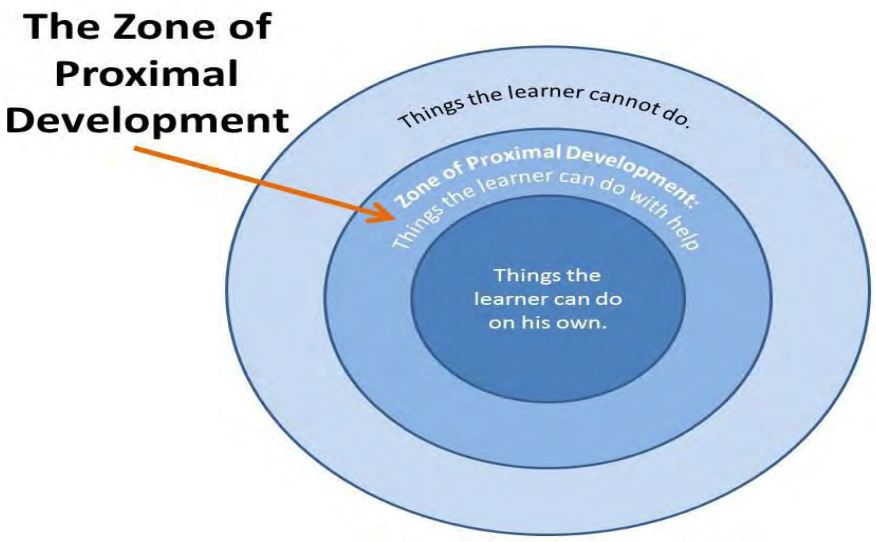

Figure 1: Vygotsky's Zone of Proximal Development (ZPD) Source: (Vygotsky, 1978)

The zone of proximal development (ZPD) concept used by Vygotsky as shown in the diagram above depicts the various abilities of learners with low vision which are coined into zones. Which is represented in the above figure in this study appeared to focus more on the interaction that involve schooling and academic learnings. His perspective seemed to consider the various abilities and inabilities of learners in school. He established that when a learner cannot accomplish a given task but the task is within the learner's zone of proximal development, using the right tools and appropriate assistance the learner may be able to accomplish the task. This assistance is also called scaffolding which refers to is the support the teacher gives to a learner to assist him or her to accomplish a task. Scaffolding will be no more when the learner independently completes the given task.

Besides, Vygotsky (1978) believing that human development is a result of interaction between people and environment, he also added that, these interactions are not limited to people only but also to mediation tools or artefacts such as language and teaching

materials or resources (various signs and symbols). The various implications of teaching and learning according to the zones shown in the figure above may include the fact that:

1. As much as possible, the curriculum taught to learners particularly those with low vision should be at their age levels
2. The curriculum should take into consideration the diversity of needs of learners with low vision.
3. The curriculum should be well adapted to respond to the needs of learners with low vision.
4. In cases where the learner with low vision can perform a task with help, the assistance should be swift.
5. With tasks that the learner with low vision can accomplish independently, the teacher should provide enough room for independent work for the learner for perfection to be achieved.

2.2 Concept of low vision

There are a number of definitions for the term ‘low vision. These definitions are classified as legal and educational. The educational definition emphasizes how individuals use their vision for learning whereas the legal definition depends on the measure of visual acuity (Kumsa, 2006). Deiner (2010) explains that an individual with low vision is one who is visually impaired after optical correction, but who may increase visual functioning through the use of optical devices, non-optical devices environmental modification and or techniques. Educationally learners with low vision have enough residual vision to read large print or regular print with special assistance such as magnification.

According to Ocloo (2011), a person with low vision is the one who has an impairment of visual functioning even after treatment and or refractive error correction and has visual acuity of less than 6/18 to light perceptions or a visual field of less than 10 degrees from the point of fixation, but uses or is potentially about to use vision for the planning or execution of task. Learners with low vision go through quite a lot of academic experiences. Low vision is sufficient to allow a child to read large print or possibly regular 12 font size print under special conditions.

The normal and near normal can perform tasks without special aids but moderate can perform tasks using material aids. The levels of low vision are also categorized into two, namely, severe and profound. The severe low vision can perform visual tasks at a reduced level of speed, endurance and precision even with aid whereas the profoundly low vision has difficulty with gross visual tasks and cannot perform most detailed visual tasks (Kumsa, 2006). In the screening of learners with visual impairments there are five different groups that can be classified for educational purposes. Vision also may fluctuate or may be influenced by factors such as inappropriate lighting, light glare, or fatigue (Garzia & Ralph, 2008).

They may travel with or without a white cane. It is important to note that these learners require the services of the resource teachers and require an individualized support services plan. They require supports such as special seating, large print materials, taped materials, lighting considerations, provision of low vision aids, mobility skill training and other supports or adaptations based on the nature and severity of the visual impairment. To place learners with visual impairments in the appropriate educational programme, in the presence of proper definitions and

classifications of blindness and low vision that are used for educational purposes are very crucial. Learners with low vision require instruction in braille, independent living skills, as well as orientation and mobility skill training. They may also require counselling to help them adjust to their condition especially those with adventitious blindness (acquired after birth) (Kirk & Gallagher 2006).

2.3 Academic experiences of learners with low vision

There are issues about the academic experiences of learners with low vision since the beginning of the education of learners with visual impairment. These have to do with the teaching and learning resources used to teach learners with low vision, the methods used to teach them, assessment issues, and curriculum adaptations. The framework of the chapter contains the conceptualization of low vision, using the categorical term 'low vision' to refer to those learners who have only light perception and light projection, knowing the coming direction of light (Kumsa, 2006). There are quite a number of academic experiences which the child with visual impairment and for that matter learners with low vision ranging from all that goes into the preparation to go through to the graduation of the child with low vision at Avakpedome Unit for the blind. The experience of being sidelined in academic activities of learners with low vision is an issue of concern. The academic factors that are identified in the literature as affecting student academic experiences as stipulated by Cleyle and Phipostt, (2011) include:

i. Attitude of learners with low vision themselves
ii. Attitude of parents
iii. Attitude towards learners with low vision
iv. Challenges in adjustment to Inclusion
v. Challenges in educational achievement

vi. Challenges in physical locomotion

vii. Challenges of low vision

viii. Lack of assistive technology

ix. Lack of support and encouragement of the family,

x. Learners 'academic readiness,

xi. Sighted learners' attitudes

xii. Teachers may use variety of textures, model, shapes, foods, ingredients, etcetera to replace visual material. 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 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 programme is recommended for the student with a visual impairment. 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 considering the broader dimension to inclusion which transcends these narrow school or individual based considerations (Engelbrecht, 2003). Comprehensive low vision services can rarely 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).

The majority of schools in Ghana are poorly designed and are not equipped to meet the unique needs of learners with disabilities. The lack of accessible buildings, social prejudice and negative attitudes are considered as big problems which can prevent successful implementation of interactive practices in schools (Winter, 2005). Studies have shown that much of the learning that occurs in classrooms around the world is superficial learning. Facts rules and formulas are memorized but often this information is not connected in a coherent frame work that would allow learners to make sense of it and to use it in new situations simply to acquire facts (Alonge, 2005). Thomazet (2009) indicate that really inclusive education depends on the capacity of the school, and on the capacity of the teachers, to innovate and put differentiation in place. Most often these criteria are imposed in schools and pupils are grouped or helped according to disability.

According to Garzia and Ralph (2008), visual defects, such as a restriction in the visual field, can have a substantial impact on reading performance. Eye strain and double vision resulting from convergence insufficiency can also be a significant handicap to learning. There are more subtle visual defects that influence learning, and affecting different people to different degrees. Vision is a multifaceted process and its relationships to reading and learning are complex. Each area of visual function must be considered in the evaluation of people who are experiencing reading or other learning problems. Likewise, treatment program for learning-related vision problems must be designed individually to meet each person's unique needs.

2.4 Methods used in teaching learners with low vision

According to McDonald (2000), pedagogy is an art molded by purposeful and oftentimes, speedy reasoning. Teaching learners with visual impairment particularly those with low vision requires specialized teaching methods and it requires an open heart and a tremendous capacity to empathize and communicate in order to meet diversity of learning styles. You need various teaching techniques to teach the type of reading a disabled person must learn. Learning to read a book, for example, demands a different form of instruction than learning math. Generally, learners with visual impairment are able to read and use large print versions of text books.

2.5 Concreteness of experiences

First, the teacher of learners with low vision should provide early and ongoing opportunities for students to learn about their environments through tactile exploration of real objects and situations as well as through other available and functional senses.

2.6 Need for unifying experience

According to Ocloo (2011), low vision limits the ability to perceive the wholeness of objects and events. As such, teachers should provide opportunities for students to integrate parts into wholes. Developing study units, where connections among academic subjects and life experience can be enhanced (e.g. studying the work of community workers in social studies by visiting those workers in their natural workplaces), is an important way to provide unifying experiences.

2.7 Learning by doing

Most of the areas of the expanded core curriculum lend themselves very readily to learning by doing approach or teaching method. All students, regardless of whether they are visually impaired would benefit from instruction based on these three principles of special methods and using methods such as these is integral to the concept of universal design for learning (UDL). For students with visual impairments however, the use of a concrete, activity –oriented approach is necessity and must be an integral part of teacher's plans for differentiation (Marilyn, 2008). Smith, Polloway, Patton and Dowdy (2012) emphasized that teachers teaching students with visual impairments should consider the following:

a. Introduce students with visual impairments the same way you would introduce any other students without low vision.
b. Include students with low vision in all classroom activities, including physical education and home economics.
c. Encourage students with visual problems to seek leadership and high visibility role in classroom.
d. For quality learning of students with visual impairment, some features and conditions should be adhered to. This includes; special services from specialized teachers, teaching and learning resources, as well as assistive devices like Braille and magnifying glasses and the use of flexible teaching methods (Simon et al, 2010).
e. These teaching methods for learners with low vision are very important because they enhance touch, examining and performance of activities in order for them to acquire accurate information rather than just theory and verbal explanations.

2.8 How the curriculum is adapted for learners with low vision

All learners can learn, but not all learners learn in the same way at the same time, or at the same rate. Learning is an individual process. Learners with low vision are capable of handling the demands of most classroom settings. However, they will need some adaptations to perform successfully. There are many different ways of meeting a student's exceptional learning needs. What is right for one student may not be the best for another. Learners with low vision will need major adaptations to be successful in academics and orientation in general education settings. According to Palmer (2005), instructional strategies or teaching methods for children with visual impairment and for that matter the children with low vision needs to be diversified in order to meet their various needs. This attests to the fact that there is no 'one size fits all' methods or strategies to teach children with visual impairment. Issues about the experiences of learners with low vision on how their academic achievements are assessed are also worthy of mentioning.

Curriculum adaptations will be quite varied and should be individualized according to the specific needs of the student. However, there are some basic best practices that can guide the development of the most effective adaptations. One thing to always consider is that, it is often difficult for these students to become as fully independent as they are capable of being. The classroom teacher should encourage independence as often as possible to avoid the trap of "learned helplessness" (Simon, et al, 2010). Not all instructional tasks will be immediately possible for a student with low vision, even with adaptations. The key is designing instruction so that the student has the most opportunity to act independently. Use verbal cues as often as necessary to alert students with low vision about happenings in the classroom. Encourage students with visual impairments to use their specialized equipment such as braille writers. Expect

the same level of work from the students with visual impairments as you do from the other students.

Printed text can be adapted through increasing the font size, bolding the text, increasing contrast, adding color, 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, 1997). 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). Adapting your classroom to accommodate a student with visual impairment is a relatively easy task. It just requires an awareness of the student's level of visual functioning (how the student sees) and how the student works and learns. For example, for the student with low vision, making sure that he/she sits at a place in the classroom that is of convenience and helps than to use their residual vision efficiently and effectively.

Controlling lighting variables when presenting learning materials to those students who are sensitive to light and glare. Use of verbal cues with those students who cannot see body movements or physical cues. A trained teacher of students with visual impairments can help the regular classroom teacher to make a few simple changes to classroom design that may mean all the difference in the education of the student with low vision (Mapsea, 2006).

According to Marylyn (2008), one key adaptation that is absolutely essential is access to textbooks and instructional materials in the appropriate media and for learners with low vision and the blind. For the learners with low vision, this may mean large print text or the use of optical devices to access text and/or recorded media while in class.

In addition, Carmen (2014) reports that inability to read printed material or diagrams, learners with low vision may access information in a variety of ways, for example braille, audio or enlarged print. Braille readers cannot skim read and may take up to three times as long as other students to read a text. Students with some vision may be large- print readers or may not be able to read at all without using special computer software or low vision devices. Many learners with low vision may prefer materials in electronic format and may use screen readers. Some students may want material reformatted into alternative formats. Extra time is often needed for this, and the learners may have to wait for the material to be produced for them. Furthermore, finding books in the library may be impossible without assistance (Ocloo 2011). Many will be unable to read examination questions and handout in standard print or read their own handwriting when answering examination questions. They may also be unable to take their own notes. Extra time is needed to carry out some tasks, such as locating words in a text when shifting from one reading medium to another.

According to Baraka (2013), it may take longer time for students to write down lecture notes and they may be unable to see power point slides or board work. Diagrams and new vocabulary can be problematic unless an oral description or additional clarification is given. TV and video/DVD are generally less problematic than might be expected, but students should be told when they are to be used. Some students who are sensitive to light or screen glare may struggle with TV and video conference. Some students may choose to have a note-taker and others prefer to take their own notes on to a computer or other equipment. Recording lectures can also be useful and teachers of these learners should be prepared to accept such requests 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 low vision 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 the learners with low vision so that through a specialized teacher's or a classmate's explanation, they understand all the visual concepts in it before the class watches it. For a film with sub titles, a classmate or teacher can read aloud to the class to help those with visual impairment (Spungin, 2002). Learners identified with the same diagnosis often have different abilities and learning needs, and require different supports. Apart from adapting the way in which the curriculum is accessed (by means of specific instructional methods and equipment), the curriculum in itself must be adapted. Hatlen (1996) and Johnson (2001) maintain that together with the core curriculum, learners with visual impairments need an expanded core curriculum in order to accommodate the various barriers to learning that visual impairments bring on education.

For learners with low vision, this is not the case when the basic curriculum is not adapted for them. Hatlen (1996) quotes a woman with blindness who said that what people with visual impairments really need from society is "the opportunity to be equal, and the right to be different." Hatlen (1996) writes that the existing curriculum of sighted learners allows learners with visual impairments the "opportunity to be equal." However, the "right to be different" implies that they will need additional help and services in order to be truly included. Together with the core curriculum for those without visual impairment, the additional services make up the expanded core curriculum for the learners with low vision. The areas covered in this expanded core curriculum are directly related to the barriers to learning experiences by learners with

low vision. Hatlen (1996) argues that the development and implementation of the expanded core curriculum for learners with visual impairments should be thoroughly planned.

The expanded core curriculum (ECC) is used to define concepts and skills that are typically learned incidentally by sighted students and that must be sequentially presented to students with visual impairment because of lack of vision. It is also defined as the body of knowledge and skills that is needed by learners with visual impairment. An ECC may include needs that result from the visual impairment to enable the students with visual impairment to be involved and to make progress in the general education curriculum. The presence of visual impairment requires that these skills be thoroughly evaluated and systematically taught by teachers with expertise. Proficiency in the ECC would help the student with visual impairment to demonstrate competence within each deficit area and achieve positive adult outcomes. There are nine components which all students with visual impairment are to acquire in order to make progress. Lieberman, Byrne, Mattern, Watt, and Fernandez-Vivo (2010) explained further that the ECC should be used as a framework for assessing students, planning individual goals and providing instruction. Assessment of each of the ECC areas is critical to measuring achievement and assuring independence. Krawthol and Anderson (2001) intimated that instructional needs in the ECC areas can be addressed using a variety of service delivery models. They stressed that collaboration between professionals will ensure comprehensive services in the ECC delivery. For example, professionals in the orientation and mobility (O&M), family members, occupational therapists, physical therapists, speech-language pathologists, as well as classroom teachers. In the views of Silberman and Sacks (2007), the expanded core curriculum proposes that instruction for students with visual impairment should include all the

traditional areas of academic instruction and instruction in areas that are directly affected by the individual's visual impairment. Since the original formulation of the expanded core curriculum, the curriculum has evolved, resulting in the addition of the area of self-determination skills and the modification of visual skills to the more comprehensive sensory efficiency skills area. The ECC consists of the following nine areas: compensatory access, sensory efficiency, assistive technology, orientation and mobility (O&M), independent living, social interaction, recreational and leisure, career education and self-determination skills (Lewis & Allman, 2014). Accessing the mandatory core curriculum is problematic for students with visual impairment. In order to participate fully in the educational environment, student with visual impairment require instruction in the expanded core curriculum (Koenig & Holbrook, 2000). Also, it is essential for student with visual impairment develop competence in the expanded core curriculum in order to reach their potential to live independently, have appropriate career opportunities, live rewarding, dignifying and fulfilling lives. They are expected to possess the skills of the expanded core curriculum so as to cope with all educational activities.

Compensatory Access Skills

Compensatory access refers to the skills that must be learned in order for students with visual impairments have access to information, to be able to communicate and to be literate. Mastery of compensatory access means that the student with visual impairment will have access to learning in a manner equal to that of sighted peers. The compensatory access of the student with visual impairment is significant (Guerette, 2014). Compensatory access skills are needed by the student with visual impairment to access the regular curriculum presented in the regular classroom, and also to enhance their ability to participate in the home and the community.

Communication needs of students with visual impairment will vary, depending on the degree of functional vision and the effects of additional disabilities. Guerette (2014) also claimed that the prime themes of the compensatory access are access to information, ability to communicate and literacy. Guerette further stressed that the compensatory access focuses on equipping students with visual impairment the capacity to compensate for the unique needs and challenges created by the vision loss. Compensatory access addresses the ability of students with visual impairment to develop concepts and to obtain and share information with others. The overall development of compensatory access skills creates a firm foundation for future growth, learning, and development. Ultimately, the compensatory access skills enable students with visual impairment access the core curriculum which includes sciences, mathematics, social studies among others. Students with visual impairment need to be equipped with the skills necessary to access information and demonstrate mastery of educational objectives. Compensatory access plays a crucial role in the education of the student with visual impairment.

Sensory Efficiency Skills.

Corn and Erin (2010) described sensory efficiency as using multisensory integration to complete a task as effectively and efficiently as possible using vision, hearing, and gustatory, olfactory, tactual, the movement for concept development learning, and accessing the environment. Sensory efficiency skills include learning how to use the optical devices, hearing aids and augmentative communication devices. Learning how to integrate all remaining senses to counter the impact of any missing or impaired senses is integral to sensory efficiency. Efficiency and effective use of the non-visual senses is essential to the development of students with visual impairment. Sensory efficiency refers to how well the student with visual impairment use the remaining

senses to receive, transmit and interpret information about objects and events in the environment (Lohmeier, Blankenship & Hatlen, 2009). Langley (2004) had indicated that the ability to understand and make use of what is seen, heard, touched, smelled and tasted and to react appropriately to that information is the foundation for development and learning. Smith (2014) had stated that the use of the senses and movement for exploration are primary activities of learning at the stage of cognitive development. The development of cognitive concepts and skills lay the foundation for understanding. All learning including all the components of expanded core curriculum depends on the efficient and effective use of the sensory system (Smith, 2014). He asserted that the sensory efficiency area of the expanded core curriculum consists of visual, auditory, tactile, gustatory, olfactory, proprioceptive and vestibular functions. Topor (2014) also explained that sensory efficiency skills include visual efficiency, auditory learning, and the development of advanced tactile skills. These must be taught consciously to children with any level of vision loss. Teachers are responsible for conducting functional vision assessments, planning activities to enhance the use of vision, and determining the most appropriate use of materials and devices for individual students. Additionally, auditory learning is an essential means for many students with visual impairments to access information. Topor emphasized that when print and braille reading is supplemented with listening skills, the students' learning is enhanced. Moreover, when the students reach senior high school, they will need to depend partially on recorded books or live readers because of the variety of reading materials are inaccessible. Tactile graphics are a necessary part of the books and other learning materials that students with visual impairments use, but the profession has only recently recognised that a deliberate, sequential system is required for teaching students to correctly interpret such graphic materials. To allow a

student to take a high-stakes test without the requisite skills in reading tactile graphics is to put the student at a decided disadvantage. Students with visual impairment need to learn in a gradual and developmental manner (Corn & Lusk, 2010). Sensory efficiency skills are valuable life-long tools. Students with visual impairment need to learn how to use their auditory, tactual and visual senses to maximize accessing the environment. Again, they are able to maximize auditory and tactual information in order to make sense of the world and access learning. Additionally, sensory efficiency skills promote efficient use of able senses to provide increased access to the environment as well as increased independence and development of identified skills. Learners who are students with visual impairment need to develop sensory efficiency skills to maximize effective and efficient access to the environment. Students with visual impairment need systematic instruction to learn efficient use of their senses. Instruction in visual efficiency must be individually designed and may include using visual gaze to make choices, tracking car movements when crossing the street, responding to visual cues in the environment, and using optical devices such as magnifiers and telescopes. For most students with visual impairments, Holbrook, Koening, and Rex (2010) identified that an increased reliance on tactual skills is essential to learning. These skills should be considered as part of individualised education programme (IEP) development. It takes more detailed "hands-on" interaction and repetition to tactually understand a concept, such as relative size, that may be readily captured with a glance by sighted individuals. Systematic instruction in auditory skills may be needed for successful mobility and learning. Students must learn to effectively use their hearing to respond appropriately to social cues, travel safely in schools and across streets, learn from recorded media, and use echolocation for orientation. In addition, learning how to integrate all senses to counter the impact

of any impaired sense is also integral to this area. For instance, learning how to use tactual, gustatory, and olfactory input rather than visual cues to identify one's personal possessions, or using hearing and the other senses to identify people one knows without visual cues. Smith (2014) explained that efficient acquisition of sensory information is required for all learning throughout life. Without active exploration, sensory skills do not develop. Without active exploration using sensory skills, understanding of the world does not develop. Teachers of students with visual impairment provide instruction and accommodation to address the sensory efficiency needs of students with visual impairment. Teachers need to use effective strategies for students with visual impairment to overcome sensory barriers associated with factors such as unresponsiveness, limited hand use, self-stimulation, and manual avoidance. Smith (2014) concluded that these efforts are critical for the growth and development of students with visual impairment, and for their participation in school, work, and life. The importance of sensory efficiency in the education of the student with visual impairment cannot be underestimated. They need to learn how to develop their sensory functioning abilities to the maximum extent possible so that they can best use the nonvisual senses (especially touch) to search for information which is educationally relevant.

Assistive Technology Skills

An assistive technology service means any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device (Sah, 2013). Assistive technology as a component of expanded core curriculum focuses on the knowledge and skills that are essential to learning how to use technology to access all aspects of daily living at school, at work, at play and at rest (McNear & Farrenkopf, 2014). Chen (2014) had stated that technology permits

students with visual impairments to access the general curriculum, to increase literacy options, and to enhance communication. Technology is now part of living and those living without it are considered to be living in darkness. Students with visual impairment have the same uses of technology as their sighted counterparts. The students with visual impairment therefore have to learn to use the assistive devices to make technology accessible to them. McNear and Farrenkopf (2014) found that the role of assistive technology in the lives of the student with visual impairment is indispensable. It enables them to participate in the school curriculum and also promotes independence for them. With assistive technology, the student with visual impairment are able to accomplish tasks with greater speed, ease, and independence. They added that assistive technology empowers the student with visual impairment to take personal control of their learning environment. McNear and Ferrenkopf (2014) reiterated that students with visual impairment need to learn the use of technological devices that are appropriate for the ways in which they most efficiently access the environment and make effective use of sensory input. By enhancing and adapting devices or by adding specialized features students with visual impairment can acquire the necessary skills to integrate technology into their lives. Teachers have to teach the student with visual impairment the use of today's technological equipment to ensure their full participation in school (McNear & Farrenkopf, 2014). Assistive technology plays a tremendous and crucial role in the academic development of the student with visual impairment. The success of the other skills in expanded core curriculum depends on his or her competence in the assistive technology. Zhou, Parker, Smith, and Griffin Shirley (2011) had asserted that without assistive technology the student with visual impairment would have been the most miserable people on earth. Technology equalizes the ability to access, store, and retrieve information between

sighted people and those with visual impairments. However, the use of various software and peripheral equipment that are specific to people who are students with visual impairment require that appropriate technology is used. According to Sah (2013), technology can increase productivity and independence by facilitating the performance, simplifying tasks, allowing greater speed and less physical energy. It can also enhance our knowledge, understanding, and participation by expanding their access to information, places, and people. Assistive technologies are used by individuals with visual impairment in order to perform functions that might otherwise be difficult or to some extent impossible. It really improves the quality of life in them. Therefore, it is imperative that the training of assistive technology should be integrated with the education of individuals with visual impairment for better adaptability and greater independence in the society. These training needs create an obvious call for competence in special educators for children with visual impairment towards knowledge and skills in assistive technologies (RNIB, 2013). Assistive technology supports persons with visual impairment to work around their area of challenge. Assistive technology does not provide a "cure" for their condition, however; it helps them to accomplish a task more independently. Technology has always had great potential to have a positive impact. For students with visual impairment, the use of specialized technologies assists them to participate in education at all levels. Assistive technology provides them with a means to overcome the major obstacles attributed to their disability. Assistive technology provides equal access to information. The importance of assistive technology is limitless. It is the "great equalizer" for students with visual impairments (Smith & Penrod, 2010). Mastery of assistive technology contributes to the development of literacy and academic success, social interaction among peers, independence and the potential for

future employment (Abner & Lahm, 2002). Currently, computers can turn text into speech, enlarge print and translate text into Braille, opening the door to books, articles, and data that have previously been available only at great expense and difficulty (Smith & Penrod, 2010). According to the American Foundation for the Blind (2013), assistive technology has removed many barriers to education and employment for student with visual impairment individuals. They can complete homework, do research, take tests, and read books along with their sighted classmates, because of the use of computers and other devices. In the ECC, students have the opportunity to have the skills needed in the use of technology. The implication is that the more competent students are in the use of technology the more likely they would perform academically.

Orientation and Mobility

Orientation and mobility (O&M) is the area of the expanded core curriculum in which students learn the concept and skills necessary to move from one place to another safely and efficiently (Fazzi, 2014). Orientation and mobility instruction focuses on conceptual understanding of the physical environment, and purposeful movement in the home, the school and the community environments. That is both safe and independent to the fullest extent of each individual's ability. Fazzi (2014) explained that the orientation and mobility area of the expanded core curriculum focuses on two broad related components. Orientation is one knowing one's position in relation to other objects, people, and places in one's surroundings and keeping track of how these positions and relationships change as one moves through the environment. and mobility is the physical act of moving from one place to another. The development of motor skills, physical coordination, stamina and the use of appropriate mobility tools are the basis for independent mobility. Orientation and mobility instruction provides

the student with visual impairment with techniques that enable safe and independent travel without the use of vision (Ferrell, 2011). The orientation and mobility area of expanded core curriculum can be broken down into body concept, environmental concepts, spatial concept, perceptual and sensory skills, mobility skills, orientation skills, interpersonal skills and decision-making skills. Each of the components of orientation and mobility is important to the student with visual impairment along a continuum of conceptual and skill development that leads to increasing independence as a traveller (Fazzi & Naimy, 2010). Fazzi (2014) concluded that orientation and mobility is a key area of the expanded core curriculum for students with visual impairments. Stakeholders in education should, therefore, ensure that students with visual impairment receive the orientation and mobility instruction they require, practice orientation and mobility skills in a variety of environment on continuous bases and apply this skills not only in schools but also in a greater community and far into the future in their college work and living environment. Ferrell (2011) stated emphatically that orientation and mobility is the systematic way in which individuals with visual impairments orient themselves to their environments and move as safely, efficiently, and independently as possible in those environments. Orientation and mobility concepts begin with understanding one's own body and progress to include all the concepts that are necessary to plan a trip in rural and urban environments. Orientation and mobility skills begin with the simple understanding of how to move one's body with control and advance to the skills that are necessary to navigate complex environments safely, cross streets, and access transportation (Ferrell, 2011). Specially prepared orientation and mobility specialists are required to provide students with the experiences they need to develop orientation and mobility concepts and acquire orientation and mobility skills that will allow them to travel as

independently as possible. Wall and Corn (2006) continued to mention that safe and efficient travel throughout the environment is a critical component in the education of students with visual impairments. Orientation and mobility evaluation and instruction should begin in infancy with basic spatial concepts and purposeful and exploratory movement. Instruction should then progress through more independent, age-appropriate motor and travel skills in increasingly complex environments. Furthermore, orientation and mobility primarily focus on optimizing purposeful movement (Jacobson, 2013). As a part of the expanded core curriculum, orientation and mobility are a vital area of learning. The ultimate goal of orientation and mobility instruction is to enable the student to enter any environment, familiar or unfamiliar, and function safely, efficiently, gracefully and independently. Orientation and mobility training focus on an alternative to using sight for safe and independent travel purposes. The student with visual impairment are taught the use of the 'white cane' as well as other devices to promote and facilitate confidence in movement. Orientation and mobility are the fundamental need and right of the student with visual impairment to travel as independently as possible, enjoying and learning from the environment through which they are passing to the greatest extent possible (Smith & Penrod, 2010).

Independent Living Skills

Independent living aspect of the expanded core curriculum looks at activities that take care of one's self, family and home. The overall mastery of these skills; to live as independently as possible, for students to manage their lives and function in the community behaviours and skills related to organization, personal hygiene, grooming, dressing, clothing care, time management and money management among others leads to greater independence for students with visual impairment and increases the

potential for a more satisfying life. Independent living is necessary for a student with visual impairment to be successful in other areas of the expanded core curriculum, especially in the areas of social interaction, career education and self-determination (Bardin, 2014). Independent living is a key to students' achievement, independence and life success. There are a number of behaviours and skills in the independent living area that needs to be intentionally taught to students with visual impairments. Specific behaviours and skills to be taught depend on the individual characteristics of each student, including physical and cognitive abilities, needs, age, health condition and family culture and priorities (Bardin, 2014). In order to develop success in academics and other areas of the expanded core curriculum, students with visual impairments need to be proficient in independent living. The expanded core curriculum area of independent living contains a diverse group of skills that students with visual impairment will need to master to achieve a level of independence. They are the chores people perform, according to their abilities, which enable them to manage their homes and personal lives. In order to develop success in academics and other areas of the expanded core curriculum, students with visual impairment must have proficient organisational skills. These behaviours and skills transfer to efficiency at home and in the world at large (Bardin, 2014). Bardin had indicated that independent living skills are highly correlated with the achievement of life-long goals for students with visual impairment. This area encompasses all the tasks and functions people perform, according to their abilities, in order to live as independently as possible. To conclude, independent living incorporates the behaviours and skills involved in managing the daily demands of everyday life and maintaining the living environment. Independent living for students with visual impairment includes behaviours and skills that individuals who are sighted usually learn through imitation

and incident (Lewis & Iselin, 2002). The ultimate aim of the student with visual impairment is to become independent in all spheres of life as much as possible and it can be done only through education and training. The skills and knowledge that sighted students acquire by casually and incidentally observing and interacting with their environment are often difficult, if not impossible, for the student with visual impairment to learn without direct sequential instruction by knowledgeable persons. The students with visual impairment exhibit a lot of dependencies because probably they lack the skill of independent living.

Social Interaction Skills

Social interaction is an essential area of the expanded core curriculum for students with visual impairments. Social skills permeate all aspects of students' life and also an integral part of other areas of the expanded core curriculum such as compensatory access, recreation, and leisure, independent living, and self-determination (Sacks, 2014). Wolffe (2006) stated that social interaction skills contain components and behaviours that are needed to participate in social situations appropriately and to prevent social isolation and stigmatization. It sets the stage for appropriate and necessary interaction with others. The need to develop these skills is so fundamental that it can often mean the difference between social isolation and a satisfying and fulfilling life as an adult. It is estimated that about 80% of what is learned socially is taken through vision. It is therefore difficult for the student with visual impairment to acquire information about the social environment, engaging in social activities and understanding and interpreting social activities involved in everyday interactions. The student with visual impairment depend on family members and friends to obtain vital information about the social worlds and the intricacies involved in maintaining a social relationship. In the views of Chen (2014) and Sack (2014), among all

developmental process, social development for students with visual impairment is the most highly dependent on others. They further said that how others react to and interact with students with visual impairment can play a significant role in the students' self-perception. Again, the student with visual impairment can become socially isolated and experience self-esteem, which may negatively affect their success in the academic arena if they are not given the opportunities to engage with others, make choices and decisions and learn the social rules of their environment. Students with visual impairment have unique social and emotional needs that must be addressed in educational programmes to ensure successful academic performance. These students must receive special support for unique identity issues that may be associated with their visual impairment. They require systematic instruction in social skills, self-advocacy, and communication skills so that they achieve both academic and social success as they move from school to adult life. Han and Kemple (2006) had stated that social competency includes understanding others' needs and feelings, articulating one's own ideas and needs, solving problems, cooperating and negotiating, expressing emotion, reading social situations accurately, adjusting behaviour to meet the demands of different social situations and initiating and maintaining friendships. A visual impairment can socially isolate a student, impede typical social interactions, or limit social skill development. A student with a visual impairment who is not able to see facial expressions and subtle body language to participate in conversations and activities may experience awkward and confusing interactions. Social skills that the sighted are able to observe and imitate may need to be taught to individuals with visual impairment. They must be taught when and how to smile, frown, nod, wink, shrug and the other nonverbal communication skills (Sacks, 2006). Social interaction skills are essential if students are to develop

friendships with their classmates and participate in activities typically associated with school-age mates, whether educational or co-curricular. In the views of Wolffe (2006), having good interpersonal communication skills is also highly correlated with employability in adults. It is difficult to cope with and overcome practical and emotional limitations that are caused by visual impairments without acquiring knowledge of and gaining experience in confronting obstacles, meeting challenges, and engaging in activities that develop problem-solving skills and strategies. The curriculum is a framework that can be adapted to any group and modified as necessary.

Recreation and Leisure Skills

Recreation and Leisure focus on the development of interest and skills involved in physical and leisure activities. Physical activity is a critical element for good health and a happy lifestyle especially for those with visual impairment. It needs to be deliberately planned for these students because lack of vision reduces the opportunity to observe and choose activities of interest (Aillaud & Leiberman, 2013). The student with visual impairment acquire these skills through thoughtfully planned instruction and demonstration to stay healthy for education. Casual observation seems to suggest that the student with visual impairment are not involved in recreation and leisure activities. Allman, Lewis, Leiberman and Ross (2014) observed that the recreation and leisure area of the expanded core curriculum concentrates on the knowledge, behaviours and skills that allow the students with visual impairment to participate in a healthy level of physical activity and enjoy fun relaxing activities in their free time. Involving in recreation and leisure offers opportunities for social interactions and is crucial for the physical, mental health and well-being of individuals throughout their lives. Aillaud and Leiberman (2013) ascertained that activities provide opportunities

to rest, release tension, slow down mentally, share experiences with friends, meet new people, practice autonomy and increase self-reliance. Physical activity helps to maintain normal weight and avoid chronic diseases and other health problems (Physical Activity and Health, 2011). Physical activity also promotes self-confidence and healthy and happy lives. The students with visual impairment need all these most to enjoy life appreciably (Leibeman, Byrne, Mattern, Watt & Fernanadez-Vivo, 2010). Allman, Lewis, Lieberman, and Ross (2014) proposed that the student with visual impairment need to be exposed directly to the skills needed for incorporating recreation and leisure activities into their lives. Also, they need to be offered safe and non-threatening opportunities to try physical activities. However, Leiberman, Ponchillia and Ponchikkia (2013) had identified the fear of possible injury, lack of available activities, the inability of teachers to assist the student with visual impairment, lack of opportunities to be active, absence of others to participate with and negative attitude of others about the involvement of the students with visual impairment as barriers to their involvement in recreation activities. Allman, Lewis, Leiberman, and Ross (2014) established that the involvement of the students with visual impairment in recreation and leisure activities provides opportunities for them to demonstrate career competency, independent living and social interaction. While the sport has value in everyone's life, it is even more important in the life of a person with a disability. This is due to sport's influence in helping children and youth to discover their potential in school, sports, and the community and to achieve their dreams. Sport can help individuals with visual impairment by strengthening their self-esteem and their ability to overcome difficulties, and by normalising their living environment. The primary goals of leisure are first, that students develop the skills and attitudes needed to fully participate in recreation activities and second, that they

become knowledgeable of recreational choices as they can intelligently select how they spend their leisure time. Anthony (2013) reiterated that students with visual impairment often live a highly structured life. Too often, too many decisions are made and activities are selected for them. Students with visual impairment are rarely given the opportunity to participate in recreational and leisure activities unless they have been taught these activities. They will not know whether they will enjoy a particular game if they do not have the opportunity to learn how to play that particular game under supervision (Corn, Bina & Sacks, 2009). Recreation and leisure skills may include traditional as well as adapted physical education activities. The student with visual impairment need help in identifying the array of choices available to them in this area and must be taught how to perform leisure skill that most people learn through observation. Recreation and leisure skills and experiences provide the same benefits for students with visual impairment as they do for their peers who are sighted. However, without modifications or specific instruction to master prerequisite skills, student with visual impairment are frequently excluded from such activities. Many of the motor skills learned during the rough and tumble play of childhood activities do not develop naturally in students with visual impairment. The initial exposure to specific activities is cumbersome or their level of participation or success below that of their peers, students with visual impairment may become easily discouraged. The provision of specific and timely instruction and opportunities to practice newly acquired skills will ensure students with visual impairment derive pleasure from participation in an array of recreational and leisure activities. Students with visual impairments need to be taught recreation and leisure activities that they can enjoy throughout their lives. They are often not aware of the options or the possible adaptations that would allow them to participate in these activities. Such

skills include both individual and organised group activities for students of all ages and levels. Skills in recreation and leisure according to Gasperetti, Milford, Blanchard, Tang, Lieberman, and Foley (2010) are seldom offered as a part of the existing core curriculum. Rather, physical education in the form of team games and athletics is the typical way in which physical fitness needs are met for students without visual impairments. Many of the activities in physical education are excellent and appropriate for students with visual impairment. In addition, however, these students need to develop activities in recreation and leisure that they can enjoy throughout their lives. Morelli, Folmer, Foley, and Lieberman (2011) opined that most often students without visual impairments select their recreation and leisure activity repertoire by visually observing activities and choosing those in which they wish to participate. The teaching of recreation and leisure skills to students who are student with visual impairment must be planned and deliberately taught and should focus on the development of life-long skills.

Career Education Skills

Career education focuses on components of activities, behaviours and skills needed to prepare students with visual impairment for all the roles they play throughout their lives. Lack of preparation in the area of career education has been a major cause of unemployment and underemployment among the student with visual impairment (Wolffe & Kelly, 2011). Therefore, helping students develop skills in career education prepares the ground work for full and satisfying lives for students with visual impairment. Wolffe (2014) had explained that career education as the development of knowledge, the refinement of innate talents and the promotion of work habit skills that are needed for success in employment and other life roles. Career education is not only about obtaining and maintaining employment but also

preparing students for the “next movement”. It is therefore a broad understanding of many activities of life and the different types of occupations that people pursue. Instruction in career education is of more importance to the students with visual impairment. The concepts and skills that all students acquire in vocational education are not sufficient for students with visual impairments. Many students with visual impairment reach their teen years naive about the world of work. Through no fault of their own, numerous youngsters who are academically trained have little or no work experience and thus little practical understanding of the labour market, jobs, and how to progress through jobs to capture career goals (O’Shea & Feller, 2000). This was emphasized by Wolffe (2014), as he said; “Without vision or with impaired vision, it is difficult to learn incidentally about work roles, the types of jobs available, what tasks are inherent in different jobs, and what work behaviours are expected of employees” (p. 13). The combination of information, practical application, and reflection in both a structured learning environment and a natural habitat can help students develop the attitudes, knowledge, and skills that are necessary for them to prepare themselves for their future careers. Career education gives students information and strategies that are work related (Wolffe & Kelly, 2011). Career education for students with visual impairment needs to begin as early as possible and include self-awareness and career exploration activities, job seeking skills instruction, information about job keeping and encourage opportunities for gaining work experience. Career education provides students with information about the world of work, career options, and an overview of skills necessary to be successfully employed. For students with visual impairment, there are many additional programme components which need to be addressed. For example; accommodations needed to complete specific jobs, access to the appropriate assistive technology, self-advocacy

skills and those to deal effectively with negative attitudes toward individuals with disabilities. Frequently, students with visual impairment are unaware of the array of career options because they do not see the variety of workers in their environment or because adults around them are uninformed about the career opportunities available to those with visual impairment (Everson & Zhang, 2010). Students with visual impairments need to be taught about the variety of types of work and career options that are available since they cannot casually observe people in different job roles. They need opportunities to explore their strengths and interests in a systematic well planned manner. Career exploration and subsequent training may include the acquisition of specialised skills and equipment and an understanding of how to request and develop natural supports in the workplace to compete in the job market. Students must be prepared for a wide range of vocational choices and the adaptations, including technological devices which make them attainable. It is important to have opportunities to job shadow for concrete experiences of different career choices and to learn about other persons with visual impairments who have successful vocational outcomes. Many of the skills and knowledge offered to all students through vocational education can be of value to students who are blind and student with visual impairment. Career education in an expanded core curriculum will provide the students with visual impairment with the opportunity to learn first-hand the work done by workers. It will provide the students opportunities to explore strengths and interests in a systematic, well-planned manner. Unemployment and underemployment have been the leading problems facing adults with visual impairment. O'Shea and Feller (2000) reiterated that learning about jobs and work roles at a developmentally appropriate level career education for students with visual impairment needs to begin as early as possible and include self-awareness and career explanation activities, job

seeking skills instruction, information about job keeping and encourage opportunities for gaining work experiences. Equipping the individuals with visual impairment with skills of career education will make them focus on what they want to do in the future.

Self Determination Skills

Self-determination refers to person's right to decide freely and without undue influence on how he or she wishes to live his or her life. To develop self-determination skills, children or adolescents with visual impairment must be provided with the necessary knowledge and experience. They must learn which choices are available to them, have the skills necessary to take advantage of these choices and be given opportunities to make age-appropriate choices for themselves. To do so, they often need direct instruction in learning to evaluate options and in making choices (Woffle & Erin, 2012). They farther explain that self-determination includes personal decision-making, self-advocacy, and assertiveness based on an understanding of one's abilities and related needs. These skills lead to competency, as opposed to learned helplessness, and are important components of positive self-esteem. Specialised instruction in developing self-determination skills can help students participate meaningfully in their education and transition planning and make positive adult lifestyle, job, and other life choices upon graduation. Students learn from successes and failures how to achieve one's goals in life. Self-determination is the ability for people to control their lives, reach goals they have set and taken part fully in the world around them. Self-determination skills enable students with visual impairment to advocate effectively for their own needs goals. The concept of self-determination came into being as a result of disability rights of the 1970s. Without structured self-determination skills, the students with visual impairment may be at risk of remaining dependent on others for life. Reed and Curtis (2012) stated that

much has been written about the phenomenon “learned helplessness”. It is associated with poor psychological well-being, passivity, depression and low self-esteem. Self - determination is the opposite of learned helplessness. Self-determination is one’s ability to make choices and exercise control over life, to achieve goals, and to acquire skills and resources necessary to participate fully and meaningfully as an adult in society (Deci & Ryan, 2008). Wolffe (2012) reiterated that researchers and practitioners in special education (specifically the education of the students with visual impairment) have identified six components of self-determination skills. Each component supports and controls the success of others. All the six components result in the achievement of self-determination and they include self-knowledge, self-advocacy and empowerment, assertiveness, informed decision making, problem solving and goal setting and self-directed and self-regulated behavior. Teaching students with visual impairment the critical skills that support self-determination is a major contribution to helping them learn how to make good decisions for themselves, solve problems and set goals, speak up for themselves and communicate effectively and above all develop higher levels of self-esteem and self-confidence. The students with visual impairment should have the ability to advocate for their needs, desires and to make independent choices about personal preferences and goals. Self-determination promotes independence and successful functioning in society and also as a valid predictor of future success (Hatlen, 2003; Tuttle & Tuttle, 2000). According to them the inability of the students with visual impairment to advocate for what they need can have a negative effect on their quality education outcome.

Idol (2006) argues that materials may be suitable for students’ needs, even if they are not designed specifically for them, that text books make it possible for students to review and prepare their lessons, that text books are efficient in terms of time and

money, and that text books can and should allow for adaptation and improvisation. Materials include text books, video tapes, computer software and visual aids. The American Foundations for the Blind (2005) state that much of the learning that occurs in regular schools relies on vision, putting students who are visually impaired at a disadvantage. In order to achieve learning outcomes in regular schools, the following must occur: adaptations to instruction, resources, assignment formats and classroom environment (Palmer, 2005). Learners with low vision cannot read normal size alphabets in the text book or in a manual. Most learners with low vision show excessive head movements while looking at pictures or reading. They have problems with writing in a straight line and they write in a zigzag manner.

The majority of learners with low vision will require slightly more time than other learners to perform certain tasks. For example, due to their low vision condition, they may be unable to quickly find an item or the first line on a page. It will often take them longer to completely make out what they are seeing or understand what is being discussed. Some learners with low vision gain an overall image from fragments they perceive whereas sighted learners gain this insight “at a glance”. In addition, they will often be required to use specialized equipment (telescope, magnifiers, text enlarger), which is more time-consuming. Partially sighted learners normally write using the standard graphic code. Breaking concepts into clear chunks is beneficial to facilitate learning for the visually impaired child (Palmer, 2005). The American Foundations for the Blind (2005) 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 Ocloo (2011) learners with low vision need to know how to read and write the braille and also read large prints and other tactile materials to be able to cope with academic work. Learners with low vision are usually print users but may require special equipment and materials. They may read regular or large print and/or use Braille and may learn through visual channels in addition to tactile methods. Classroom adaptations will be quite varied and should be individualized according to the specific needs of the student. However, there are some basic best practices that can guide the development of the most effective adaptations. Skim reading may be very difficult or impossible and reading may need to be carefully paced to avoid fatigue or eye strain. According to Bishop (1997), 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, Cranmer abacus, and braille rulers help to ensure that these individuals are able to successfully access learning. Palmer (2005) states that diagrams and maps must be adapted to suitable formats, such as braille or touch. 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 (Palmer, 2005).

According to Hatlen (1997), in order to meet regular curriculum learning outcomes, students with vision impairment need to be taught skills covered in the expanded core curriculum, such as accessing 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 information. Technology allows these students to achieve learning outcomes in a variety of ways. A slate and stylus enable students with vision impairment to produce

work in braille, allowing them to take notes in class. 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 accessing the internet, to access prescribed learning outcomes (Wormsley, 2004). Assistive technology, in all its forms, allows students with vision impairment to achieve the same learning outcomes expected of their sighted peers (Wiazowski, 2009). For students with low vision to complete assigned work and meet learning objectives, and assignments and textbooks need to be adapted into an appropriate format.

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. Assignments and textbooks in the appropriate format enable students with vision impairment to achieve learning goals and it is also necessary to consider the classroom environment of students with low vision to help with successfully achieving positive learning outcomes. Learners with low vision need preferential seating so that they can have appropriate access to the blackboard, windows, and overhead screens when needed. 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 these students to learn alongside their classmates. Individuals with vision impairment must be taught specific skills that enable them to access learning and compete with their sighted peers on a level playing field (Bishop, 1997).

Students with visual impairment need instruction in understanding other people's behaviour, comprehending their own behaviour, problem solving and conflict resolution (Palmer, 1995). Feedback, from both teachers and sighted students, regarding unsuitable behaviour is necessary for students with vision impairment to evaluate their inappropriate behaviour and thus amend their actions. Learners who are visually impaired also need to understand the concept of personal space, so as not to make others feel uneasy in their presence.

2.9 Teaching and learning resources used to teach learners with low vision

In order to support students with vision loss, instructional materials need to be employed. There is a wide variety of instructional materials for teaching and supporting learners with low vision. Instructional materials for supporting learners with low vision include tape recorders, earphones, braille machines and papers, large print materials, CCTVs, felt-pens, visually impaired specialists among others. According to Ocloo (2011), using adequate and age-appropriate 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 further stipulated that, learners with visual impairments 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.

2.9.1 The Use of audio, optical and non-optical devices to teach learners with low vision

Since students with low vision rely mainly on verbal information for their learning, audio devices should be incorporated to aid the teaching and learning process. These include items like audio cassettes and compact discs (Salisbury, 2008). 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. Items such as large prints, braille and braille writers, 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).

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 color 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 learners with visual impairments. Working papers and books with enlarged print will ease the task of reading for most learners with low vision. Magnifiers of all shapes and sizes are other useful devices which help significantly to ease the problem of reading in learners and adults with low vision (Ocloo, 2011). Optical aids help individual with low vision function effectively in their environment. This involves standard prescription spectacles, optical low vision devices for distant vision. Ocloo (2011) indicated that,

it is necessary to attend to students with low vision and give them the required spectacles. Refraction should always be carried out before vision assessment (Ocloo, 2011). The further suggested 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. Secondly, a teacher can make simplified drawing for the child with low vision from complicated picture. Finally, when possible, the teacher can provide the child with visual impairment an original object or animal if it is not harmful, so that the child explores it extensively while the other students are looking at the picture of the object or animal (Ocloo, 2011).

UNESCO (2000) noted that learners must be provided with learning materials in formats that will meet their individual learning needs. Reading stands allow students to have their books as close to themselves as needed, without dealing with muscle fatigue. 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. The training of residual vision is known as visual efficiency.

2.9.2 Using tactile materials to teach learners with low vision

Teachers must be aware that students with visual impairments have deficit in conceptual experiences and understanding due to absence of visual ability, therefore adaptations of teaching materials become paramount, if they have to learn all the things other students without visual impairments learn in the class. To help achieve this, therefore, such students should be taught physically using concrete experiences (Bishop, 1997). 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). Meanwhile, individuals who are partially sighted should be given a note which are 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).

2.9.3 The use of assistive technology to teach learners with low vision

Assistive technology for the blind or visually impaired include 'low tech' to 'high tech' tools (Smith, 2014). According to Smith, examples of low tech materials are pencil grips, highlighters, paper stabilizers and high-tech examples include computers, voice synthesizers and braille readers.

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 computer-based technology such as braille embossers (specialized tactile printer) advanced CCTV, scanners and optical character recognition software (technology that scans printed text and provides 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 notes that a plethora of researchers and practitioners in the field of visual impairment have acknowledged that the use of computers and assistive technology can change the lives of pupils with visual impairments to a great extent by improving education and employment opportunities, enhancing social network and facilitating independence. Many career opportunities requiring access to visual information are now accessible to those who have visual impairments through the application of appropriate technology. It is broadly recognized that assistive technology has good impact on the lives of individuals with vision loss, however, the advancement in technology on the other hand has been cited as a factor for declining braille use and braille literacy (Spungin, 2005). In addition, assistive technology omits grammatical structure, spelling and traditional text formats. Therefore, as assistive technology market continues flourishing with devices and software that make the visual world significant and more accessible to persons with impairment. Educators need to evaluate their applicability and effectiveness to literacy related needs. Also, optical character recognition (OCR) technology enables individuals with visual impairment to place books or other print materials on a scanner and have the text interpreted and read using synthetic or digital speech.

The first OCR system for individuals with visual impairments was introduced in 1976, when Ray Kurzweil invented the Kurzweil reader. The early Kurzweil reader was about the size of a small photocopy machine and was considered to be a truly remarkable advance for students with visual disabilities. While the device was often found in libraries, it was too bulky and expensive to be available to students in the classroom. Simon et al (2010) conducted a study in Spain with the aim of analyzing

the process of inclusion of students with visual impairment. The study found out that schools do not have appropriate teaching and learning resources to help students with visual impairment learn better in inclusive classrooms. Moreover, the findings revealed that, teachers do not have enough knowledge of inclusion and how to teach students with visual impairment in inclusive classrooms. 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 or glare and others are needed in the Avakpedome unit for the blind. There are also varieties of low vision devices that learners with low vision are supposed to use to learn visually.

2.9.4 Adapting print for learners 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 (Richard, 2011).

Majority of the learners confirmed the relevance of instructional materials to meet the learning needs of pupils with low vision. The 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 be successful in their academic endeavour

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. Materials and resources including, opaque projectors, still pictures, maps, charts, graphs and many more are available in schools and offer a variety of learning experiences individually or in combination to meet different teaching and learning experiences. Incorporating these tools and materials present, support and reinforces teaching. Generally, teaching and learning materials for learners with visual impairments must have some distinguishable characteristics which contain accurate information and must be appropriate to the lesson and the age of the learners involved (Ocloo, 2011).

2.10 How the academic achievements of learners with low vision are assessed

The concept of assessment is quite a broad one and it forms the basis for educational policies. Mitchell (2008) found out that tools used to assess students in classrooms are rigid and not adapted. Students are not evaluated on the basis of their individual abilities and specific educational needs. A normative kind of assessment seems to dominate in these classes. She also points out that crowded classes cannot be left out.

Assessment involves gathering information about a student's strengths and needs in all areas of concern. Assessment of the academic performance of the child with visual impairment prior to or during the course of study is important for both the student and the teacher. This allows for understanding of the academic ability, learning styles and learning needs (Spungin, 2002). Assessment of academic performance of learners which should aid teachers to plan teaching and meeting individual needs of the student (Mitchell, 2008). The questions may be read as often as the candidate requires

but no elaborations may be given. Diagrams, photographs, maps, sketches should be eliminated while large prints and additional time given. Mitchell (2008) identifies some accommodations for learners with visual impairment to include breaks during tests, fewer questions, breaking tests into parts and administering them at separate times, more detailed instruction, use of readers and minimizing laborious tasks for the visually impaired.

All members of the multi-disciplinary team are involved in comprehensive assessment of a child's functioning and progress. The Educational Psychologist, Guidance Counsellor and/or Special Education Teacher (where qualified) may carry out specific psychological or psycho-educational assessments. The itinerant/resource teacher for students who are blind or with low vision may assess specific compensatory skills such as visual efficiency or appropriate use of a white cane for mobility. The ophthalmologist or optometrist may assess changes in the child's visual acuity since his or her last appointment. Parents of the child may assess whether or not homework is being carried out more or less independently as the school year progresses, whether or not stress levels are changing or whether or not learned skills are being generalized. Assessment of the child is ongoing and, comprehensive, whether formal and informal.

Psycho-educational assessments are designed for, and normed on, various populations. It is crucial to know whether or not an assessment tool has been normed on learners who are blind or low vision. Since there is a small population of learners with visual impairments, examination of results may be more subjective as there will not likely be a large norm group from this population. Results from assessment tools will tell a great deal about a child's functioning but they may have to be interpreted

differently, taking into account the effect of the child's visual condition on his or her functioning. It is essential that the examiners of learners with low vision are familiar with particular tools used for learners with low vision and make the necessary adjustments to interpretation of results in order to accurately conduct a psycho-educational assessment.

Data gathered from assessment results is used to evaluate student achievement, to identify the strengths and weaknesses of specific programme/curricula, to compare the performance of learners across different subject areas, to improve teaching and learning, to facilitate student certification and to ensure accountability. Some of these learners have additional needs which require the expectation of different curriculum outcomes. When a child with low vision is scheduled to participate in an assessment, it is necessary to provide equal access. Specific adjustments to the examination (with permission from the test publishers), and/or accommodations/adaptations to the assessment process and environment, will ensure that the child with a visual impairment participates in the examination.

Assessment of students who are blind or Visually Impaired targets concept development, social skills, careers and other such areas. Assessment tools are chosen according to the child's needs and at the request of the Individual Education Plan (IEP) team. These needs are determined by the age, ability and degree of visual impairment of the child being assessed. Various checklists of skills may prove useful as well, particularly when observing learners. There is a variety of functional vision assessment tools available and a variety of tests for depth perception, visual acuity and contrast sensitivity. This ongoing evaluation form enables teachers to follow the child's progress throughout his or her school years. Programmes that assess learners

with low vision need to consider re-examining the content of their courses and assignments that are focused on these assessments to determine if they are adequately covering the topic. The curriculum should be adjusted as needed. There may also be a need to determine whether students with visual impairments are appropriately assessed and to explore the possibility of a uniform method of recording and reporting FVAs, as originally suggested by Shaw et al. (2009). Students with visual impairments are each unique in terms of how their visual impairment affects their functioning in educational settings (Lueck, Erin, Corn, & Sacks, 2011). They can also have characteristics, such as additional disabilities and sensory preferences that will affect how they function. These unique characteristics are why many teachers of students with visual impairments individualize assessments and why they reported that they would be interested in a standardized form if it could still be individualized (Shaw et al., 2009). Children with cortical vision impairments also display unique characteristics and must be assessed differently compared to students with ocular impairments. To address this need, Roman-Lantzy (2007) developed a specific tool, the CVI (cortical or cerebral visual impairment) range, to assess the functional vision of students with CVI. The CVI range was also determined to have internal consistency and inter-rater and test-retest reliability (Newcomb, 2010).

According to Shepherd (2006), negative experiences of learners with disabilities makes them disadvantaged. This creates uneasiness among the learners.

2.12 Summary of literature review

The literature review has pointed out a number of issues on the academic experiences of learners with low vision. This included teaching methods used to teach learners with low vision, how the curriculum is adapted to teach learners with low vision, the teaching and learning resources used to teach learners with low vision and how

academic achievements of learners with low vision were assessed. Learners with low vision were individuals with visual impairments and so the need to create an enabling environment for these learners to participate meaningfully with their sighted peers.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The main objective of this chapter is to discuss about the design and methodology selected for the study. The focus is on the sample selection and methods that were used to collect, evaluate and present data. Finally, the ethical issues appropriate to this study were discussed. The primary purpose of this study was to explore the academic experiences of learners with low vision in Avakpedome Unit for the Blind. In an attempt to increase the extent and clarity of the study, a qualitative method was employed.

3.2 Research Approach

The researcher employed the qualitative research approach to guide the conduct of the study as the experiences of the learners were more of descriptions. According to Stake (1995) as cited in Kusi (2012), qualitative studies aim at understanding the phenomenon in the context of the study. The research strategy dwelled on the research objectives of the study. The three main strategies are quantitative, qualitative, and triangulation (Baiden, 2006). The choice to follow any particular strategy depends on the purpose of the study, the type and availability of information for the research. This research follows a qualitative strategy. The choice of this approach is due to the fact that verbal descriptions would be used instead of figures to analyze the data gathered.

3.3 Research Design

The researcher used the case study design for the study. It involved finding out the academic experiences of learners with low vision in Avakpedome Unit for the Blind

with respect to what they go through in how the curriculum is adapted to suit their peculiar needs, how they are assessed in the classroom and the teaching and learning materials employed to deliver lessons and the teaching methods their teachers use to teach them. The design was used also because the study was centered at a particular setting. According to Yin (2003), case studies involve intensive investigation on a complex phenomenon that contributes to the individual as a social unit, family, group or a community. The research design provides a plan according to which the research will be conducted. A research design ensures that the study fulfils a particular purpose, and the research can be completed with available resources.

3.4 Population

The population used for the study was 38. This number comprised learners with visual impairment in the Avakpedome Unit for the Blind. Population refers to a group of people of interest to the researcher (Avoke, 2005). The learners with low vision are the ones who benefit from the academic experiences in the school because they are the people who are in the Unit for the Blind and can give reliable information for the study.

3.5 Sample Size

According to Avoke (2005), sample is the subset of the research of the entire population of interest to the researcher. The learners selected for the sample size were from basic 5 to 9 and aged from 15 – 31 years. The learners with low vision also formed part of the sample as they are the main target of the research. The study used a sample size of 6. These are learners with low vision in the school. These were learners who could express themselves for reliable data to be gathered.

3.6 Sampling Technique

Purposive sampling was used in this study by the researcher which simply means that participants were selected because of some defining characteristics that distinguishes them for the data needed for the study. Creswell (2008) explained that purposeful sampling is when a researcher selects participants or sites or documents that will help in understanding the problem and the research question. According to McMillan and Schumacher (2001), purposive sampling is when the researcher selects particular elements from the population that will be representative or informative about the topic of interest on the basis of the researcher's knowledge of the population.

An adjustment is made about which subject should be selected to provide the best information to address the purpose of the research. The primary consideration is the judgment of the researcher as to who can provide the best information to achieve the objectives of the study. The researcher goes to the people who, in his/her opinion, are likely to provide the required information and willing to share it. This study falls under purposive sampling because the target group were learners with low vision and at grade levels from 5 to 9 who have the experiences which the researcher sought to find out.

3.7 Instrumentation

Interview is a commonly applied data collection tool for qualitative researches. It is proper for this study to use interview as a tool to collect information because interview is not only "a very good way of accessing peoples' perceptions, meanings, definitions of situations and constructions of reality", but also "one of the most powerful ways we have of understanding others" (Punch, 2005)

The study used a semi-structured interview guide to solicit responses from the respondents in the study. Kusi (2012) says interview is one of the common tools or instruments used to gather data in a qualitative study. He also added that semi-structured interviews give researchers the opportunity to probe and expand the responses of interviewees to ascertain their feelings and experiences about a phenomenon. Patton (2002) cited in Best and Kahn (2006) and pointed out that interviews simply serve as a basic checklist during the interview to make sure that all relevant topics are covered. In this study the researcher used the semi-structured interview which was purposefully determined by the need to explore as intensely as possible into the individual's subjective experiences of the observable facts in question.

3.8 Methods to Ensure Trustworthiness

A common term used to describe validity in qualitative research is trustworthiness. Qualitative researchers can establish trustworthiness by addressing the credibility, transferability, dependability and conformability (Silverman, 2005) cited in Best and Kahn (2006). Credibility relates to the degree of confidence in the findings of the research, or how believable the findings are. Believability is made easier when the researcher provides a rich, thick description regarding the setting, participants, procedures and interaction (DeVos, 2001). I also included parts from the interviews and provided background on each participant. Credibility was also achieved by asking the relevant and clear questions. I defined all terms clearly for the respondents for easier responses. The same questions were asked in each interview. I made my data available to my professional peers, so that they could verify the accuracy of the results.

3.9 Procedure for Data Collection

Data collection is the technique or process used to gather and analyze data related to the research questions. All of the data collection techniques have strengths and weaknesses. Qualitative research uses different forms of data collection than those used in traditional research methods. Best and Kahn (2006) state that qualitative methods consist of three kinds of data collection: (1) in-depth, open-ended and close ended interviews; (2) direct observations and (3) non-participatory focus group interview discussion.

An introductory letter was sought by the researcher from the Department of Special Education at the University of Education Winneba which was used to seek permission from the school and the parents of the respondents to conduct the study. The interview dates were agreed on by the researcher and the respondents on phone with respect to the convenience of the respondents. Specifically, the researcher employed the interview to gather data for the study by visiting the respondents in their homes because of the Covid-19 pandemic which resulted in the closure of schools. Though the study was school-based, it was impossible for the researcher to get the respondents to one point. This was because the study coincided with the emergence of the Corona-virus (Covid-19) which ravaged the entire world thereby forcing countries including Ghana to put a temporary closure on schools and making the targeted population to disperse. This situation therefore made it imperative for the researcher to visit the respondents in their respective homes for their responses. Using one-on-one interview technique was to encourage openness and to gain real contextual information separately from each individual without any interference.

3.10 Data Analysis

After data was collected from the participants through interview sessions, the responses were given various codes and analyzed through the thematic approach. The responses were organized taking into consideration issues of credibility, transferability, dependability and conformability as stated by Best and Kahn (2006). They also confirm that qualitative research often results in voluminous notes from interviews. The methods of organizing these data usually differ, depending on the research strategies and data collection techniques used. Interview data, for instance, may be organized according to individual respondents. The researcher used interviews which consisted of direct quotations from people about their experiences, opinions, feelings, and knowledge. In this research the researcher used the interview to find adequate information on the academic experiences of learners with low vision. The data from the interviews consisted of direct quotations from participants regarding their experiences, knowledge attitude and opinion. The researcher also wanted the interview to remain flexible so that other important information could still arise. This researcher was very attentive to the responses of participants, so that he could identify new, emerging lines of question that were directly related to the experience being studied and explored. The researcher used all the data collected to answer the research questions. Data analysis is conducted so that the researcher can detect consistent patterns within the data. In this study, the interview recordings were re-played and transcripts were organized. The data was then transcribed. After the transcription process, the interview was re-read several times to identify the major categories and themes contained in the transcript. After this process the data was interpreted, analyzed and described so as to be understood.

Information gained from the interview was analyzed according to the responses. The consistent patterns were labelled with codes. Then the codes were collapsed into themes. Thematic analysis while grouping similar types of occurrences were followed. This whole process allowed the researcher to interpret data which involves the writing of a final report about the research findings.

3.11 Ethical Issues

Ethical issues were given serious attention in the research work. Participation of respondents in this study was on a voluntary basis. In planning for a research project that involves human beings, it is important to consider the ethical guidelines designing to protect the respondents. Without some restraints, experimental practices may cause serious injury and infringe upon human rights (Best & Kahn, 2006). Furthermore, Cohen, Manion and Morrison (2005) states that social scientists generally have a responsibility to protect their participants. Whatever the specific nature of their work, social researchers should consider the effects of the research on participants and act in such a way as to preserve their dignity as human beings. It is important to inform the participants about the purpose of research and discuss with them before starting the data collection process and this was duly done.

Participants were told they could withdraw from the study at any time they wanted to. The researcher gave the participants a chance to ask about the study before participating in it. I told the participants that information gained from them would be used only for research purposes. The researcher also requested participants' permission to record the interview sessions. All the information collected from the participants were secured and remained confidential. In order to protect the privacy of the respondents, the researcher did not use the respondents' names. Gaining entry to

the study population was done in consultation with the consent of relevant authorities as well as the targeted study population. The researcher consulted the unit head of the school in order to get access to the telephone numbers of the respondents or their parents. Before starting the interview, the interviewees were informed about the objective of the study, convenient time of taking the interview few days before and assured that their identity would be kept confidential. The interview sessions for each respondent lasted for about 50 minutes.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This study investigated the academic experiences of learners with low vision in Avakpedome Unit for the Blind in the Volta Region of Ghana. This chapter focused on the findings that were obtained through interview to determine the experiences of learners with low vision at Avakpedome Unit for the Blind. The specific research questions of the study were answered using the responses of the learners with low vision. This chapter presents the analysis of results and discussion of the findings.

Table 1: Demographic characteristics of respondents

Learners	Age (Yrs.)	Class
1	15	Basic 7
2	18	Basic 9
3	20	Basic 5
4	24	Basic 6
5	31	Basic 8
6	29	Basic 7

Source: Field Data (2020).

Table 1 represents the respondents used for the study. Their grades ranged from 5 to 9. This was made up of 3 males and 3 females. The males aged 15 to 24 years while the female respondents age between 18 and 31 years.

4.2.1 Research question: What are the teaching methods used in teaching learners with low vision at Avakpedome Unit for the Blind?

Learners' experiences on the methods used to teach them

To answer this research question, the interview data collected was used. The following were the responses from the learner respondents regarding their experiences relating to the teaching methods:

Each of the learner-respondent was able to describe their experiences relating to how their teachers gradually presents lessons to them in the class. L1 says:

> "*For instance when it is time for a lesson, the teacher revises verbally what he taught the previous day and then writes the new topic on the chalkboard and then goes straight to define whatever term is there"*. "*He then shows how a particular thing is done on the chalkboard after which he asks 'do you understand?*'(Verbatim expression by a respondent).

All the learner- respondents (L1, L2 L3, L4, L5 and L6) however attested to the levels of difficulty they experience with regards to the teaching methods. For instance, learner respondent L2 stated that*:*

> *'Mostly I do not follow lessons in class as I think the methods used are not friendly to me. The result is that I lose interest in some subjects in class as the teacher does not vary the methods he uses to teach us for us to understand and it makes me to get low marks.'* Learner 3 said 'for *me with the teaching methods, I only benefit from the verbalization of instructions and not the demonstrations*.' '*I will therefore say my experience is a mixed one*'

Learner respondent 4 also said:

> "*There are so many teaching methods available to be used to teach but because of my low vision condition I am only comfortable with the discussion method* '*which helps me to be able to be part of the lessons.*' *'I do not benefit from the other methods and so it negatively affects my experiences in classroom work.'* Respondent 5 responded to the question by saying '*Particular teaching methods such as the demonstration and method does not help me.' 'Even the discussions made in class during lessons without recordings also does not help me much"*

Learner 6 describes the teaching methods as

> "*One which does not give learners with low vision good experiences as the methods employed gives me negative learning experiences.' 'For example the one that the teacher dominates and we are not given the opportunity to contribute'* she added *that 'most of the topics are not activity centered and so it makes our teachers to use the lecture method to teach them"*

The responses suggested that the teaching methods employed to teach learners with low vision included the lecture and a little of activity method. The learners generally complained that the methods are too much 'one way' and does not benefit them. They also spoke about the repercussions of how they are not able to sufficiently benefit from the teaching methods.

The responses on the theme revealed that learners with low vision are taught using teaching methods such as the lecture and a little child-centred methods. While some of the learners with low vision stated that the use of some of these methods helped them to meet their diversity of learning needs, others also expressed different views.

4.2.2 Research question 2: How is the curriculum adapted for learners with low vision at Avakpedome Unit for the Blind?

Experiences of learners on how the curriculum is adapted for them.

Learners with low vision were interviewed to find information on the theme. When the learners were asked for their experiences concerning the adaptation of the curriculum, they came out with quite a number of responses: the respondents L1, L2, L3, L5 and L6 agreed to the fact that though in a way, the curriculum is adapted, they still do not have favorable experiences. Learner-respondent L1 said,

> *"I like my teachers to give me special attention in class, but it is not so." During the class there is no special material provision, or preparation for me and for others with low vision." The only alternative for me is using my ears, to listen while the teachers are teaching or explaining orally in the classroom".*

Furthermore, learner-respondent L2 said:

> *"Some of the teachers just write on the chalkboard and tell us to do a class or homework, without reading for us' 'in such a case, I ask sighted learners to read for me from the chalk board or the text book. 'Sometimes I feel sorry, that I am not considered by the teacher in the classroom.' 'Also, some of the teachers do not put in any humor and it makes the whole lesson boring ''I think if the school gives me magnifying eye glass it will help me to read print'.*

Learner-respondent L2 stated that,

> "*My parents couldn't buy me what I need for my education like Braille writing materials such as slate, stylus, braille paper, braille books". When I realized that I cannot fulfil these necessities then I feel bad that I am dependent on others" In addition to this, when it is time for Physical*

> *Education and the class is asked to go out onto the field, those of us with low vision are left behind when I believe it is the duty of the school to see to the total development of the learners including ensuring physical growth and well-being.' 'However the school is not able to cater for our sports needs'*

For instance, respondent L1 says:

> *I find it difficult to understand some of the concepts our teachers teach, particularly when it comes to definitions where I need to memorize volumes of words in order so as to be able to reproduce."* (Verbal expression by a respondent).

L2 also says "*I find it extremely difficult to understand most lessons in Mathematics and Science"* (Verbal expression by a respondent). *L3* also added his voice on curriculum adaptations by saying that*: "Due to the way subjects such as Mathematics is taught, and the level of difficulty of the topics, I find it extremely difficult to understand'* (Verbal expression from a respondent)

L5 lamented bitterly on the low marks that he obtains in exercises, tests and examinations in ICT, Mathematics and Science because what is in the curriculum seem to be too difficult and above them due to their disabling condition.

Learner-respondents L4, L5, and L6 further stated that in view of what they as learners with low vision should be taught, they should be provided a completely different curriculum to cater for their needs so that there would not be anything like adaptation of the existing general education curriculum.

As teachers of the blind and particularly of learners with low vision, it is important to note that learners with low vision will have difficulty reading texts and illustrations

from the chalkboard and so the teacher should find a way to make learners with low vision to also benefit from acquiring information written on the chalkboard.

The above responses from the learner-respondents revealed how the curriculum adaptation available for learners has affected the academic experiences of learners with low vision. With a few adaptations available, the learners spoke about some of the subjects such as Mathematics and ICT which they suggested should be looked at.

The experiences of the learners with low vision can only be described as not the best in terms of the effect of how the curriculum is adapted for their academic benefit.

4.2.3 Research question 3: What are the teaching and learning resources used to teach learners with low vision at Avakpedome Unit for the Blind?

Experiences of learners on the teaching and learning resources used to teach them

Interview questions meant to elicit the experiences on the teaching and learning resources available to learners with low vision revealed the following:

L1 said:

> *"The teaching and learning resources which our teachers use to teach us do not always help us to understand lessons'. For instance, when it comes to subjects such as Mathematics, most of the instructions are done on the chalkboard with just little or no materials for us to feel and use even after the lesson for us to be able to closely follow the instructions"*

Learner respondent 2 also added his voice by saying that

> *"Our experiences on the teaching and learning materials can best be described as biased and discriminatory'. We the learners with low vision expect that the teaching and learning resources used to teach us should be low vision-friendly so that we can fully benefit from lessons' For example, we do not have acoustic materials to help us through the provision of sound for us to benefit from instructions'.*

Learner 3 also said:

> *'The use of a few teaching and learning materials such as the abacus for instance in teaching some topics in Mathematics is so challenging and as such we those with low vision find it difficult to complete learning tasks'. This situation makes us to score low marks in the subjects and in the topics'.*

Learner 4 took her turn to add that:

> *"Even though the use of teaching and learning resources is the right way to go in order to understand lessons, I want to say that the resources used do not help us much as most of the materials are not user friendly to us'. So I will say that our experiences in this regard is not a favorable one to us'*

Learner 5 also contended that:

> *'It is only a few teaching and learning resources that are used to teach us and that is to say that we do not have any good experiences in the use of the learning resources used to teach us'*

Learner 6 commented that:

> *"It is not a nice experience having to fall on other means of understanding lessons sometime through abstract memorizations as the teaching and learning materials used to teach us do not help that much.'*

The experiences of the learners with regards to the use of the teaching and learning resources teachers use to teach them. The responses suggested that the materials used to teach them does not often help them to understand lessons due to their condition. This situation tend to have a negative impact on the academic experiences.

4.2.4 Research question 4: How are learners with low vision assessed at Avakpedome Unit for the Blind?

Learners' experiences on how their academic achievement are assessed

Learners with low vision needs to be assessed particularly in the classroom to find out their progress in academic work. The assessment of learners with low vision is so vital that the researcher sought to find out the experiences of these learners with regards to how they are assessed in the classroom particularly to find out their progress of academic work. All the learner-respondents expressed their bitter experiences on how they are assessed particularly at the end of the school term.

Respondent L1 stated that:

> "*When it comes to classroom assessments and exams (formative and summative assessments), we those with low vision do not perform well and this is partly because the test or exam items are not friendly to us." "By this I mean that we are made to answer questions meant for the sighted."*(Verbatim response from learner-respondent 1).

Respondent L2 said:

> *"When it gets to examinations, we rely on some of the students from other classes to read examination materials to us." "These students are not able to fluently read to us and this affects our performance as the teachers will be busily transcribing our scripts for marking" "Due to the unavailability of braille embosser in the school, we are unable to get our examination questions in braille and so we rely on some students of the teachers reading examination tests or questions to us." This does not augur well for us because when we go in for the final WAEC examinations, we are found wanting when the braille version is provided because we are not well trained in it"*

Respondent L3 responded as:

> *"The examination bodies do not provide braille versions at the school, district and regional levels even though we those with low vision also pay for the examination printing and so the reading of examination questions to us takes a long time and makes the readers exhausted and making us to lose concentration.* (Verbatim response from learner-respondent 3)

Respondent L4 said:

> "*The failure of the examination bodies to provide braille versions of examinations gives a negative impact on our learning experiences as the reading takes a longer time at the expense of the time for the answering of the questions*."

He added that:

> "*There are no provisions for oral or verbal kind of examination or tests be it summative or formative even though the school did not make any provisions for large prints to cater for the needs of those of us with low vision.*"

Learners with low vision on assessment issues lamented about the absence of braille embossers which makes them to go through a lot of difficulties when being assessed. The assessment concerns with experiences that leaves much to be desired. The responses clearly stipulate the challenges that the learners go through in the form of their experiences as well as what the learner-respondents think should be done to improve on the situation thereby improving their experiences also.

4.3 Discussion of Findings

Research question 1: What methods are used to teach learners with low vision at Avakpedome Unit for the Blind?

Teaching learners with low vision requires some skills to succeed in getting them understand lessons in order for them to benefit from academic work. Learners with low vision by virtue of their disability would require special lesson delivery means in order to benefit from lessons. To this end, strategies that would benefit the learners with low vision would be helpful in boosting their academic experiences.

The responses showed that they still felt that they do not benefit or get the right experiences and leaves them dissatisfied as the teaching methods were not varied and relevant. Some of the findings from the interviewees suggested that lessons were not participatory enough to cater for the peculiar needs of the learners with low vision. They stated that when lessons are made to be participatory, they are encouraged to make inputs as well as ask the necessary questions that bothered their minds. The

"trial and error" (that is, trying to do things for oneself) is critical in encouraging learners to learn on their own.

From the findings, it was revealed that the teachers use the demonstration method in teaching learners with low vision at Avakpedome Unit for the Blind. It required the use of teaching materials to rightly demonstrate an activity. Moreover, learners with low vision are supposed to be given the opportunity to demonstrate what they learn so that they are able to better understand the concepts. The learners with low vision again stated that the use of this method helped them to have a feel of objects at the centre of lessons as they handled the objects. They also stated that with this method, they are encouraged to work in groups and benefit from a diversity of ideas from their colleagues in the group.

The experience on the use of teaching methods such as activity method was also discovered in which the learners were engaged in performing series of activities which the learners stated that it helped them to have a favourable experiences aimed at ensuring the understanding of lessons. When learners with low vision are able to use their residual vision to see how an activity is performed, it leaves a lasting memory than for them to just hear about it.

The lecture method was also identified with the experience described as not favorable It is not child-centered in nature. This method needed to be varied with other methods for the required experiences as its isolated use does not help learners at that level as it does not take into consideration the views of learners with low vision. According to the respondents, this method does not make them to feel part of lessons as the teacher dominates the entire lessons. When this method is being employed, most of the learners are seen dosing-off and are unable to follow the lessons. This suggested that

most of the learners with low vision were only passive recipients of knowledge during teaching and learning activities. Their explanation laid emphasis on two-way interaction in the sense that learners are not the passive recipients of knowledge but also have to contribute to their own learning. For interaction to be effective in the class, teachers have to acknowledge questioning and

Cooperative group work can be powerful in increasing learners' understanding of concepts and positive attitudes towards the work and each other. When implemented well, group work allows teachers to spend more time with individuals and small groups. The analysis and finding above concerning the use of differentiated instruction and scaffolding is in line with the views of Ferrell (2007). This researcher noted that there are various teaching strategies intended to modify learner behavior are applied to support learners in the teaching process; for example, the differentiated approach to teaching; reciprocal teaching; scaffolding instruction; the use of technology to aid inclusion; multiple intelligence; multi-level instruction; and multi-sensory instruction. The above finding or indication contradict with Vygoskian (1978) theory on Zone of Proximal Development which establishes that when a learner cannot accomplish a given task but the task is within the learner's zone of proximal development, using the right tools and appropriate assistance by the classroom teacher the learner may be able to accomplish the task.

The experience discovered as a result of the use of the discussion method was also favourable. It allowed for the learners to fully participate by making inputs on their views on a particular issue. This method is participatory as it makes the learners to learn new ideas from their colleagues and their teachers. The learners with low vision state that this method helps them to contribute to issues as well as ask questions on

topics that they do not understand. They further added that the method makes them to feel free and speak-up their mind in class. This helps them to understand lessons better.

Research question 2: How the curriculum is adapted for learners with low vision at Avakpedome unit for the blind?

The need for the curriculum to be adapted to cater for the peculiar needs of learners with low vision was another issue which the researcher looked at. Learners with low vision can equally excel in academics. However, they will need major adaptations to be successful in academics and orientation in general education settings. From the learner-respondents, it was stated that there were problems with how the curriculum was adapted which they said accounted most at times for their low academic performance. Learners with low vision will not be comfortable with what their sighted counterparts are comfortable with hence the need for some adaptations to the general curriculum so that it will ensure the inclusion of learners with low vision. Polloway (2008) also indicates that even though learners with visual impairment learn similarly like their sighted peers, their inability to process visual information efficiently results in their needing specific curricular and instructional modifications. In the Avakpedome Unit for the Blind, the experiences of learners with low vision with regards to how the curriculum is adapted cannot be described as a favourable one as indicated by the learners with low vision at Avakpedome Unit for the Blind.

The curriculum adaptations that were identified included adaptations to time. More time was supposed to be allocated to learners with low vision to complete tasks. In spite of this, the learners still think it is not enough particularly when it came to tasks that are involving and required the use of objects or materials which the learner with

low vision has to gradually study before attempting to answer. Some of the learners confirmed the availability of instructional materials to meet the learning needs of learners with low vision. This result confirms the findings of Ocloo (2003), who stated that many learners 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 learner 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 learners with low vision.

Optical devices play a key role in enhancing vision and reducing visual disability in learners with low vision. They include standard prescription spectacles optical low vision devices for distant vision and optical low vision devices for near vision. Another adaptation was the Information and Communication Technology (ICT), Science and Mathematics which the learners felt should be looked at for most of the topics which they said were unfriendly to them. The learners stated that most of the materials available for reading are in the normal print, therefore the need for modifications such as enlarging printed materials to a sufficient size so that the student can see them. In relation to this, making instructional modifications and providing special material training on how to use it, environmental intervention and doing different activities are crucial elements of intervention measures**.** This urge coincides with Tirusew (2002) who indicates that if the environment (for example, the school system) is rejecting, insensitive, hostile and degrading type, this will not only complicate the adjustment of persons with disabilities for that matter, learners with low vision but also have a negative bearing on their development. He further says that, this in turn adversely affects their self-esteem which is usually characterized by lack of trust and confidence in one self and the surrounding, low

self-esteem and a feeling of hopelessness. Douglas and Sue (2009) stated that the majority of learners with visual impairment have some remaining or "residual" vision. It is recommended that specialist services should carry out regular functional visual assessments on learners with low vision to enable professionals to design appropriate educational intervention. Such assessments should draw upon the views, expertise and assessments of a broad range of stakeholders, including optometrists, ophthalmologists, teachers, and parents. When low-vision aids have been prescribed, appropriate training should be provided for staff and pupils.

The findings from the study on this theme revealed that the learners were not happy with how the curriculum was adapted at the Avakpedome Unit for the Blind. For instance, it was revealed that the enlarged versions of printed materials to cater for the needs of learners with low vision was an issue that discriminated against the learner with low vision in the school. According to the respondents, the very few enlarged and tactile materials are not in line with the new curriculum and can therefore be described as obsolete. These learners required the use of large prints to read on their own. However, it was revealed that there were woefully inadequate large prints in the school for the learner with low vision to use. Marylyn (2008), agrees that one key adaptation that is absolutely essential is access to textbooks and instructional materials in the appropriate media. This is in line with Ocloo (2011) who stated that learners with low vision would be able to read large prints and writings that are bold enough for the child depending on his/her level of impairment. However, the situation at the Avakpedome Unit for the Blind seemed different as reveled by the respondents. Furthermore, chalkboard illustrations according to the learners are not bold for the learner with low vision to benefit.

Verbalizing classroom instructions is one sure way of making learners with low vision benefit from lessons taught. This agrees with Salisbury (2008) who argues that verbal information is helpful and as such should be incorporated into the teaching and learning of the blind and the low vision. It was revealed that learners with low vision are often neglected in the course of lesson delivery when the right adaptation of a particular topic or content is not in place. Some of the subjects such as Mathematics, Information and Communication Technology as well as Science appear to be totally unfriendly to the learner with low vision as they do not see themselves as part of these lessons.

The unavailability of a braille embosser in the school was identified as a factor that made it impossible for braille versions of printed materials to be produced. That notwithstanding, the closed-circuit televisions serve only three learners with low vision at a time. These experiences of learners with low vision does not augur well for their academic excellence. In addition, Carmen (2014) reports that inability to read printed material or diagrams, learners with low vision may access information in a variety of ways, for example braille, audio or enlarged print. Braille readers cannot skim read and may take up to three times as long as other students to read a text. Students with some vision may be large-print readers or may not be able to read at all without using special computer software or low vision devices. Many learners with low vision prefer materials in electronic format and may use screen readers such as JAWS. Some students may want material reformatted into alternative formats. Extra time is often needed for this, and the learners may have to wait for the material to be produced for them. Furthermore, finding books in the library may be impossible without assistance. Many will be unable to read examination questions and handout in standard print or read their own handwriting when answering examination questions.

They may also be unable to take their own notes. Extra time is needed to carry out some tasks, such as locating words in a text when shifting from one reading medium to another.

Recording lectures can also be useful and teachers of these learners should be prepared to accept such requests 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 low vision for later playback at their convenient time (UNESCO, 2001). It was also revealed that audio recorders which were given to these learners are not put to their right use as most of them load them with music which they listen to. A few of them also had misplaced their recorders.

Research Question 3: What teaching and learning resources are used to teach learners with low vision?

The use of teaching and learning materials/resources is one sure way of doing away with abstract teaching and learning. Learners with low vision stand to gain a lot when they are taught with materials that are tactile in nature for them to have a feel of them. Some of them are: large print materials, taped materials, braille papers, tactile drawings, low vision aids and braille versions of print. Unfortunately, the situation at Avakpedome is not a favourable one as most of the items listed are not available or inadequate in the school.

Findings from the study showed the experiences of learners with low vision as some of them described the situation where they are not taught using appropriate teaching and learning resources which according to them do not help them in remembering topics taught, thereby making them get low marks during examinations. This is in sharp contrast to what some authors such as Ocloo (2011) said about that materials

such as slate, stylus, braille papers as well as Braille typing machines, magnifying glasses should be provided and used. He added that these materials are needed to teach learners with low vision. According to the respondents, the few available braille versions of print materials are not in line with the current curriculum and so it is not really of any use to the learners with low vision as stated by some of the respondents.

According to the respondents, the inadequate teaching and learning materials makes them dull in class as it demotivates them to follow lessons. The rather disturbing finding of inadequate teaching and learning resources for the teachers to use for the benefit of learner with low vision has the tendency of making these learners not to adequately benefit from academic instructions and this had been clearly stated by the learner- respondents who according to them have difficulty in retaining what they have learnt in order to reproduce what they had learnt. This is also in line with Ocloo (2011) who contended that learners with low vision may require support such as special seating, large print materials, taped materials, lighting considerations, provision of low vision aids, orientation and mobility and other supports or accommodations/adaptations based on the nature and severity of the visual impairment. Regarding the facility of learning environment and teaching material for learners with low vision, it should be acknowledged that learners with low vision may require supports such as special seating, large print materials, taped materials, lighting considerations, provision of low vision aids, orientation and mobility (travel training) and other supports or accommodations/adaptations based on the nature and severity of the visual impairment. The majority of learners with visual impairment require bright light and slightly more time and space than sighted learners to perform certain tasks. For example, due to their low vision, they may be unable to quickly find an item or the first line on a page.

From the responses, it was revealed that there was unavailability of teaching and learning resources at Avakpedome Unit for the Blind to support the academic experiences of learners with low vision and This situation is contrary to the work of Wiazowski (2009) who recommended that a combination of simple self-made material and ready-made commercially produced teaching aids should be available and utilized to the benefit of learners with low vision.

Research Question 4: How are learners with low vision assessed at Avakpedome Unit for the Blind?

Assessment serves as a benchmark to measure the teaching methodologies, the resources used in teaching the learners as well as how the adaptation of the regular school curriculum is effective. Findings from the study which sought to answer the research question on how learners with low vision are assessed at Avakpedome Unit for the Blind revealed that:

Learners with low vision are compelled to heavily rely on their sense of hearing to answer the questions during examinations due to the fact that they cannot read print. This they said is because they are not provided with braille-versions for them to acquaint themselves with the skill of reading the braille. Reading examination questions is quite a laborious task to the reader who normally is either a teacher or a sighted colleague from a different class. This is in line with Candido (2008) who stated that learners with low vision may not be able to read a text on a board and they could miss the funny faces or expressions that often accompany a lively classroom discussion. When the reader becomes exhausted, the reading does not flow anymore and the understanding of the content is also affected. For instance during English language examinations particularly reading comprehension passages, they are

required to keep in mind volumes of the passage to be able to answer the question that follow. When this happens, their exam scores are significantly affected. This situation is in line with the work of Alonge (2005) who stated that rules and formulas are memorized but often this information is not connected in a coherent frame work that would allow learners to make sense of it and to use it in new situations simply to acquire facts. It is also in line with Mitchell (2008) who found out that tools used to assess students in classrooms are rigid and not adapted.

The learners with low vision also lamented on the time allocated to finish class tests, assignment and examinations which they describe as inadequate. Sometimes because a particular lesson has ended but they are unable to complete assignments, the next teacher does not wait for them, instead goes ahead with another subject thereby depriving them as they cannot follow the new lessons from the start or concentrate on the assignment to be done as the teacher also wants to mark all the scripts at a time.

Classroom assessments are done without taking into consideration the diverse needs of learners with low vision in the classroom. For instance, when the teacher put any test item on the chalkboard, he/she does not read it through for the learner with low vision. The learner would have to rely on the sighted colleague for the items to be read to him. This normally comes with mispronunciation of words or spellings of the words to them which takes a lot of time. The sighted who is reading this is at the same time working on his own work. With this problem, the learner with low vision had to rely on the teachers to read examination question to them at a time that learners want to be as independent as possible. These learners can use large prints or braille versions of examinations. The absence of this takes learners through experiences that are not the best. The school does not have braille embossers to provide the braille

versions. When the learners sit for the Basic Education Certificate Examinations (BECE) they seem not able to cope with the fast reading of the braille versions provided as they are not conversant with it.

Another issue which hampered the assessment of learners with low vision which gave the learners bitter experiences was that the Perkin braillers in the school have all broken down and so learners were compelled to fall on the slate and stylus which they say does not aid them to write fast enough. They also explained that with the use of the stylus and slate, it is difficult to write and proof-read one's work at the same time unlike the brailler. Children with cortical vision impairments also display unique characteristics and must be assessed differently compared to students with ocular impairments. To address this need, Roman Lantzy (2007) developed a specific tool, the CVI (cortical or cerebral visual impairment) range, to assess the functional vision of students with CVI. The CVI range was also determined to have internal consistency and inter-rater and test-retest reliability (Newcomb, 2010).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion and the recommendation for the study.

5.2 Summary

This study focused on the academic experiences of learners with low vision at Avakpedome Unit for the Blind. The main objectives of the study was to find out the experiences of learners with low vision on teaching methods, resources and curriculum adaptations and means of assessing learners with low vision. The following research questions were raised that guided the study;

1. What are the teaching methods used to teach learners with low vision at Avakpedome Unit for the Blind?
2. How is the curriculum adapted for learners with low vision at Avakpedome Unit for the Blind?
3. What teaching and learning resources are used to teach learners with low vision at Avakpedome Unit for the Blind?
4. How are the academic achievement of learners with low vision assessed at Avakpedome Unit for the Blind?

Summary of Findings

1. It was revealed that the learners with low vision at Avakpedome Unit for the Blind do not benefit from well varied and relevant teaching methods to cater for their condition.

2. It was also revealed that methods of teaching that do not put the learners with low vision at the centre of the lesson and therefore ends up making the learners feel not being part of lessons.
3. Another finding from the research was the fact that the curriculum was not well adapted to suit the academic needs of learners with low vision thereby making the learners not to fully benefit from lessons.
4. In addition, learners experiences on the teaching and learning resources such as low vision-aids to be used to teach them was not a good one. The learners therefore felt abandoned and unattended to.
5. It was also revealed that the assessment of children with low vision leaves them at a disadvantaged-end as it does not consider their low vision condition.
6. Another finding was the learners with low vision were compelled to use the braille at the expense of the use of low vision aids and large prints, an experience they described as bitter.

5.3 Conclusion

The present study examined the academic experiences of learners with low vision at Avakpedome Unit for the Blind with regards to the teaching methods, teaching and learning resources, curriculum adaptations teaching and learning resources and assessment issues. The findings from the research had actually exposed the issues that needed to be looked at when it comes to the academic experiences of learners with low vision. These issues need immediate attention by all the stakeholders in the education of learners with low vision in order to improve on their experiences.

5.4 Recommendations

Based on the findings of the study it is recommended that:

1. Teachers of the learners with low vision require great deal of skills and competence in handling these learners and this gives the institutions responsible for the training of our special education teachers more responsibility in the training of these professionals as they are under pressure to meet numerous different standards and they may not approach teaching learners with special educational needs/disabilities with the level of care and commitment that would usually be required for it to have a greater success.
2. The researcher would want to bring to the notice of the institution responsible for the designing of the curriculum to work closely with the Education of the Visually Impaired (EVI unit) of Special Education Division of the Ghana Education Service to take a second look at the content learnt by learners with low vision as stipulated in the curriculum and strategize to meet the level and needs of the learners with low vision.
3. Also, at the various Colleges of Education in the country, teacher training should be in respect to teaching learners with low vision so that the graduates from these institutions will be adequately equipped with the skills to handle the academic needs of their learners with low vision in the classroom.
4. The provision of teaching and learning resources to schools with learners with low vision is also one way to boost the experiences of these learners in the institutions. In light of this, the unit responsible for the provision of these resources should discharge its duty diligently to the benefit of learners with low vision.

5. It is also suggested that the Continuous Professional Development platforms should be used to serve as refresher courses for teachers in the various special and integrated schools for the blind to expose them to variety and effective teaching methods to impact learners with low vision in our schools.
6. The West African Examinations Council (WAEC) should assess some of the learners with low vision who can hardly benefit from large prints and braille, in a verbal way so that these learners are not left behind.

5.5 Suggestion for Further Study

The study was limited to the academic experiences of learners with low vision at Avakpedome Unit for the Blind. A similar study conducted in other schools or unit schools for the blind in the country will confirm or disprove the results of the present study. When this is done, a more general picture of what learners with low vision go through in their academic work will be uncovered. The method adopted however for this study can be used for a similar study. The study could however, depending on the researcher's interest, expand the scope to cover more than the strands used in this study.

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APPENDICES

APPENDIX A

Data Collection Instrument

Dear Participant,

I am a student of University of Education, Winneba currently working on my thesis leading to the award of an MPhil in Education, specializing in Special Education. My research title is 'Academic Experiences of Learners with low vision at Avakpedome unit for the Blind in the Volta region of Ghana. The purpose of this study is to explore the academic experiences of learners with low vision in the Avakpedome Unit for the Blind. I hereby request your participation in this interview which will help me to satisfy the requirements of this degree. You should note that participation is voluntary and you are at liberty to skip any question that you feel you cannot answer. The interview is semi-structured so the questions I ask will be guided by a schedule but it allows us to discuss any issues that you think are important in further depth.

The interview will be recorded and typed up verbatim by myself with the questions and responses noted. The confidentiality of the respondents will be well protected as the ethics of a research study demand. The questions will be on the academic experiences of children with low vision in the school. The interview is purely for academic purpose and as such your identity would be concealed. The results of this study will be presented as part of the MPhil. Thesis. Thank you for agreeing to participate in this study. I will begin recording now and start the interview.

APPENDIX B

Interview Schedule for Learners with Low Vision

Demographic Characteristics of Respondents

Age: …… Grade: ……. Sex: ……. Age of onset of disability: …….

Research Question 1

What are the teaching methods used to teach learners with low vision at Avakpedome Unit for the Blind?

1. What can you say about how your teachers present lessons to you in class?
2. Probe: How are your experiences on the methods your teachers use to teach you?
3. What can you say about the appropriateness of the teaching methods teachers use to teach you?
4. Describe your experiences on how the methods used to teach you help you to understand lessons?
5. What are your experiences on the steps your teachers take to cater for your low vision condition when teaching?

Research Question 2

How is the curriculum adapted for learners with low vision at Avakpedome Unit for the Blind?

1. Describe your experiences on how you are taught so that you also benefit from instructions
2. What are your experiences on topics you consider difficult during your studies?

1. Probe: Why do you think they are difficult?
2. What experiences do you have on topics are you exempted from learning?
3. Probe: Why do you think you are exempted from those topics?

Research Question 3

What teaching and learning materials are used to teach learners with low vision at Avakpedome Unit for the Blind?

1. What are some of these teaching and learning materials used by your teachers to teach you?
2. What are your experiences on the teaching and learning materials your teacher uses to teach you?
3. What are your experiences on the impact or the relevance of the teaching and learning resources on your understanding of concepts?
4. What do you think is the relevance of the teaching and learning resources you are taught with?

Probe: What help are you given in identifying these materials?

Research Question 4

How are learners with low vision assessed at Avakpedome Unit for the Blind?

1. What are your experiences on how you are assessed by your teachers in the classroom?
2. Describe your experiences on the means by which you are assessed in the classroom?
3. What are your experiences on the time you are given to complete written assignments?
4. What experiences do you have on tackling examination questions with diagrams, sketches, drawings and pictures?

Probe: What suggestions can you give on how you are assessed?

CONSENT

1. I confirm that I have voluntarily agreed to take part in this research interview dated --------- for the above study.
2. I understand that my participation is voluntary and that I am free to withdraw any

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6th July, 2020

TO WHOM IT MAY CONCERN

Dear **Sir/Madam,**

LETTER OF INTRODUCTION: MR. AGBAGBA SAVIOUR KODJO

I write to introduce to you, ***Mr. Agbagba Saviour Kodjo*** an M. Phil student of the Department of Special Education with index number 8180150001.

He is currently working on his dissertation on the topic: ***"Academic experiences of learners with low vision at Avakpedome unit for the Blind."*** He needs to conduct an interview from your school.

I would be grateful if you could give him the needed assistance to enable him to collect the data.

Thank you for your consideration and assistance.

Yours faithfully,

DEPARTMENT OF SPECIAL EDUCATION
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DR. DANIEL S.Q. DOGBE

Ag. Head of Department