UNIVERSITY OF EDUCATION, WINNEBA

AN INVESTIGATION INTO CHALLENGES STUDENTS WITH VISUAL IMPAIRMENT ENCOUNTER AT THE UNIVERSITY OF EDUCATION,WINNEBA

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SEPTEMBER, 2016

DECLARATION

STUDENT'S DECLARATION

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

Name: Morny Bright Kwaku Success

Signature:…….

Date:…….

SUPERVISOR'S DECLARATION

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

Supervisor: Samuel Kweku Hayford (PhD)

Signature:…….

Date:…….

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DEDICATION

This work is dedicated to Princess Sonia Morny and to all students with visual impairment at the University of Education, Winneba

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ABSTRACT

This study investigated the challenges students with visual impairment at the University of Education, Winneba encounter while participating in academic and social activities. Sixty two students with visual impairment were purposively selected for the study. A case study research design was used for the study in which questionnaires and observations were the main instruments used in collecting data for the study. The quantitative data collected were fed into the Statistical Package for the social sciences SPSS version 21.0 and analysed using frequency counts and standard deviations. Findings from the study revealed that the compound of the University of Education, Winneba is not friendly to students with visual impairment. The findings also revealed that students with visual impairment experience minor instructional challenges as a result of lecturers' awareness on disability related issues. The data also brought to light that the university academically includes students with visual impairment thereby promoting some level of socialization. However, findings from the socialization issues also revealed that students with visual impairment are not included in sporting activities since the university has no planned sporting activity that can enable students with visual impairment partake in hence students with visual impairment feel excluded. The result of this study further revealed some major problems encountered by students with visual impairment in the school; these include inadequate resource persons, poor terrain, and inadequate resources among others. Recommendations such as periodic in-service training for lecturers, employment of adequate resource persons and designing the compound and buildings to suit all students including students with visual impairment were made to limit the challenges of students with visual impairment in the university.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Students with visual impairment are a heterogeneous group with varied nature of difficulties that require adequate attention in some major aspects including the physical environment, instructional adaptations, good socialization and support from resource persons in order to achieve good academic performance when placed in regular schools. This study however investigated the challenges faced by students with visual impairments at the University of Education,Winneba.

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 ensure equal access to the core and specialized curriculum, to enable them to most effectively compete with their peers in school and ultimately in society.Visual impairments impose some basic limitations and challenges on the students with visual impairment within the university. These challenges include inaccessible environment, challenges in accessing information, challenges in relating with others and challenges associated with accessing support from resource person. The stated challenges adversely affect the learning of students with visual impairment. There is therefore the need for this research to be conducted to bring to light the various challenges stated for relevant stakeholders to be aware and devise strategies to address them to improve upon the academic achievements of students with visual impairment.

Murugami(2004) contends that, visual impairment limits the amount of information received by students about their environment and people within their environment and

can limit the type and quality of experiences available to them. He further argues that only a thorough understanding of these challenges can lead to appropriatestrategies to adopt in the education of students with visual impairment.

The university environment should be different from the ordinary learning environment, because the university is an inclusive setting that contains students with different learning needs and abilities (Simon, Echeita, Sandoval& Lopez,2010). In addition, the teaching strategies determine the approach a teacher may take to achieve learning objectives (Turnbull, Turnbull &Wilcox, 2002). Instructional methods on the other hand used in any learning situation are primarily dictated by the learning objectives decided upon by the course developers. In many cases, combinations of methods are used to facilitate the learning experiences (Hosken, 2008). The goal of a comprehensive programme for students with visual impairment should be one of increasing their independence. The functional skills assessment identifies the areas of need and provides structure to address those areas. The first skills to be taught are those which the student needs most often in order to function more independently in a least restrictive environment. For the student to benefit from specialized instruction, it may be necessary for some students to receive appropriate related services.

In implementing an educational programme, attention should be given to the instructional techniques used, the functionality of the skills taught and the age appropriateness of the instructional materials and activities used (Best, Heller &Bigge, 2010; Hardman, Drew &Egan, 2005). The lecturer needs to know whether there are any medical or physical factors that limit performance or affect what should be taught and how it should be taught. The lecturer also needs to know what capabilities the learner possesses as well as deficits and excesses demonstrated and

the point at which instruction should begin. Thus, there should be a direct correlation between what is on the test and the curriculum content.

Teaching methods and materials used in lecturing also pose a lot of challenges to students with visual impairment as they make them feel neglected during lectures. The reality in most institutions, especially in universities are that they do not lay much emphasis on the kinds of teaching methods used by lecturers during lessons. Instead, most universities stick to the traditional ways of lecturing which involves the use projectors, pictorial illustrations, body gestures and talking to the class. These practices or methods of teaching do not benefit students with visual impairment as they do not have sight to see them. However, the Ghana Education Service (GES)seeks) to implement a number of teacher in-service courses for improving classroom teaching. Meanwhile, universities in Ghana are not run by the Ghana Education Service hence there is the need for the University of Education, Winneba (UEW) authorities to consider conducting periodic in-service training for lecturers to be conversant with the current trend of teaching inclusive classes with students with visual impairment. This goes a long way to mean that the curriculum for teaching should be well examined at every level of education. Johnsen (2001) observed that, adaptation of teaching and learning materials and environment is at the core of successfully including persons with disability into the mainstream. He further argues that, if the teaching materials and environment in which learning occurs is not supportive to students with visual impairments, their learning will automatically be interrupted.

Fraser and Maguvhe(2008) argue that, the context in which learning occurs that is inflexible curriculum and inappropriate assessment procedures, are factors leading to ineffective learning among students with visual impairments. For quality learning of

students with visual impairments, some features and conditions should be adhered to. These include 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). Therefore, there is a need for all educational stakeholders including teachers in classes where there are students with disabilities to consider restructuring the education system and practices, in order to help these students learn better in the inclusive settings (Fraser &Maguvhe, 2008).

Another challenge that students with visual impairment face within the university is poor socialization among their colleagues and staff. Students with visual impairments have difficulty socializing with friends and colleagues due to lack of non-verbal communication (Fraser &Maguvhe, 2008).This strongly affects the learning process of these students with visual impairment. With the absence of good socialization, students with visual impairment in need for support from colleagues and even resource persons find it difficult approaching them. The attitude of others has significant impact on the student with visual impairments, namely, psychological and social adjustment. This is because students learn more outside the lecture halls through group discussions with other peers on what has been taught by making productive contributions. Students with visual impairment are most of the time left out since socialization poses a challenge.

Meanwhile, students with visual impairment experience challenges in access to educational experiences such as reading words without extra help to make him or her understand what those words mean. For example, names of animals and objects can be easily read by a visually impaired student but without the real object or embraced diagram/ models, the learner may not make sense of vocabulary read but meaning could be derived by the help of peers. In an inclusive setting like the university,

enough learning materials such as Braille text books, Braille writers, Perkins Braille machines, computers, talking calculators and talking books. Palmer (2005) stressed that the adjustment in teaching strategies, learning materials and other assistive devices, and good classroom management are necessary. This also implies that the environment which accommodates all learners regardless of their individual differences is very important. The environment should be designed in such a way that it allows all learners to participate in learning processes through different activities with a flexible curriculum which caters for learners with different backgrounds, cultures, learning needs and abilities.

Identification of appropriate reading medium for students with visual impairment is also a challenge. Therefore, accurate identification of the appropriate reading medium/media for a student who is visually impaired is crucial in guaranteeing educational and personal success. Holbrook (2009) defines the decision making process for selecting a student's literacy media through the use of a learning media assessment (LMA).

Students with visual impairment have two media options when it comes to active reading skills, these are braille and print. However, deciding on the most appropriate option represents a challenge for teachers (Holbrook, 2009), particularly when dealing with a student with visual impairment who is able to function visually in many areas but who reads large print only under certain conditions and with poor efficiency. Therefore, when trying to determine the most appropriate reading medium, students need to be evaluated individually as they progress and their literacy needs change. Some visually impaired students may benefit most from learning to use print, others may benefit from un-contracted or contracted braille, while other students may benefit from using both print and braille. On the other hand, others may not be able to benefit

from either braille or print but rather from using exclusively an auditory or tactual medium (Lavigne& Adkins, 2003).

The inadequate number of resource personnel to support students with visual impairments is another challenge to the students. There seem to be only two resource persons available in the university to support the rising numbers of persons with visual impairment. This poses a great challenge to students with visual impairment as they find it difficult accessing these resource personnel to support them individually.

The education of students with special needs in this contexts student with visual impairment is a critical part of the transition process stipulated in the Ghana Individual with Disabilities Education Act (IDEA, 2004). However, this comes along with challenges in terms of adequate provision of support services both human and material even though the Act mandates that appropriate support services need to be provided for students with disabilities in tertiary education settings to enable them to live in an inclusive community. The attainment of tertiary education is often a transition goal and a pathway towards successful transition from school to employment (Powers, Gil-Kashiwabara, Greenen, Balandran& Palmer, 2005). It has been found that students with disabilities are less likely to attend university and have much lower income than their peers (Scarborough &Gilbride, 2006). Over the past few decades, the development of the labour market demands had increased the necessity of possessing a tertiary degree. The merits and skills earned through pursuing a tertiary degree are important assets for successful future employment. Individuals with disabilities require tertiary, vocational-technical training and employment skills to become employable (Stodden, Conway& Chang, 2003).

Meanwhile, there are challenges in the provision of technology to support students with visual impairment making it very difficult for these students to access education fairly as their sighted colleagues. Studies have shown that accessible tertiary education is influenced by the use of assistive technology and proper teaching methods (Stodden, Kim-Rupnow, Thai& Galloway, 2003). Hence, tertiary degree, technology and instructional supports are seen as a means for individuals with disability to secure good qualifications and to become independent and very useful to the society at large. Although students with disabilities have shown a greater participation in education, the rate of students with disabilities enrolled in our institutions especially at the tertiary level are below their peers without disabilities (Powers, Gil-Kashiwabara, Greenen, Balandran& Palmer, 2005).

There is the need for students with visual impairment to be taught by orientation and mobility trainers in order for them to be able to adjust to situations. The adjustment processes include adopting new learning skills which are necessary to meet academic demands, repeating the same course several times and even lengthening the study period at the university beyond the standard four years (Gurb, 2000). It is clear that students with disabilities encounter a number of obstacles to successfully complete their work and that they have a range of support needs. These needs will of course differ depending upon the student, but they often include access to specialised equipment or facilities. It has been noted that assistance required by students with disabilities often includes funding, equipment such as scanners and computers with voice synthesisers in libraries, adaptable systems in the library, information networks, disabled parking lots and access and exam arrangements which take into account the needs of disabled students (Holloway, 2001). These resources can help students with disabilities to attend university and access facilities in a more flexible way. This is

often important for students who have difficulties with some of the tight deadlines imposed by universities and whose health is adversely affected by their disability. Access to equipment and material resources, however, needs to be accompanied by some level of pastoral support. Research conducted by Jacklin and Robinson (2007) revealed that students with disabilities value a range of support including somebody to talk to about programme expectations or workload, a listening ear when feeling stressed up about workload or about personal matters, reassurance that they are capable of doing the work, help with essay writing and financial advice. Personal and interpersonal support was seen as crucial. Encouragement was deemed particularly useful, especially if it provided opportunities to talk to other students about work (Jacklin and Robinson, 2007). Support can be provided by a variety of people. Other students can be particularly important.

However, very few universities in the country admit students with visual impairment due to lack of facilities and resources for them. Unfortunately the very few universities in the country that have the capacity to enroll students with visual impairment seem to lack some basic resources to aid the full inclusion of the visually impaired making them face a lot of challenges within the academic arena. Kumar, David, Ramasamy, Stefanich and Greg (2001) state that the visually oriented and visually complex concepts and information in classrooms pose significant challenges to learning among students with visual impairment. Without systematic instructional attention to these challenges, learning may seem inaccessible to many students with visual impairments.

This study therefore investigated the kinds of challenges that students with visual impairment at the University of Education, Winneba face which make them encounter difficulties both in learning and socialization.

1.2 Statement of the Problem

The University of Education Winneba is a tertiary institution which admits persons with disabilities including the visually impaired alongside persons without disabilities. Since the adoption of the policy of inclusive education by Ghana, students with visual impairments are being admitted into regular schools. These students are being educated alongside their sighted counterparts. In most inclusive settings, students are taught by general education teachers who may not be very prepared and knowledgeable in the field of teaching students with visual impairments in regular schools. In some of these regular schools teaching aids and special equipment may not be available. The students are faced with lots of academic problems. According to Taylor (2004), the lack of such amenities including special materials and support services adversely affect the academic performance of students with visual impairment.

Some students have difficulties in reading print and writing on the whiteboard, accessing information and organizing it or even affecting their mobility. Another challenge and possible implication in learning posed by the concept of visual impairment is what Hardman and Stensel (2009) referred to as language and speech development. According to them, students with visual impairment lack the ability to visualize and associate words with objects.

However, interaction with some of the students with visual impairment on campus revealed that despite the effort of the Special Education Department in providing them with some resources and the braille resource room, they still have various challenges including inaccessible physical environment, inadequate learning materials, poor socialization and insufficient resource persons. Some of the students disclosed the challenges they go through in the course of mobility as they have their lectures on

separate campuses. They further explained how sometimes they fall into open gutters and at other times are left at the mercy of reckless drivers in an attempt to cross the roads on the UEW campus.

1.3 Purpose of the Study

This study investigated the challenges of students with visual impairment at the University of Education, Winneba. The specific objectives of the study were to find out:

1. The physical environmental challenges that affect students with visual impairment at the University of Education, Winneba.
2. The instructional challenges students with visual impairment face in the University.
3. The challenges associated with socialization among students with visual impairment and sighted on campus.
4. The challenges students with visual impairment face in accessing support from resource persons.

1.4 Research Questions

The following research questions were used to guide the study:

1. What environmental challenges do students with visual impairment face in the university?
2. What instructional challenges do the students with visual impairment face in the university?
3. What challenges in terms of socialization do students with visual impairment experience in the university?
4. What challenges do students with visual impairment face in accessing support from the resource centre?

1.5Significance of the Study

This study is significant because findings from it would help the Development Section of the University of Education Winneba to properly and carefully plan the physical environment for both existing and new projects to suit the needs of the visually impaired students.

Findings from this study would also bring to light the deficits in teaching and teaching methods used by lecturers which would enable the departmental heads and relevant stake holders to adopt proper and effective measures to address these problems. If these training needs and proper teaching materials are provided for the lecturers, it would help improve student's chances of academic and social excellence in and beyond the school. Findings from this study would also prompt the Department of Special Education to increase the number of resource persons to provide support to the students with visual impairment. Finally findings from this research would add valuable information to the body of literature available in Ghana and provide a basis for future research on how to overcome challenges students with visual impairment face in our tertiary institutions.

1.6 Delimitation of the Study

Despite the education of students with visual impairment in other universities in Ghana, this study was limited to the University of Education, Winneba with particular focus on the challenges persons with visual impairment face at the university.

1.7 Limitations of the study

Time scheduled for data collection coincided with the end of semester examination for all students including students with visual impairment at the University of Education Winneba. This made getting students with visual impairment to respond to

the questionnaires very stressful and difficult as the researcher was left with no choice than to obey all instructions by the respondents. The researcher had to go to the extent of renting a bus to convey all the respondents from their exam hall to their halls of residence as suggested by the respondents in order to get them respond to the questionnaire.

However, despite the stated challenges, data was successfully retrieved and did not affect the research process and findings.

Students who are sighted guides to students with visual impairment were also not staying in the same hall hence assembling them for the interview was difficult. Meetings had to be postponed several times due to poor turnouts.

Finally the researcher had a hectic time retrieving the questionnaire from the students with visual impairment as most of them did not respond to the items within the scheduled time. However the difficulties mentioned did not affect the work in any way as much data was generated for the study despite the numerous problems.

1.8 Operational Definition of Terms

Some of the terms used in the study are operationally defined as follows:

Visual Impairment: Visual impairment (VI) refers to a significant functional loss of vision that cannot be corrected by medication, surgical operation, or ordinary optical lenses such as spectacles.

Orientation and Mobility (O&M): is a profession specific to blindness and low vision that teaches safe, efficient, and effective travel skills to people of all ages.

Orientation: refers to the ability to know where a person finds him/herself and where that individual want to go, whether the individual is moving from one room to another or walking downtown for a shopping trip.

Mobility: refers to the ability to move safely, efficiently, and effectively from one place to another, such as being able to walk without tripping or falling, cross streets, and use public transportation.

Orientation and Mobility Specialists: An Orientation and Mobility (O&M) Specialist provides instruction that can help you develop or relearn the skills and concepts you need to travel safely and independently within your home and in the community.

Special Needs: This refers to conditions which could be physical, psychological. Social or cognitive that make someone's performance and abilities differ from that of an average person. It's some form of extra help and assistance that the person should be provided to enable him or her perform to expectation.

Inclusion: inclusion is an educational approach and philosophy that provide all students with community membership and greater opportunities for academic and social achievement. Inclusion is about making sure that each and every student feels welcome and that their unique needs and learning styles are attended to and valued.

CHAPTER TWO

LITERATURE REVIEW

2.0Introduction

This chapter presents the literature reviewed for the study. The strands covered the theoretical framework followed by the review on the various sub-headings derived from the variables raised in the research questions.

- The theoretical framework
- The physical environmental challenges that affect students with visual impairment at the university.
- Instructional challenges that students with visual impairment face in the university
- Social problems encountered by students with visual impairment at the university.
- The non-availability of resource personnel for students with visual impairment in the University
- Summary of literature review

2.1Theoretical Framework

This study was based specifically on the social model of disability and Rawls' theory of social justice. I tried to link the theory to my topic which is on challenges of the visually impaired at the university. The social model sees disability as not the problem but rather the environmental challenges. In the same vein,Rawls' (1999) believed that if persons with disabilities are fairly given the kind of support and assistance just as their colleagues without disabilities they would perform to expectation. Below are the discussed theories.

2.2The Social Model of Disability

During the twentieth century, the emphasis on the 'medical model of disability' influenced theorists' and practitioners' responses to disablement toward becoming ever more dominated by medicine (Barnes, 1990; Oliver, 1990). The 'medical model of disability' placed responsibility for the poverty and elimination of persons with disability at their own hands, viewing this social predicament as an unavoidable outcome of functional impairments of the body or mind (Watermeyer, 2009). Critics of the 'medical model' pointed to its systemic ignorance of social factors which mediate the experience of disability that was then viewed purely as a phenomenon of the disabled body. This critique led to the early establishment of the disabled minority as a political movement, which demanded recompense due to its discrimination and exclusion, which is at the heart of the appalling social suffering of people with disabilities (Barnes, Oliver & Barton, 2002).

The new disability paradigm that has emerged in the last two decades, describes disability not as a medical condition or a personal tragedy of the individual, but as the product of the interaction between the individual and his or her environment. As Oliver (1992: 101) claims, "disability is socially produced". The social model of disability, "locates" disability in society, not in the individual, and identifies social prejudices, inaccessible environments, discriminatory work arrangements and segregated education as disabling societal elements (Oliver, 1996: 32, 33). The model also breaks the causal link between impairment and disability, thus provides an empowering, proactive approach against disabling aspects of society. The model stresses that specific problems experienced by people with disabilities results from the totality of disabling environments and cultures (Oliver, 2004). For example, a visually impaired student is not disabled by his or her loss of sight, but by the poor

environment which pose difficulties in mobility and the lack of accessible reading materials (i.e. braille, large prints). The social model breaks the link between the body and the social situation of persons with disabilities (Shakespeare, 1992) and shifted the view from the impaired body onto society.

However, I observed that though the social model seeks to explain that disability is not as a result of the impairment but by the societal factors, this explanation seems to ignore what Thomas refers to as 'impairment effects' (Thomas, 1999). Impairment effects are limiting aspects of living with impairment that are not created by society; they are a direct result of being impaired (i.e. blind individuals cannot drive due to their impairment). In recent years a number of theorists, particularly feminist, claim that the social model should be extended (Garland - Thomson, 1997; Hughes & Paterson, 1997; Swain & French, 2000). The social model is accused for being 'over socialised' and reductionist (Thomas, 1999). However, it can be argued that any concentration on impairment will be counterproductive for persons with disability. The current research is agrees to the social model of disability, but also accepts the fact that impairment effects influence the lives of persons with visual impairment.

2.3The Social Justice Theory

According to Rawls social justice theory, there should be equal provision of educational resources on the grounds of fairness and equality. Terzi (2010) maintains that "the idea of educational equality is fundamentally grounded in the egalitarian principle that social and institutional arrangement should be designed to give equal consideration to all" (p. 143). Again educational equality is enshrined in EFA policy programme to deal with inequalities in education provision (UNESCO, 1990). Educational equality can be considered as engraved in a theory that views equality in terms of coequal opportunities and on the grounds of fair distribution of resources as a

cardinal element of social justice. On the issues of equality, Sen (2009) contends that: It is not surprising that equality figures prominently in the contributions of political philosophers who would usually be seen as 'egalitarian'. What is more significant is that equality is demanded in some basic form even by those who are typically seen as having disputed the case of equality and expressed skepticism about the central importance of distributive justice. Equality was not only among the foremost revolutionary demands in the eighteenth-century Europe and America; there has also been an extraordinary consensus on its importance in the post-Enlightenment world

Thus the demand for equality by the less privileged in society and egalitarians in one way or the other in any sphere of human Endeavour sterns down from history and can therefore be seen as prerequisite for a just and unified society. John Rawls's "theory is one of the leading examples of liberal egalitarian theories of justice" (Brighouse, 2001 cited in Terzi, 2010 p. 10). In his book "A Theory of Justice" Rawls (1999) argues that deep inequalities not only are they pervasive, but they affect 'people's' initial chances in life; it is these inequalities, presumably inevitable in the basic structures of any society, to which the principles of social justice must in the first instance apply. The justice of a social scheme depends essentially on how fundamental rights and duties are assigned in the various sectors of society (p. 7).

Inferring from the above quote, Rawls (1999) was not only speaking against differences in the societies, but condemns how this will impact negatively on the chances of survival of the disadvantage and in this context persons with disabilities and the marginalized in our societies. Rawls's theory of justice specifies two rudimentary principles. The first is known as "Liberty Principle" under which everyone has the right to enjoy equal basic liberties and the second known as "social and economic inequalities" (Rawls, 1999, p. 53).

The second is in two sections but for the purpose of this study I will consider the second part of the second principle which Rawls (1999, p. 68) referred to as the 'difference principle.' According to him inequalities are only permissible under the precepts of justice. This implies that for differences to exist in our societies it only has to be justified, accepted and allowed only under the umbrella of justice. It is against this framework that the distributive aspect of the theory of justice highlights how educational resources should and must be distributed fairly and equally to all manner of learners irrespective of their physical conditions. The concept of fairness was explained by Sen (2009) when he states that: "The notion of fairness is taken to be foundational, and is meant to be, in some sense, prior to the development of the principle of justice." (pp. 53–54).

I would argue that we have a good reason to be persuaded by Rawls that the pursuit of justice has to be linked to and in some sense derived from the idea of fairness. The concept of fairness and just distribution of educational resources such as large prints, braille sheets, magnifiers among other materials for the visually impaired in the school, good and friendly environment devoid of dangers to the visually impaired and opportunities when offered to the visually impaired students in an effective functioning education system could turn fortunes of the less privileged around and enhance the process of inclusion. To this end, Terzi (2010) argues among other things that "from the conception of disabilities and special educational needs necessary and legitimate educational resources have to be devoted to children designated as having disabilities and special educational needs (pp. 163–164)".

When students with visual impairment in the school are assisted and their resources provided equitably as argued by Rawls in his theory of justice then efforts by the international organizations such as UNESCO and individual nations will go a long

way to strengthen and empower persons with disability to stand out proud and dependent making a positive impact on the society at large.

Conceptual Framework

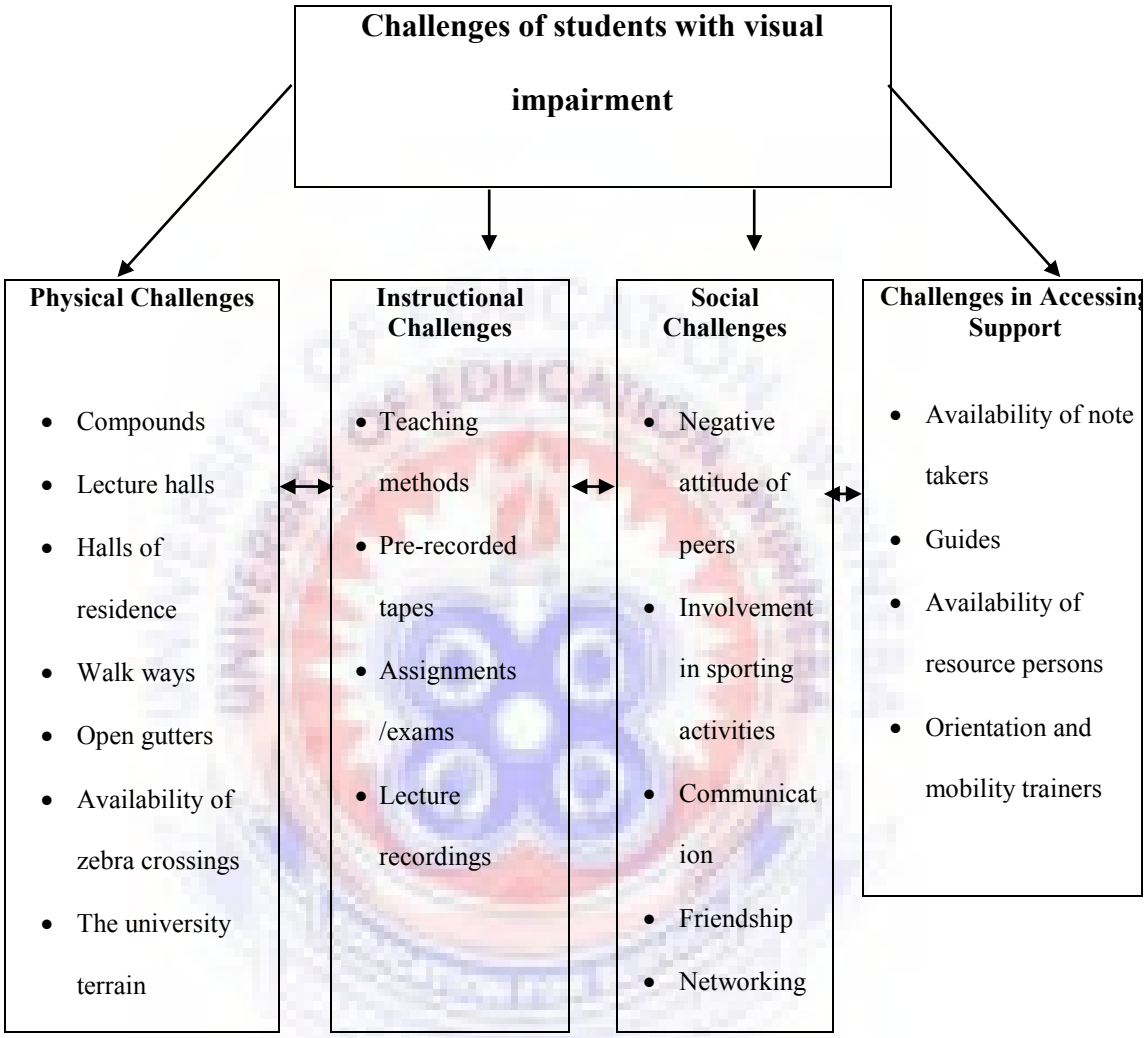

Figure 2.1: Conceptual Framework

Figure 2.1 depicts the conceptual framework that underpins this study. The major issue under study here is the challenges students with visual impairment face within the University of Education, Winneba. To be able to investigate these challenges, themes were drawn from the challenges. These themes are physical challenges, instructional challenges, social and challenges in accessing support. In terms of the physical challenges of students with visual impairment, literature reviewed for this study has it that, a good school environment includes having friendly and

accommodating compound devoid of dangers, free paths all over the school compound, and supervised private places for students that support inclusion (Berry, 2005). Here the researcher focused on getting responses on the challenges students with visual impairment face in terms of the school compound, lecture halls, walk ways among others.

The instructional methods on the other hand used in any learning situation are primarily dictated by the learning objectives decided up upon by the course developers. In many cases, combinations of methods are used to facilitate the learning experiences (Hosken, 2008). However, social challenges faced by students with visual impairment were also another theme derived from the topic. Under the social challenges the researcher considered attitudes of peers towards persons with visual impairment, communication, friendship network among others.

The challenges regarding access to support by students with visual impairment on campus is also one of the themes drawn from the topic. Here the researcher considered note takers, resource persons among others as in line with the literature reviewed for this study.

2.4 Physical Environmental Challenges encountered by Students with Visual Impairment in Universities

Berry (2005) noted that physical school environment is a key factor in the overall safety of students and especially those with disabilities and special needs. School buildings and grounds are to be designed and maintained to be free of hazards in order to support the full inclusion of persons with special needs most especially those with visual impairment. Arguing in the same vein, Berry (2005) further stated that, a good school environment includes having friendly and accommodating compound devoid

of dangers, free paths all over the school compound, and supervised private places for students that support inclusion. However, classrooms are not well designed to accommodate students' assistive technology devices such as the brailler.

Dyson and Slee (2001) asserted in a study that, students spend most of their time in school, hence; the physical school environment has great impact in their academic achievement. The studies further revealed that the buildings in which students spend a good deal of their time learning influence how well they learn.

Studies done in the United States of America in 1990 on the influence of physical school environment on learner's academic achievement have shown that student's academic achievement can be affected either positively or negatively by the physical school environment (Mercer, 2003). Studies done in a unit for the blind in the U.S.A in 2001 by blind association of U.S.A. about student academic achievement and building conditions concluded that the quality of the physical school environment significantly affects students' achievement.

However in working on the physical environmental challenges of the University, modifications of classroom activities, items, equipment, or classroom environments need to be considered. The purpose of making such small modification is to maximize the participation of students with visual impairments without having to make drastic changes (Dion, 2000). Researchers Cox and Kumar (2009) argue that it is important for students with visual impairment to move around throughout the school community and to have support from a mobility specialist to become more familiar with the layout of their schools, including the layout of classrooms, exit doors, library, the cafeteria, and restrooms (Cox & Kumar 2001). With mobile and orientation training,

these students can achieve safe and efficient movement and independent movement within any type of environment whether it is indoors or outdoors.

Though the government of Ghana has embraced the idea of including persons with disability into schools including tertiary schools, most regular schools are still inaccessible to students with disabilities and in this context student with visual impairment. There is a high need for improving upon structures and facilities such as elevators, ramps, paved path ways to get in and around school buildings (MoE, 2002). This could be argued in line with the policies formulated by the country and enshrined in the 1992 constitution of Ghana as well as spelt out in other educational reform programmes. Some parts of these educational reforms reflect on the rights to education for children with disabilities. The right to education is tied to the formulation of policies and their effective implementation. However, Chitiyo and Chitiyo (2007) noted that despite its relevance, educating students with special needs is quite rudimentary in most developing countries.

An empirical study by the World Health Organization and the Centers for Disease Control and Prevention, a conceptual model has been proposed and conducted that shows determinants of the disabling process and the promotion of opportunity that influences quality of life (Patrick, 2000). Their conceptual model attempts to show points of intervention to promote opportunity for disabled persons to thrive in their environment, and to increase their overall quality of life.

Out of 184 disabled participants, 74% reported substantial lack of opportunity to participate in the environment due to restricted accommodations, which resulted in a significant impact in their overall quality of life (Patrick, 2000). Of the four major components, research found that the restriction of accommodations ultimately

affected a mobility-impaired person's ability to live independently, attain economic self-sufficiency, achieve equality of rights, and full participation to take part in community activities for work or recreation (Patrick, 2000).

The Louis Harris Organization, which supported one of the first nationwide polls (known as the Harris Poll) conducted by persons with disabilities, has also sought to ask a number of questions regarding the social integration and activities of Americans with visual impairment (Burgdorf, 1991). According to Burgdorf, "the investigators discovered that people with visual impairment are an extremely isolated segment of the population" (1991, p. 183). Specific findings of the Harris poll (Burgdorf, 1991, p. 184) included the following:

- Two-thirds of all visually impaired Americans never went to a movie theater.
- Two-thirds of all visually impaired persons never went to a sports event, compared to 50% of all adults.
- Visually impaired individuals are three times more likely than sighted people to never eat in restaurants.
- Seventeen percent of visually impaired people never eat in restaurants, compared with 5% of sighted people.

The Harris Poll findings concluded that the most reason why people with visual impairment do not participate in various aspects of commercial, social, and recreational activities that are a routine part of ordinary life for most other Americans - is because they do not feel able to participate safely due to environmental barriers and lack of accessible public accommodations (Californians for Disability Rights Inc., 2012). The Harris Poll further found that 65% of all individuals with visual impairment reporting curtailments of their activities said that the most influencing

limitation leading to their isolation from the community and society is the inaccessibility of buildings and restrooms (Burgdorf, 1991).

In 2008, the Washington University School of Medicine conducted a subjective measure of environmental facilitators and barriers to participation among people with mobility limitations. They applied the Facilitators and Barriers Survey (FABS), which were developed using kinesis elements based on five mobility impairment focus groups (Gray, et al, 2008). The measure was developed using two methods and two phases; phase one qualitative and phase two quantitative. Out of 371 mobility impaired individuals who participated in both phases, the study found that 61% of those individuals contribute the built environment and natural features in the community as prominent barriers contributing to their lack of participation (Gray, et al, 2008).

Additional study conducted by a sociology professor at State University College in Fredonia, New York, "sought to test the hypothesis that the degree of physical limitation, the dependency status resulting from that limitation and social isolation each has a negative effect upon the mental health of the impaired individual" (Ludwig & Collette, 1970, p. 92). The study included 486 respondents who were contacted in their homes and personally interviewed. "In addition to obtaining information on age, income, working status, source of income, degree of physical limitation and dependency, and degree of isolation, an instrument was designed and administered to each subject for the gross measurement of mental health symptoms" (Ludwig & Collette, 1970, p. 93).

Results of the study ultimately discovered a link between physical limitation and social isolation in that study 92.6% of all respondents experienced moderate to severe

social isolation (Ludwig & Collette, 1970). Furthermore, the study found that of the 92.6% who experienced moderate to severe social isolation, 48.9% were significantly impacted with higher rates of poor mental health (Ludwig & Collette, 1970).

Other physical barriers prevent students with visual impairment from participating fully in schools. According to Cain, (2012), these barriers may include small space desk, steps, heavy doors, slippery floors and inaccessible washrooms amongst others. McKevitt (2012) is also of the view that students with mobility disabilities including students with visual impairment have difficulties with steps, or heavy doors and may also need additional desk space if they use a wheelchair, a Perkins braille machine or additional storage space for a white cane or crutches. According to Cain (2012), large class sizes are also seen as a barrier to the inclusion of disabled children in all countries. In economically wealthy countries, class sizes of 30 are considered too large, yet in poorly resourced countries, class sizes of 60 to 100 are the norm. Large class sizes reduce the possibility of using wheelchairs. Inability of institutions to eliminate these barriers excludes children with disabilities from participating in schools. The UN Enable (2004) states that, eliminating physical barriers benefits not just the disabled, but the able bodied persons as well. It further encourages governments to be an example in removing structural barriers that the disabled encounter in public buildings.

According to Calderbank (2009), Governments often ratify international conventions and global initiatives but fail to conform to their goals and requirements. Many signatories of such treaties and agreements as the Convention on the Rights of the Child and the Dakar Framework for Action on Education for All have failed to

modify their educational policies and practices in relation to the right to education of children with disabilities because they may not see it as their responsibility to provide education to children with disabilities. With the believe that people with disabilities are subjects for charity rather than services, government sometimes see this as the domain of non-governmental organizations, which have in many countries been the first to try and provide some form of education or training to children with disabilities, often in small separate schools or centres. Governments fail to take action to include students with disabilities in national education systems because they assume that extensive resources are needed to achieve this. The UN Enable (2004) stresses the importance of the mobility and accessibility of the disabled to facilities in order for them to be well integrated in society. It lays emphasis on how important it is for local authorities to ensure that the specific needs of the disabled are identified and incorporated accordingly. Dion (2005) also emphasis that accessibility measures should be inculcated in all rebuilding or reconstruction efforts; in a bid to ensure that the educational facilities are accessible.

2.4.1 Legal Barking on Physical Environment

The physical and the built environment present one of the greatest challenges of providing equal opportunities and full integration of PWDs in the Ghanaian society. The 1992 Constitution provides that any place to which the public has access shall have appropriate facilities for the disabled. Section 6 of the Disability Act 2006 (Act 715) states that "the owner or occupier of a place to which the public has access shall provide appropriate facilities that make the place accessible to and available for use by a person with disability". Similar provision has also been made in the Act that obliges persons who provide services to the public to ensure that such services are accessible to PWDs. Although there is a ten year moratorium on owners of existing

commercial facilities to comply with the provision of the Act, all new buildings and facilities are required to comply with the law.

The university is also a public place and hence is no exception. This implies that the university environment should be made accessible to all students including students with visual impairment. An accessibility audit carried out on the Parliament of Ghana in 2007 found that the Parliament building (where the disability Act 2006 was passed) was not accessible to persons with disability. Many public places were found not accessible to the disabled and where attempts have been made, it was found to be inadequate. Although the Disability Law came into force more than two years ago, there is no monitoring mechanism within the state or the disability movement to ensure compliance of this legislative provision.

2.5 The Instructional Challenges that Student with Visual Impairment face in the University

Teaching is a process of impacting of knowledge and skills into the learners. There is a problem of teaching learners with visual impairment in the teaching fraternity. The problem is lack of using appropriate teaching method to learners with visual impairment. As Sight Savers International, (2010) explained that, low academic performance of learners with visual impairment resulted from using the teaching method for learners with sight. This problem has caused poor classroom participation and performance among learners with visual impairment who end up with low education levels. It is worrying in the sense that despite effort by the government to provide teaching materials, train teachers, deploy teachers and standard officers, a small number of learners with visual impairment are able to complete their education. Despite the supports that are implemented by the University, barriers to successful instruction still exist. The American Foundation for the Blind (2005a, 2005b) and

Hatlen (2004) claim that many of these individuals are not receiving ideal instruction in regular schools as their sighted counterparts.

One of the recent investigations on instructional challenges and adaptation for children with disabilities in the regular classroom in Ghana is that of Kuyini and Desai (2008). Kuyini and Desai (2008) investigate teachers' instructional adaptation in the regular classroom using 37 teachers. The results of their study show that teachers make limited instructional adaptation, and in some cases, they make no adaptation at all to support children with disabilities found in the regular classroom. Likewise, Agbenyega and Deku (2011) investigated the current Ghanaian teachers' pedagogical practices in the regular classroom. The data for the study were generated from a focus group discussion with 21 teachers. The study concludes that the current teaching practices in the regular classroom in Ghana are prescriptive, inflexible, mechanistic, and do not value variety of learning styles of students. Another challenge is the lack of understanding of visual impairment by teachers.

2.5.1 Lack of Understanding of Visual Impairment and the Needs of the Students

Most classroom teachers have had limited exposure to students with visual impairment (American Foundation for the Blind, 2005a) and do not fully understand the effects of vision loss; and hence do not know how to accommodate their needs (Palmer, 1998). Hatlen (2002) states that, many educators generalize all disabilities and do not distinguish between different ones, such as blindness or cerebral palsy. Hatlen (2002) and Lewis (2002) comment on the disservice that a one-size-fits-all education system does to students whose specific and individual needs may not be addressed.

2.5.2 Lack of Trained Teachers

Classroom teachers often have minimal training in the education of students with visual impairment and this poses a challenge to students with visual impairment in the school (American Foundation for the Blind, 2005a). Some schools attempt to address the issue by offering training on specific topics related to visual impairment (British Columbia Ministry of Education, 2006), but this is often not enough. As a result, students may have teachers who do not have the appropriate knowledge and skills to understand their limitations (American Foundation for the Blind, 2005a).

Furthermore, a shortage of orientation and mobility specialists and qualified itinerant teachers exists, which means that there is often a lack of support from appropriate specialists (American Foundation for the Blind, 2005b; Bina, 1999; Bishop, 1997; Hatlen, 2003; Johnson & Lawson, 2006). Often, even if there is an itinerant teacher, large caseloads and limited time results in students with visual impairment not receiving the intensity of services needed to learn the necessary skills required to achieve academically in their local school (American Foundation for the Blind, 2005a; Hatlen, 2004). However in the case of the University under study, there is no itinerant teacher available hence most students with visual impairment rely on their friends for support where needed and this affects their academic performance negatively.

2.5.3 Lack of Understanding the Expanded Core Curriculum

The importance of the expanded core curriculum may not be understood by many educators (Bishop, 1997; Hatlen, 1997; Palmer, 2005b; Rosenblum, 2000). Instead of recognizing the necessity of interfacing the expanded core curriculum with the regular curriculum and understanding that the skills learned from the expanded core curriculum will assist students with visual impairment with accessing the core

curriculum, some teachers dismiss it as an extra duty that they are unprepared and unqualified to carry out (Hatlen, 1997; Palmer, 2005b). Palmer (2005b) notes that some teachers do not comprehend the importance of the expanded core curriculum. According to Hatlen (1997), teachers either do not recognize that these students are different from their sighted peers, or they are unwilling to take on the responsibility of teaching the expanded core curriculum. Until teachers are fully informed about the importance of the expanded core curriculum, they will continue to view it as an unnecessary burden (Palmer, 2005b). However, teaching the expanded core curriculum comes with various advantages to the benefit of students with visual impairment.

Individuals with visual impairment must be taught specific skills that enable them to access learning and compete with their sighted peers on a level playing field (Bishop, 1997; Hatlen, 1997; Palmer, 2005a, 2005b; Student Support Services, 2001). In order to meet regular curriculum learning outcomes, students with visual impairment need to be taught skills covered in the expanded core curriculum, such as accessing assistive technology and social skill instruction (Hatlen, 1997; Palmer, 2005a, 2005b).

2.5.4 Lack of Time for the Expanded Core Curriculum

The American Foundation for the Blind (2005a) and Hatlen (2004) note that there is often not enough time in the school day to effectively teach the expanded core curriculum. The American Foundation for the Blind (2005a) believes that the amount of time necessary for training in the expanded core curriculum makes it challenging for students with visual impairment to be fully included in the regular school system. They will either have to spend too much time out of the classroom, or they will not have enough expanded core curriculum training (American Foundation for the Blind, 2005a). If these students are concentrating the majority of their time learning the core

curriculum, they are missing key components to training in the expanded core curriculum.

They further argue that for students with visual impairment to have sufficient training in the needed areas of the expanded core curriculum, they should have access to a variety of educational program options, including pull-out time from regular classes, special classes or attending a school for the blind for a determined period of time. However, Kamionka(2002) concludes that these students should remain in the classroom as much as possible.

2.5.5 Insufficient Funding for Specialized Resources

Insufficient funding from the Government and relevant stake holders in securing specialized resources for the blind also pose a challenge to the positive academic performance of students with visual impairment. In order to have equal access to the curriculum and to compete with their sighted peers, students with visual impairment require books in appropriate media, materials, equipment and technology (American Foundation for the Blind, 2005).

These specialized materials can be quite costly (American Foundation for the Blind, 2005a; Bishop, 1997). Assistive technology for these students is very costly and hence there is the need for the Government and other stake holders to assist financially in procuring them. For example, a braille note taker can cost

from $6000 to $9000, depending upon the number of cells in the refreshable braille display, and a Mountbatten Brailler is approximately $5000 (Atlantic Provinces

Special Education Authority, n.d.b). Unfortunately, there is often not enough funding to afford these required specialized resources (American Foundation for the Blind, 2005a; Bishop, 1997).

2.5.6 Insufficient Assistive Technology

Assistive technology, both low tech and high tech, helps improve the basic skills of students with visual impairment, giving them the ability to access literature, attain information and complete assignments and tests (Allan &Stiteley, 2006; American

Foundation for the Blind, 2005c; Student Support Services, 2001). Technology allows these students to achieve learning outcomes in a variety of ways. However there seem to be a challenge in accessing these assistive technology devices due to the scarcity of it. This limits the opportunity of students with visual impairment to perform successfully in their academic endeavor (D'Andrea & Barnicle, 1997; Palmer, 1995; Student Support Services, 2001).

Non-electronic equipment can be very helpful with completing course work (Student Support Services, 2001). For example, students with visual impairment who can write can use dark-lined paper to lessen any eyestrain associated with written work (Allan &Stiteley, 2006; British Columbia Ministry of Education, 2008; Pagliano, 1998; Student Support Services, 2001). Reading stands allow students to have their books as close to themselves as needed, without dealing with muscle fatigue (Student Support Services, 2001). Aids for accomplishing math tasks, such as braille rulers, abacus and braille protractors, helps students to meet prescribed math learning goals (Student Support Services, 2001). A slate and stylus enables students with visual impairment to produce work in braille, allowing them to take notes in class (Student Support Services, 2001).

Electronic technological devices are excellent tools students can use to gain access to the core curriculum (Allan &Stiteley, 2006; American Foundation for the Blind, 2005). Electronic dictionaries equipped with speech synthesizers enable students to

look up the meaning of words quickly and efficiently (Atlantic Provinces Special Education Authority, Student Support Services, 2001). A closed circuit television (CCTV) allows students to view enlarged print on a television screen, giving them access to course material (Allan & Stiteley, 2006; Atlantic Provinces Special Education Authority, British Columbia Ministry of Education, 2008; Student Support Services, 2001). Students can use portable braille notetakers, with either a regular or braille keyboard, and thereby take notes and complete assignments in class (Allan & Stiteley, 2006; Atlantic Provinces Special Education Authority, D'Andrea & Barnicle, 1997; Student Support Services, 2001). Using portable braille note takers which often come with speech synthesizers, students can transfer documents to a computer and can print documents in both braille and regular print (Allan &Stiteley, 2006; D'Andrea & Barnicle, 1997; Student Support Services, 2001). With the help of other assistive technology devices such as, speech synthesis and braille translation software, computers give students with visual impairment a myriad of opportunities, such as using a word processor and accessing the internet, to access prescribed learning outcomes. Assistive technology, in all its forms, allows students with visual impairment to achieve the same learning outcomes expected of their sighted peers (Allan &Stiteley, 2006; Glodowski, 2006; Palmer, 1995).

In addition, Kuyini and Abosi's (2011) study on inclusion of students with disability in the regular classroom is of relevance to the current study. The study reveals that most students with disability in Accra dropout of school because teaching and learning are not adapted to their learning needs. The students with disabilities find lessons difficult to understand and are punished if they do not understand lessons. This practice culminates in some children not thriving in school. The study also finds that provision of learning needs of these students such as feeding and school related

needs is a strategy that should be adopted to encourage school attendance. Finally, Kuyini and Abosi (2011) indicate that adaptive teaching strategies such as explicit teaching, cooperative learning, and social skills instruction enhance learning outcomes and should be adopted for other categories of children with special educational needs. This goes a long way to affect tertiary enrollment of students with special educational needs since they must go through these stages before reaching the university level. However at the university, these adaptations, modifications and materials that will continue to support students with visual impairment are not adequately available making it difficult for students with visual impairment to participate successfully in academic activities.

Another challenge encountered by students with visual impairment is the inability of teachers to replace the students with visual impairment eye roll with knowledge of objects by making use of other senses such as smell, touch and hearing. This pose as a great challenge to students with visual impairment as most of the teaching methods used by teachers is focused on speech and eye to eye contact. Studies have shown that when students with visual impairment are taught in regular classrooms and given the opportunity to smell, touch and feel materials used for the teaching, they best understand the lesson.

Findings from a study by Vassilios, Argyropoulos, Sideridis, Kouroupetroglou and Xydas (2009), is the high levels of hearing performance of students who are visually impaired. Their findings were that students with visual impairment hear at a thin note as compared to their sighted peers. Visually impaired students learn mainly through their sense of hearing in a group situation. Teachers need to be creative and take the role of the student's eyes by giving them the knowledge of objects, sounds, smells and taste (Landsberg, 2005). The use of pre-recorded study materials is a good way for

students with visual impairment to learn. The importance here is to promote belongingness by given students with visual impairment the opportunity to feel comfortable in the classroom to communicate their understanding (Koenig & Holbrook, 2000). When a student with visual impairments is present in a classroom the teacher does not necessarily have to modify the educational curriculum or standards, but rather modifications in the teaching strategies are necessary to integrate students with visual impairments and other students in classrooms (Dion, 2000).

Another conclusion drawn from a study by Goudiras, Papadopoulos, Koutsoklenis, Papageorgiou and Stergiou (2009) was that, students with visual impairment who frequently used screen-reading or magnifier software were more satisfied than their peers, their educational and professional needs were met. Braille is still the basic and unique reading and writting medium of communication and learning for learners who are visually impaired or blind. Therefore they must learn to read and write braille at the same time as sighted learners begin to read and write (Landsberg, 2005). This implies that the curriculum should be designed to make way for the students with visual impairment to have enough time to practice more of braille to enhance their speed. However, students with visual impairment seem not to have such opportunities and these pose challenges towards their academic achievement.

Swanson and Hosky (2001) also conducted a study on educational practices to determine which educational practice positively influences the performance of students with blindness. The findings were that curriculum adaptation that focused on the students needs was successful. Swanson and Hosky from their study, distinguished that providing educators with specific examples on how to improve upon high quality instructional strategies such as explicit practices by combining them with content enhancement and learning strategy instruction is also critical to

improving outcomes for students with blindness. Most programmes that immerge successful are incorporated by systems which are guided by the same principles. All students are not alike and should be educated in the manner that is most beneficial to the individual. No one program or strategy will benefit all students (Goodwill, 2001).

2.6Challenges in the use of Braille and other Assistive Technologies

Students with visual impairment face a lot of challenges in the use of braille for academic purposes. Studies have shown that most students encounter problems using braille as a medium of writing which negatively affect their academic performance. Weikle and Hedadian (2004), challenge the use of particular technologies, contesting the relevance of many assistive technologies in developing literacy among disabled children. With many disabled children unlikely to develop required literacy skills, Weikle and Hedadian argue that in many instances assistive technologies only compound the problem, by providing passive activities. Gale (2001) argues that the current overreliance on technology to support learning has also added to the decline of skills. In particular, the over enthusiasm of educators to divert to technology as a primary learning mechanism rather than a support mechanism is hindering the teaching of literacy skills. Again in talking about technologies the assumption is that this includes computer and other technologies but not braille.

The Australian Braille Authority (2002) agrees, suggesting that technology teaches listening skills as opposed to the desired reading skills. It would appear to be the case that there is a continuum of technologies, ranging from those that require significant interaction with the person and the development of skills, like Braille, on one end. On the other may be text readers, or talking books, which can be accessed passively and do not require the development of skills to any great extent.

Another school of researchers have taken a favourable view of the potential of technology (again, assuming this to be technologies other than braille) and suggest that it is a viable mechanism to support students with visual impairment's learning. Abner and Lahm (2002) argue that it is not assistive technologies that are the problem; it is the inability of students to access them that is causing standards to fall. Results from their study of Kentucky (US) visually impaired teachers suggest that students' limited access to assistive technologies is the primary issue. A further issue is the lack of education available to teachers/lecturers regarding provision of "dynamic" training, incorporating assistive technologies.

One specific technology that appears to assist students with visual impairment and learners generally is the newer generation of digital talking books. However, in developing countries such as Ghana, these newer generation of digital talking books seem not to be available and even in instances where some are available, they are very few to the benefit of students with visual impairment. Lockerby, Breau and Zuvela (2006) conducted a pilot study examining the use of the talking books created with the DAISY (Digital Accessible Information System) standard. The 3-year study found that most participants found the books easy to use while some thought parts were confusing and responded that training was necessary to gain the most benefit from the books. DAISY type talking books are available on compact disks that can be read on specialised players or on computers.

Participants in the Lockerby et al. (2006) study reported favourably on the navigational capabilities of the books. Users expressed a preference for the players over use of the books via computers, possibly indicating a desire to fit in with their sighted peers and not stand out as different. A recurring theme, however, was that some thought that the relatively high cost of players, such as the Victor Reader Pro

player, would prevent many students with visual impairment from using the devices. The study involved participants of all age levels and the use of the system for social, educational and employment-related activities.

The importance of the use of talking books has been taken up by the U.S. National Library Service (NLS) for the Blind and Physically Handicapped, and is reported by Taylor (2004) in a paper examining the new initiative. Taylor reports on the NLS initiative to replace all tape based books with digital talking books (DTB). Taylor argued that the new format is an important advance as it allows the creation of DTBs of varying degrees of complexity, and gives users greater flexibility in using the books with the capacity to set bookmarks, highlight portions of text and conduct keyword searches. Such capacity will, according to Taylor, enhance the use of talking books for students, recreational users and people in the workforce. In addition, NLS is trialling a system of Internet delivery of digital audio magazines.

Stevens, Edwards and Harling (2004) investigated Mathtalk technology, a project that has developed multimodal interaction (using algebra earcons) to allow blind and visually impaired students to access and interpret mathematics material. Employing a visual and auditory format, the key to the technology is its ability to understand algebra notation. In particular, the active and passive elements of visual and listening reading respectively, are built into the system to facilitate the mathematical function when using the system.

Two positive themes were identified from the analysis – that the system provided "compensation for lack of external memory and provision of control over information flow". Through identifying these themes, Stevens et al. (2004) argued that the technology can turn a passive listener into an active reader and provide the user fast

and accurate control over complex information. Hence, this technology potentially provides insight into the possibilities of developing multimodal mechanisms to facilitate active literacy skills among students with visual impairment.

2.7Challenges in Teaching Methods

For decades, learning has been considered as a merchandise of teaching. Teachers have been mostly using non-participatory strategies which are not effective in teaching. An effective teaching is more than merely transmission of information from teachers to students, but rather a complex interaction between the two parts (Webster & Roe, 1998). Therefore, a paradigm shift is required from non-participatory, traditional teaching to modern teaching that involves an interaction between a teacher and a student, where different needs of students are considered (Bowring- Carr& West-Burnham, 1997). However, teaching in inclusive classrooms is not easy, since teaching needs to be more individualized as compared to normal classrooms, where there are little diversities among students (Peters, 2003).

Moreover, it has been pointed out that, the degree of visual abilities varies among the students leading to variation in learning needs and learning strategies for students (Salisbury, 2008). It is this degree of severity that will determine the extent of understanding how the world is organized, and how it can be acted upon (Webster &Roe, 1998). As a result, students with visual impairments require exceptional ways of addressing their academic problems. Therefore, it is important that lecturers of students with visual impairment understand this desire to be able to predetermine the teaching approaches to be used for effective teaching (Salisbury, 2008). The support these lecturers should provide to students with visual impairments should base on the use of different sensory stimulations, such as sounds, smells, textures and shapes, to help them build a picture of the world (Webster &Roe, 1998). Research shows that,

quality lecturers are the ones, who are the best at including students with diverse learning needs (Mastropieri& Scruggs, 2010). Since inclusive education insists on adaptive teaching, a quality lecturer should be the one who considers these adaptations for students' learning.

Although we talk of these modifications and adaptations of teaching and learning environment, in some instances adaptation is not necessary, meaning that, teaching strategies and other practices applied to sighted students can also be applied to students with visual impairment (Raymond, 1995; Spungin, 2002). The following are several methods teachers use to teach students with visual impairments in inclusive classroom. Some of these methods are used as they are but other methods require adaptations to work better for students with visual impairments.

2.7.1 Absence of Collaborative Learning

The absence of encouraging collaborative learning poses a challenge to students with visual impairment as they are denied the opportunity of learning from their sighted colleagues and hence feel isolated. It is believed that in a learning process students differ in capabilities. Students with low ability will learn from their capable peers. Cooperative learning among students of different learning capabilities and learning needs, in an inclusive classroom, has proved to be effective in promoting academic achievement, positive attitude towards the subject, and improving social interaction among students (Johnson & Johnson, 1986; Lypsky& Gartner, 1997; Mastropieri& Scruggs, 2010; Vygotsky, 1978; Wade, 2000). Therefore the absence of collaborative learning will negatively affect the academic achievement of students with visual impairment.

Collaborative learning also enables students to help each other to carry out different tasks. It is a good strategy of teaching students with visual impairment, particularly in the mixed ability groups. It is especially important in third world countries where classes are very large (Mitchell, 2008). In these groups, students with visual impairments should be paired with their fellow sighted students who will help them to organize their works, find correct pages and repeat lecturer's instructions (UNESCO, 2001).

2.7.2 Absence of Questions and Answers as a Method of Teaching

Students with visual impairment mostly feel left out during instructional hours since they lack the eye to eye contact with the lecturer or teacher. Hence this becomes a challenge for them to overcome making the resulting effect to be poor academic performance. Hence the absence of using teaching methods that does not involve questions and answers where students are called upon by the teacher, will compound the problem of excluding these students. Oral method of giving instructions and receiving responses from the students is therefore a good option. A lecturer of students with visual impairment can write down the answers given out orally by a student with visual impairment. Moreover, a tape recorder can be used to record the answers the student is giving. However, through this way, a student cannot review the answers he or she has given for possible correction. Therefore, students with visual impairment and lecturers of students with visual impairment should be consulted before the test is taken, in order to find a better way of assessing a student with visual impairment (Spungin, 2002).

2.7.3 Inadequate Sound Projection and Calling of Students' Names

Inadequate sound projection pose a challenge to students with visual impairment since students with visual impairments do not see, they rely on the voice of the lecturer as

one of the main source of information for learning. It is therefore important for the lecturer to do some or all of the following: - Firstly, the voice of the lecturer has to be pleasant. By pleasant it means that it should produce relaxed tone and pitch. Secondly, the voice of the lecturer needs to be interesting to listen to. Speed of talking, volume and pitch are very important to make the voice interesting for students (Best, 1992). Thirdly, a lecturer should avoid vague statements. Phrases like "over here" or "this and that" should be avoided as much as possible, because they do not help students with visual impairments to understand what a teacher is talking about (Mastropieri& Scruggs, 2010). Fourthly, during the teaching process a lecturer should read the notes aloud while writing them on the board or presenting them on the projector (Spungin, 2002).

Fifthly, lecturers should call the names of students first when they want to address a specific student, ask questions or give specific instructions so that students know specifically whom the teacher is talking to. This seems important, because it helps students with visual impairments feel that they are part of the class and they are effectively included in the lesson (Mastropieri& Scruggs, 2010; Salisbury, 2008). It is equally important to use students' names during class discussions so that students with visual impairments are in the position to understand who is talking (UNESCO, 2001). Finally, the language that has been used for content delivery in the class has been a major hindrance for the level of engagement and academic achievement of some students, especially those with visual impairment (Grace &Gravestock, 2009; Hannell, 2007). The preeminent lecturer is the one who uses simple presentation and communication. The preeminent lecturer also makes follow up on individual student's tasks in order to make sure that they understand the lesson (Westwood, 2003).

2.7.4 Absence of Adapted Written Texts

The absence of adapted written texts comes with a lot of challenges to students with visual impairment. Students with visual impairment have different degrees of impairment from mild to severe hence the absence of adapted written text will come along with challenges. Most students will not benefit from the written texts for further studies to have a successful academic achievement. To help students with visual impairment, teaching materials need to be adapted. For example, printed text can be adapted through increasing the font size, bolding the text, increasing contrast, adding colour, and adjusting spaces between characters. However, the extent of these adaptations depends solely on the severity of visual defects and the needs of the student concerned (Bishop, 1996; Mastropieri& Scruggs, 2010). Therefore, it is important to consult a specialist teacher on preparation of materials prior to the lesson; because different students use different materials depending on the degree of their visual impairment (Spungin, 2002).

Meanwhile, students with low vision should be provided with a copy of notes which are written on the board or presented on a projector. A specialized teacher for students with visual impairment, should help to clarify the lesson to them, and if possible, should teach them before the main teaching session starts (Spungin, 2002). If a lecturer is writing on the writing board or uses visual aids, it is important that he or she uses large writing text on the blackboard or visual aids. In addition a lecturer may use coloured chalks (UNESCO, 2001).

2.7.5 Unavailability of Audio, Optical and Non-Optical Devices

The unavailability of audio, optical and non-optical devices limits the performance of students with visual impairment academically. This is because students with visual impairments rely mainly on verbal information for their learning, audio devices

should be incorporated to aid the teaching process. These include things like audio cassettes and compact discs. However, lesson contents with diagrams and tables cannot be well explained in an audio format (Salisbury, 2008). Moreover, a lesson can be tape recorded and given to students with visual impairments for later playback at their convenient time (UNESCO, 2001). If these devices are provided, it will limit the challenges students with visual impairment encounter during the learning process thereby improving their academic achievement. Besides if a videotape for example has to be shown, it is advisable to show it to students with visual impairment so that through a specialized lecturer's or a classmate's explanation, they understand all the visual concepts in it before the class watched it. For a film with sub titles, a classmate or lecturer can read aloud to the class to help those with visual impairment (Spungin, 2002).

Optical devices such as eye glasses, magnifiers and telescopes use lenses to increase a person's residual vision. They are normally prescribed by a medical specialist while non-optical devices do not incorporate a lens and do not need to be prescribed by a specialist. Things like large prints, braille and braille writer, tape recorders, book stands, recorded and talking, books and calculators etc., 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 the lecturer to encourage students with visual impairment to use visual devices and assistive technologies to help them with vision (Spungin, 2002).

2.7.6 The Absence/Inadequacy of Tactile Materials

Students with visual impairment mostly rely on tactile materials due to their vision lose. It is therefore necessary to make available tactile materials to the benefit of them. The absence of these tactile materials makes it a challenge for students with visual impairment to compete with their sighted colleagues. Lecturers must be aware, that students with blindness have deficit in conceptual experiences and understanding due to absence of visual ability, therefore adaptations of teaching materials becomes important, if they have to learn all the things other students without visual impairments learn in the class. To help this, therefore, these students should be taught physically using concrete experiences (Bishop, 1996; Pauline, 2008).

Following this proposition, these 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 apparently 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).

2.7.7 Inadequate provision of extra time

Students with visual impairment encounter challenges with the time allowance given them for the completion of tasks. Due to the lose of sight, students with visual impairment find it difficult to complete tasks within a stipulated time frame. As a result, most students with visual impairment may record poor academic performance not because they are not clever but due to the time allowance (Salisbury, 2008). Students with visual impairment complete their work very slowly due to the nature of

their impairment (Mastropieri& Scruggs, 2010), therefore, extra time allowance is extremely important for them to process visual information, and complete their written assignments (Salisbury, 2008). For example, students with low vision take longer time to read a text than students with normal vision. Also reading and writing in braille as well as getting information from tactile sources for students with blindness consumes a lot of time. At the same time, students with blindness need much time to integrate information coming through hearing (Best, 1992; Mastropieri& Scruggs, 2010).

Generally, it is acceptable to add half of the time for students with low vision, and twice as much for students with blindness (Spungin, 2002). Many external examinations recognize this requirement and, therefore, give them allowance of up to 100% additional time for students with visual impairments (Salisbury, 2008).

However, curriculum adaptations for the blind should take into consideration; communication issues, mobility issues, motivational issues, instructional strategies and positive behavior.

2.8 The Social Problems that Students with Visual Impairment Encounter with their Colleagues and Staff on Campus

Social, difficulties that may be manifested by students with visual impairment are more of the attitudes of others than of their visual impairment (Hatlen, 2004). A large number of social factors prove to be challenges to inclusion for students who are visually impaired, who often experience poor social interaction while attending regular schools (Hatlen, 2004; Shapiro et al., 2003). Many of these students lack appropriate social interactions, have poor self-image and suffer from low self-esteem (Tuttle& Tuttle, 2004), which combine with a deficiency of social skills, often ends

up translating into social rejection and isolation from their sighted peers (Hatlen, 2004).

A large number of social factors prove to be barriers to inclusion for students with visual impairment, who often experience poor social inclusion while attending regular schools (Hatlen, 2004; Shapiro et al., 2003). Many of these students lack appropriate social interaction skills (Jindal-Snape, 2004; Palmer, 1998; Wagner, 2004), have poor self-image and suffer from low self-esteem (Tuttle & Tuttle, 2004, Warren 1994 as cited in Griffin-Shirley &Nes, 2005; Lopez-Justica, Pichardo, Amezcua& Fernandez, 2001), which combined with a deficiency of social skills, often ends up translating into social rejection and isolation from their sighted peers (Bishop, 1997; Hatlen, 2004; Wolffe& Sacks, 1997 as cited in Kim, 2003; Kekelis& Sacks, 1992 as cited in Palmer, 1998).

Students who have problems initiating social contact with their sighted peers can have difficulties with social inclusion (Celeste, 2006 as cited in Celeste, 2007; Jindal-Snape, 2004). Since sighted students often have minimal knowledge of the differences and difficulties caused by vision impairment (Peavey &Leff, 2002; Rosenblum, 2000), other factors, including lack of non-verbal communication skills (Palmer, 1998; Student Support Services, 2001), not maintaining eye contact (Jindal-Snape, 2004; MacCuspie, 1996; Palmer, 1998), abnormal physical appearance caused by their vision impairment (Wolffe, 2000 as cited in Griffin-Shirley &Nes, 2005; MacCuspie, 1996) and the existence of blindness, such as eye pressing and arm flapping (MacCuspie, 1996; Palmer, 1998) work to further isolate these students from their sighted peers. Other differences, such as assistive technology, may contribute to further isolation (Wolffe, 2000 as cited in Griffin-Shirley &Nes, 2005; Hatlen, 2004). Until social issues are dealt with, students with vision impairment cannot truly

experience successful inclusion (Hatlen, 2004). Hatlen (2004) states that, students with visual impairment do not experience successful social integration in inclusive regular school settings despite social skills being a part of the expanded core curriculum. He claims that they do not learn social skills by imitation or observation, and there is often not enough time in the school day to teach them the necessary social skills (Hatlen, 2004, 2002). Hatlen (2004, 2002) believes that students who remain solely in regular schools are being set up for social isolation.

Koenig and Holbrook (2000) explain that acquisition of social skills by students with visual impairment is an ongoing process because these students cannot rely on sight for social cues but rather they rely heavily on using their auditory, olfactory, and tactile skills. These authors state that in order for students to progress in social contexts, they need to be encouraged and feel comfortable doing so (Koenig et al., 2000). They also communicate the need for continuous feedback from peers and teachers about how they engage in social contexts and the opportunity to practice using their social skills to strengthen them (Koenig et al., 2000). This would lead to a strengthened sense of oral communication especially during class discussions and group work. When students with visual impairment feel excluded or do not have the opportunity to practice engaging in social contexts in class, these students become less willing to take risks and may become more dependent on others for explanations (Koenig et al., 2000). The importance here is to promote belongingness by giving students with visual impairment the opportunity to feel comfortable being themselves in the classroom to communicate their understanding (Koenig et al., 2000).

Students with visual impairment need opportunities to interact with a wide range of peers and staff, including those with very good social and communication skills. There is the need for all categories of students to have opportunities to choose peers

for some activities and support during and after lessons. It is important to provide these opportunities to students with visual impairment such as to empower them socially. It is necessary to understand why a student may choose a particular peer, and to extend their interests and opportunities to develop positive interaction and friendships (Roe, 2008).

Students need to learn how to travel as independently as possible, whether in school or in the broader environment. Case studies show that strong orientation and mobility skills are associated with less social isolation in public schools (Dimigen, Roy, Horn & Swan, 2001). Lewis & Iselin (2002) studied independent living skills among students with and without visual impairments; their findings were that, the number of children with a visual impairment who could walk independently to a friend's house was “alarmingly low.” Shapiro, Lieberman & Moffett (2003)explain that the ability of a student to walk independently on campus and to visit friends at their houses can open doors to socialization, recreational activities, and inclusion. Not being able to walk independently to a friend's house or around the school building can lead to dependence, lack of social inclusion, and isolation.

Everyone is capable of acquiring and strengthening social skills, which is part of our everyday lives. It is important for students to feel comfortable communicating with other students and learn through discussion and listening. Authors Koenig and Holbrook (2000) explain the acquisition of social skills by students with visual impairment is an ongoing process because these students cannot rely on sight for social cues but rather they rely heavily on using their auditory, olfactory, and tactile skills. These authors state that in order for students to progress in social contexts, they need to be encouraged to feel comfortable doing so (Koenig et al., 2000). They also communicate the need for continuous feedback from peers and teachers about how

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There is a forceful interaction between social-emotional and academic achievement. Improving social-emotional competences not only has a positive impact on interpersonal skills and the quality of interactions learners establish, but also on their academic achievement (Aviles, Anderson & Davila, 2006). Teachers on the other hand express the importance of friendships and belonging by at times compromising on academics to help their students become accepted and included (Engelbrecht, Oswald, Swart, Kitching, Eloff, 2005).

Friendship can protect students from dangers to a certain degree, but this depends on the quality of the friendship and the characteristics of the friend. If the friend is an anxious type, this is likely to increase the risk of victimization, while if the student's friend sticks up for them, then that reduces the risk of victimization (Dunn, 2004).

The social relationships we have and support networks we build are vital to our well-being (Liang, Krause, & Bennett, 2001). These become of particular importance in helping the adaptation process when dealing with a chronic sensory impairment (Wang &Boerner, 2008). Reactions to a sensory loss especially sight, resembles reactions to bereavements. People grieve for the loss of something which is part of the inner being (Sharpe, 2002).

Dion (2000) argues that, the presence of students with visual impairment in a classroom does not necessarily mandate a teacher to modify the educational curriculum, but rather modifications in the teaching strategies are necessary to integrate students with visual impairments and other students in the classrooms. Some modifications can also be applied to classroom activities, items, equipment, or classroom environments. The relevance of making such modifications are to maximize the participation of students with visual impairments without having to make drastic changes (Dion, 2000). Researchers Cox and Kumar, (2001) argue that it is important for students with visual impairment to have easy mobility throughout the school community and to have support from a mobility specialist to become more familiar with the layout of their schools, including the layout of classrooms, exit doors, library, the cafeteria, and restrooms (Cox, 2001; Kumar, 2001; Sahin, 2009).With mobile and orientation training, these students can achieve safe and efficient movement and independent movement within any type of environment whether it is indoors or outdoors (Cox, 2001; Kumar, 2001; Sahin, 2009).

In particular, people appear to pine for the loss of vision, lamenting that they cannot perform certain activities they used to such as reading, which manifests into anxiety and tearfulness (Douglas, Corcoran, and Pavey, 2006). To this end, there is the relevance of the need for socialization among students with vision and students with visual impairments. In other contexts, socialization could also be seen as collaboration between two or more people. With good collaboration between students, good academic goals are likely to be achieved. Amoako-Gyimah (2007), viewed collaboration as a group of people working together for a common purpose, objectives and sense of direction. Another pressing issue with regards to the social problems

encountered by students with visual impairment has to do with labeling and negative attitudes.

2.8.1 Labeling and Negative Attitudes

Negative public and social attitudes are major obstacles to accessing the basic conditions required to achieve human potential because they develop, reinforce and solidify socio-environmental barriers to participation in work and other mainstream activities (Clarke et al, 2000 cited by Brostrand, 2006).

The basic conditions required for each person to develop their potential and to live as responsible, autonomous individuals are basic human rights. Understanding and promoting the values underpinning basic rights or the basic human conditions required for development - equality, autonomy, dignity and solidarity/social justice - is essential if governments and individuals are to commit themselves to ensuring that each and every person can access the conditions required to live as self-determining individuals.

Mmbaga (2002) conducted a study in some districts in Kilimanjaro region in Tanzania with the objective of determining the existence of educational arrangements and processes that ensure effective learning for all pupils in primary schools in Tanzania. The study came up with the findings that, teachers were categorizing and labeling students into “bright and dull”. The “bright students” were given more priority to answer questions unlike the “dull students”. Therefore, teaching methods did not consider the needs of students with special needs. Students with visual impairments were present in the classes but teachers were teaching as if all students were sighted using “talk and chalk” strategy.

In the 2006 Public Attitudes to Disability survey, to reduce the social desirability effect, the interviewers stressed confidentiality, anonymity and appealed to the respondents to provide honest answers. The respondents did not know that the National Disability Authority had commissioned the survey or was associated with the survey. In 2001 the same methodology was used and so the social desirability effect is probably similar in the two surveys.

The fact that the social desirability of responding in particular ways to disability issues may be on the increase must be borne in mind when designing surveys and when interpreting results. To date attitudes to disability have most commonly been investigated through direct means and typically involving self-report surveys. Instruments widely used to examine attitudes towards persons with disabilities as a group include the Attitudes towards Disabled Persons Scale (ATDP) developed by Yuker et al (1960) and the Scale of Attitudes toward Disabled Persons (SADP) developed by Antonak (1982). These assess attitudes from a social perspective as opposed to a personal one with questions centering on how persons are, or should be, treated at the societal level (White, Jackson and Gordon, 2000). All these measures are subject to concerns about the influence of socially desirable responses and false positive scores.

The social desirability phenomenon where it becomes more appropriate socially to express particular sentiments and attitudes may account for some of the differences in response found when comparing the results of the 2001 and 2006 public attitudes to disability surveys in Ireland. Socially appropriate responses may not necessarily be reflected in behaviour and such considerations need to be borne in mind when planning and designing future research and monitoring tools. Due consideration should be given to the use of more subtle or indirect methods of assessing attitudes.

In England, Deal (2006) examined attitudes of people with and without disabilities towards other people with disabilities and to different impairment groups. The results were similar and attitudes of both groups fell within the positive threshold of the scale indicating positive attitudes to disability. However, when measured by a subtle prejudice sub-scale of the instrument used, people with and without disabilities produced more negative attitudes. This suggests that people may often hold subtle forms of prejudice towards disability that may not be detected when using more direct methods that allow respondents to respond in ways they consider more socially appropriate.

2.8.2 Attitudes of Sighted and other Students with Disability toward Visual impairment

Attitudes held by the sighted public towards disabilities in general have a similar impact on the psychological well-being of people with disabilities as on people who are blind. Children and older youth who have disabilities are very sensitive to peer interactions and quickly pick up on reactions that peers have toward their disability. If they lack access to positive role models or mentors, it is possible that self-confidence and self-assurance may erode, and their disability may become something that is shameful or negative (Bell, 2010). It is therefore important to identify these negative attitudes and to provide interventions that target negative associations with the disability.

Hergenrather and Rhodes (2007) found that the social context or closeness of a relationship (e.g. work relationship, dating relationship, or marriage relationship) with a disabled person impacts attitudes held by non-disabled undergraduates. Students were asked to imagine being in a work relationship with a person with a disability and to describe how comfortable they would be in such a relationship. Next, students were

asked to imagine being in a dating relationship with a person with a disability and to describe their comfort level with this type of relationship. The same sequence was repeated with marriage relationship imagery. Authors of the study found that the closer the relationship imagined by the students (with marriage being the closest possible relationship), the more negative their attitudes toward disability became. In other words, the closer the relationship imagined with a person with a disability, the more uncomfortable/unwilling participants became about entering into such a relationship. It is apparent that attitudes such as these can have a negative impact on people with disabilities. Similar critical attitudes held by the public have been shown to deeply influence blind persons' social adjustment as well (Marsh & Friedman, 1972).

Several factors have been shown to play a role in the formation of attitudes toward disability of the non-disabled population. Gender differences, for example, represent one influential factor. Research suggests that adolescent girls tend to have more positive attitudes toward people with disabilities than do adolescent boys (Bossaert, Colpin, Pijl, &Petry, 2011). Bossaert et al. (2011) further indicates that, undergraduate males have more negative implicit attitudes toward disability than do undergraduate women (Chen, Ma, & Zhang, 2011). Seo and Chen (2009) found that women indicated more positive attitudes toward disability than men, adding to the current body of research suggesting that gender may be one factor for predicting attitudes. Another factor contributing to attitudes towards disability is the amount of previous exposure to a person with a disability. According to Seo and Chen (2009), higher levels of previous exposure to people with disabilities were shown to predict more positive attitudes toward people with disabilities. Krahe and Altwasser (2006) also identified previous exposure to people with disabilities as an important variable

in their study designed to measure the effect of three treatment groups (cognitive, behavioral, and combined cognitive-behavioral treatment) on negative attitudes toward people with disabilities. In their study, ninth grade student participants were randomly allocated to one of the three treatment intervention groups. Responses were gathered from participants at three different times: immediately prior to the start of the intervention, immediately following the intervention, and three months after the intervention. Krahe and Altwasser found combined cognitive-behavioral treatment to be the most effective method for changing negative attitudes toward people with disabilities.

Further research demonstrates that attitudes and misconceptions towards disability can be changed. Hunt and Hunt (2004) used an educational intervention to test the malleability of students' attitudes toward disability. Participants consisted of undergraduate business students divided into two intervention groups in which a presentation about disabilities was given. The first group completed a pre- and post-test of attitudes before the presentation was given. The second group completed only the attitude post-test. One control group completed the pre- and post-tests without hearing the presentation, and a second control group completed only a post-test. Results indicated that by increasing knowledge about disability, undergraduate attitudes can be significantly changed in a positive way.

Additionally, attitudes play a major role in the success or failure of inclusion in any learning institution (Mussen, & Metcalf, 2011). If regular learners have negative attitudes towards inclusion of students with visual impairment, they will not support them; neither will they interact freely with them. They may isolate them in class and outside activities.

A study by Siperstein, Parker and Widaman (2007) in an inclusive school in Florida, found that middle school children without disabilities welcome children with disabilities in none academic classroom such as art and physical education. The research found overwhelmingly, however, that regular students prefer not to have students with disabilities in their academic classroom such as Mathematics and English because the teacher will spend a lot of their time explaining to the students with disabilities (Nowicki and Sandreson, 2000). In another study by Sipertein (2007) to 5,800 middle class students, the students reported being happy to be friend handicapped students within their school setting. In their research on attitudes of students towards peers with disabilities, Sipertein found that, the social interaction between regular students and those with special needs were better in schools with full inclusion model than in schools with special education needs. Additionally, in schools with inclusion model, regular students were more likely to have friends with students with disabilities than their counterparts in schools with special education model. There is therefore the need to consider specific teachers attitude also towards students with visual impairment.

In the 2006 Public Attitudes to Disability survey unprompted and prompted awareness of the range of disabilities was similar for people with and without disabilities. A significant difference was that people with disabilities were more aware of long-term illnesses and frailty in old age as disability types. People with disabilities were more likely to know someone else with a disability and were more likely to agree that society disables people by creating barriers (80% versus 61% of respondents without disabilities). They also had slightly higher comfort levels living near people with disabilities than others. Respondents with disabilities were also more likely to agree that children with disabilities should be educated in the same school as

other children. Fifteen percent of people with disabilities compared to 21% of people without disabilities saying that they would object if a child with mental health difficulties were placed in the same class as their child. People with disabilities were more likely to consider that people with disabilities had a right to relationships when they wish.

2.8.3 Lecturers Attitude towards Students with Visual Impairment

Lecturers are instrumental to the success of inclusion programmes for students who are visually impaired. Lecturers' abilities and attitudes can be major limitations for an inclusive setting. Teachers' attitudes that influence inclusion are fear, overprotection, and limited expectations (Lieberman & Houston, 2006). Because of their unfamiliarity with the disability, lecturers often do not know how to interact with students who are visually impaired and have problems in identifying the student's abilities; this has consequences on the teacher's expectations for the students with visual impairment. Classrooms are now becoming more diverse with respective student's abilities, therefore sensitivity and awareness on the part of the lecturer in the regular school is essential to promote successful inclusion (Hodge, 2004). If a lecturer has negative attitudes towards inclusion of students with visual impairement, he or she will reject or oppose inclusive initiatives. This lecturer is also likely to neglect or even mistreat students with visual impairment in the inclusive programmes. Therefore, since behaviour is guided by attitude and attitudes are learned, efforts should be made to positively influence lecturers towards inclusion of students with visual impairment in regular schools.

Studies by Croll and Moses, 2000; Hodkinson, 2005, 2006; Scruggs and Mastropier, 2010 in the United States of America have indicated that while a majority of lecturers would support the concept of inclusive education they can only do so with some

reservation. Lecturers are willing to support inclusion policies if they relate to students with mild mobility or sensory difficulties (Corbett, 2001).

Avramidis (2000), in his research, revealed that lecturers with experience in creating inclusive classroom environments have a more positive attitude towards inclusive education. The research also revealed that the level of professional development of the lecturer significantly related to their attitude towards inclusion. This therefore reveals that when lecturers are supported to enhance their skills and provided with opportunities to gain experience of an inclusive environment, improved attitudes towards the inclusion of students with visual impairment will be achieved.

2.8.4Challenges as a result of stigmatisation, marginalisation and prejudice

Stigma as a concept is imprecise. It involves attitudes, feelings and behaviours (Morgan et al, 2002 as cited by Nolan et al, 2006). Stigma can leave people marginalized and excluded from their own community. It can stop people with ability from getting the jobs that they are qualified to do leaving them dependent on state benefits (McKeever, 2006). Stigma can cause individuals with visual impairment to be discriminated against and to be mistreated and may even contribute to some people with visual impairment from receiving treatment worsening the degree of the impairment.

Stigma against people with disabilities often includes stereotyping based on misperceptions. A stereotype is a form of social typing, which has the potential to be misleading, as it does not acknowledge variability (Nolan et al, 2006). “When we say that a person is stigmatised because they have visual impairment, we mean that others make harsh judgements about them based on their beliefs about the nature of

blindness and not about the person's abilities, personality or unique traits" (McKeever, 2006).

Stigmatisation has internal and external consequences. It impacts on people's quality of life and social and psychological well-being. It causes stress, anxiety and further stigma. It causes reduced acceptance, discrimination, rejection and social exclusion. It causes label avoidance and makes it difficult to pursue employment or access to services. It can result in a lowering of self-esteem and self-efficacy (Nolan et al, 2006). People who perceive themselves as stigmatised may internalisestigmatising ideas (Graham et al, 2003 cited by Nolan et al, 2006). Stigma coping mechanisms include the following; avoidance-withdrawal, education and secrecy (Goffman, 1963 and Link et al, 1991 as cited by Nolan et al, 2006). Social embarrassment can result in people isolating themselves. Denial and pretence can be a means of self-protection but can also lead to reduced supports as help may not be sought or offered (Nolan et al, 2006).

"The British Social Attitudes Survey of 2000 revealed that 35 per cent of the respondents think there is 'a lot' of prejudice against disabled people; 51 per cent think there is 'a little' and only 3 per cent think there is 'no' prejudice in the society. Yet, few people are willing to admit that they themselves are prejudiced and so it is difficult to measure. Evidence from different scenarios, however, from the classroom to the bus stop, illustrate a wide range of unhelpful or aggressive attitudes towards disabled people, which often vary according to type of impairment or health condition, and according to ethnic origin, age and gender" (Massie, 2006, p. 69).

Pettigrew and Tropp (2000, 2003), aggregated the effects of contact over 516 studies and reported a highly significant relationship between contact and prejudice - the more contact the less prejudice. Affective ties including forming close friendships appear to be the most effective in reducing prejudice (Hewstone 2003 citing Hamberger et al, 1997 and Pettigrew, 1997). Approximately 21% of the effect of contact reducing prejudice is mediated by contact also reducing anxiety (Hewstone, 2003 citing research by Pettigrew et al, 2003). Old stereotypes and misunderstandings of disability need to be replaced by new social constructions. Until this happens it is difficult to establish societies where public representatives and ordinary citizens alike systematically take diversity into account and welcome and cater for differences so that people with disabilities are supported as required to access the basic conditions required to live as free and responsible citizens. These among others create challenges for students with visual impairment at the University.

2.9Unavailability of Support Personnel for Students with Visual Impairment

The unavailability of support personnel for students with visual impairment poses challenges to their academic achievement. It is therefore relevant for support personnel to be made available in inclusive schools where the teacher of the visually impaired assigns tasks to capable peer to assist a fellow peer who has some difficulties in a given task. It is observed that "interaction with peers is one of the most important socio-cultural conditions for development and socialization among children with disabilities" (Vygotsky, 1993 as cited in Rodina, 2007, p. 15). In line with these, using peers by teachers to help their colleagues in class and other learning related activities is not a new thing but needed in order to achieve equal and full participation in education. In the Salamanca Statement and Framework for Action on Special Needs Education (1994) it was recognized that "achieving equal and full

participation required a concerted effort not only by teachers and school staff, but also by peers and parents" (UNESCO, 1994, p. 11). This helps build social relationships, self confidence among the various groups of children as they share knowledge and learn to cooperate with each other (Undvari – Soilner& Thousand 1995, cited in Igune, 2009, p. 36). Other teaching strategies such as role playing and mobility skills are sometimes used concurrently.

Other work highlights peer support among people with cancer (Ussher, Kirsten, Butow& Sandoval, 2006) or diabetes (Fisher et al., 2012) and careers of people with mental health issues (Chien& Norman, 2009). In these instances, "peers" are defined as people who identify with one another on the basis of experiences surrounding a specific diagnosis, which may or may not be the only aspect of their lives in which there is a commonality of experience. There are also examples of peer support roles being more formalized, for example Peer Support Workers in mental health (Repper& Carter, 2011) and within in-depth peer counseling programmes (for example, Ho 2007). Also, there is some evidence of peer support relationships having positive impacts socially and emotionally. For some, peer support enables gaining of social interaction which has been lost or diminished. Examples include people facing marginalization, such as older people who are isolated (MaCKean& Abbott-Chapman, 2012). Peer support can also be effective in preventing potential crises, for example among women at a high risk of postnatal depression (Dennis et al., 2009)

Researchers have shown that there is an aspect of learning from peers within peer support (Hartley-Brewer, 2002).Peer support can focus on the sharing of information, coping strategies and advice based on solutions that have been effective for others in similar circumstances, for example in the field of addiction recovery (Boisvert, Martin,Grosek &Claire, 2008) and in supporting specific behaviour (Thomson, Crossl

& Dykes 2012; Klatt, Berg &Thomas, 2008). There is a contrast between the quality and content of this sharing of advice and information (which are rooted in the impact of sharing on a practical and emotional level with people whose knowledge and advice is based on lived experience)and professional support (Bassett, Faulkner, Repper & Stamou, 2010).Peer support shifts the focus away from medical model understandings of 'what is wrong' with an individual, towards a social model understanding of the physical, environmental, cultural, psycho-emotional and attitudinal barriers to inclusion faced by people with impairments especially those with visual impairment and ways in which people with a commonality of experience can support one another to overcome those barriers. A significant theoretical underpinning of peer support is illustrated by its role in the development of the Disabled People's Movement, in particular within the development of user-led disability services (Barnes &Mercer, 2006). As such, peer support can also lead to self or group advocacy as people with a commonality of experience come together to challenge stigma and discrimination (Brandon, 2012). In view of the above, this study seeks to explore and investigate the challenges of the visually impaired students of the University of Education, Winneba.

A further concern is the limited support services provided at many tertiary institutions including the University of Education, Winneba, resulting in a self service approach, which unfortunately does not suit all students. In particular, access to course materials and practical classes is hindered by students being forced to use cheaper systems of access, a result of budget reductions. Another outcome of budget reductions has been the reluctance to outsource design of services to specialists, resulting in inferior access.

Teacher training and teacher ability is another area of concern in facilitating the learning requirements of students with visual impairment. As a result of minimal or no training, lecturers are forced to teach disabled students without fully understanding their needs or the best methods to facilitate their learning (Gale, 2001 & Hehir, 2002). Ensuring education providers are given the opportunity to learn relevant skills to provide individualised learning programmes is vital to solving this problem.

In the Australian context, Gale (2001) and BCA (2005) found that the number of itinerant teachers of braille was low and cannot possibly cover the required scope of teaching. This suggests that specific training not only of visually impaired educators but also of general education teachers is vital to fulfilling the supply requirement. Moreover, specific training is crucial to developing a comprehensive understanding of, and commitment to, the braille code among teachers.

Gale (2005) argues that if teachers have appropriate training they will take a proactive and confident approach to teaching braille, and that all primary and secondary school teachers should be given braille instruction as part of their college training. Further, the development of professional braille training credentials not only for teachers but also for teaching support staff is necessary to support the learning process for students with visual impairment (Gale, 2001).

In an Australian national empirical survey, Gentle (2000) identified that among the small number of braille teachers (299) and support staff (128), only 63% and 30% respectively had a proficient knowledge of the braille code. This suggests that much work needs to be done to develop the skills of visually impaired teachers and support staff. The Gentle (2000) study makes a number of recommendations:

- That refresher courses in braille should be offered by those Australian institutions at which there are braille training programmes;
- That braille training programs should include instructional methodologies and information on braille programming needs as well as instruction in braille formatting and layout guidelines, Braille translation programmes and embosser technology;
- That educational institutions should offer braille training programs in mathematics, music, chemistry and computer codes;
- That distance education courses should be made available and promoted as a component of professional development; and that greater networking is necessary between states and territories. (Gentle, 2000, in Gale, 2001)

2.9.1 Unavailability of Note takers

The unavailability of note takers has significant challenge on students with visual impairment in inclusive schools. Note-taking has long been linked to positive test performance (e.g., Armbruster, 2000) and this relationship is not lost on students, who acknowledge that lecture note-taking is a crucial component of the educational experience (Dunkel& Davy, 1989). In fact, lecturing constitutes nearly 83% of college instructors' teaching methods (Wirt, Choy, Greald, Provasnik, Rooney & Watanabe, 2001), and nearly all college students take notes in class even when they are not explicitly told to do so by the instructor (Williams & Eggert, 2002). Researchers have identified two primary ways in which classroom note-taking is beneficial: Encoding and external storage. The encoding benefit refers to the learning that results from the act of taking notes, whereas the external storage benefit (also termed the product benefit) refers to the benefit that comes from studying the notes. Recent advancements in technology have led to more computers being introduced into the

classroom and incorporated into students' learning experiences, and the availability of portable computers has resulted in a steady increase in the percentage of college students who own one(89%;Smith&Caruso,2010). Research hascompared typing speed to writing speed and found evidence that proficient typists can type faster than they can handwrite and that this pattern emerges in children as young as sixth grader (Rogers & Case-Smith, 2002). Thus, it would appear that for many students, portable computers can increase their transcription speed when they take lecture notes.

Despite its benefits, lecture note-taking is a complex and cognitively demanding skill that requires comprehending what the instructor is saying, holding that information in memory, organizing and paraphrasing it, and then writing it down before it is forgotten, all while attending to the ongoing lecture. When note taking skill is framed as a composition of more basic cognitive abilities, it is clear that one reason why students' notes vary among one another is likely because of individual differences in these lower-order abilities. One ability hypothesized to be important in note-taking is working memory (e.g., Olive &Piolat, 2002), the ability to temporarily hold and manipulate a limited amount of information. While some studies report a correlation between working memory and note taking, it is not always the case of students with visual impairment, (Peverly et al., 2007). It is possible that these mixed results are due to variability in the note-taking strategies that students naturally use. Without explicit instructions, students may choose strategies that vary in the extent to which they rely on working memory, potentially masking a correlation between working memory and note-taking Currently, it is unclear whether working memory always plays a vital role in note-taking, or whether working memory is important only for select note-taking strategies. Nonetheless, if note taking, like other cognitive skills, relies on basic processing abilities, then it would not be too surprising if individual differences in

such abilities account for much of the variance in note-taking as it relates to test performance.

2.9.2 Inadequate library services provision

The provision of library services to students with visual impairment comes along with challenges. A considerable number of articles have been written about the provision of library services for visually impaired people especially in the UK and elsewhere (Brophy and Craven, 1999), (kinnell, Yu and Creaser, 2000), (Stefanova, 1997), (Harris, 2003), (Bundy 2002). Generally these studies have been compiled from the point of view of the information provider (Public or Specialized Libraries, Agencies, Schools and University). They often posted questionnaires, such as that sent to all 208 public library authorities in the UK (Kinnell, 2000) in order to know the level of current service provision for visually impaired people and to examine how they matched up to national guidelines. It is probably the widest survey met in literature review that revealed that a significant minority of library authorities did not have specific policy statement concerning the needs of the visually impaired, a lack in relationship with external agencies and in the provision of library services. A perspective of users was considered in Creaser et al. (2002) an extensive survey "user focus" of visually impaired people to determine their perceptions, opinions and activities regarding library services available to them. The survey was carried out using structured interviews as in Williamson (2000) and Berry (1999), face to face with visually impaired people and by telephone. The study highlighted that there was an increasing level of satisfaction with services of agencies and a quite high level in public libraries that are less prepared to give personal attention to their visually impaired readers. The level of satisfaction depends on a number of factors: to be

personally taken with consideration, to listen to their needs and desires; availability of resources suitable for all ages and for every type of visual impairment.

But what are the services that are the most current provided? Regarding the type of services offered there is in literature a consistent number of articles about accessible resources and services offered to students with visual impairment. Some of these services are provided through cooperation with local or national agencies. Others are part of library network projects. These services include the following

- Traditional special format material (braille, audio talking book, large print).
- Adaptive technologies, sometimes accompanied by training activities for users and librarians, (Cahil, 2003).

One of the recommendations of the NoVa (Non Visual Access to the Digital Library) project in the UK was that libraries and museum should invest in up to date technology and inform training issues relating to assistive technology (Craven, 2003). Accordingly with this result, the people's network project has provided information and technology equipment and training in public libraries throughout the UK also for users with a range of impairments, including visual disability (Lauder, 2004). Gates head libraries had shown the way to provide information and communication technologies, training and a wide range of services to learners who are visually impaired with their AIRS project (Access to Reading and Information Services) (Karen, 2004). This project was the model not only for English services, but also for other countries such as Italy (Giavoni, 2000): the Nessuno Escluso project of the Monzese public library is one of the few Italian initiatives for providing training and specially adapted hardware for senior citizens with visual impairment (Bernardi, 2003).

In USA where there is a national library service for blind people and specific requirements of the Americans with Disability Act, the most technological efforts of the libraries for those with visual disability are on improving access to the library material through adaptive technologies but training seems less important (Goddard, 2004; Pietrala, 2004; Mandel, 2003; New York Public Library, 2005). Strong emphasis is put on training information and computer skills in Scandinavian services. "However, is vital that users who are inexperienced with hi-tech aids are able to use this new technology" (Craddock, 2003).

In Norwegian libraries new full time position of information officers are established to assist and guide the users of the public libraries, also those who have visual impairments. Their role is also to market the new services to the local community and to see to how the equipment is functioning satisfactorily. They also keep a log of feedback and experiences with the services. This role is considered a very important measure to increase the accessibility to the services for all kind of users also in Sweden and France (Eymard, 2002). An usual online service has been provided by the National Library for the Blind in UK: a series of short online tutorials in access technologies for those involved with training visually impaired users, as well as those who would like to gain further understanding about working with access technology and supporting those who use it (NLB, Access Technology Primer).

Target services such as access to specific catalogues, digital texts, DTB (Digital Talking Books) and special format interlibrary loan, audio books, CD-ROMS , Braille and large print books occupy an increasing part of the services of the public libraries (Craddock, 2003). However, the tape audio books are not user-friendly as book marking and navigation is slow and cumbersome. DAISY Books (Digital Audio Based Information System) an international standard for digital books, had proved to

be a very useful tool for the visually impaired. A growing number of libraries are producing and providing Daisy books that is coming to be recognized all over the world as a major opportunity for the future (Cookson, 2001; Davies, 2002; Tank, 2000; Tylor, 2004; Fineberg, 2002; Goddard, 2004). There are still some problems with Daisy. In the Netherland, where audio-cassette system has been abandoned, users have some problems in receiving Daisy and cd-rom requested are often faulty (De Witt, 2004).

"Many libraries for the Blind originated outside mainstream libraries, primarily as a transcription service in blindness organization. Standards are seen as a luxury to be ignored. However without standards libraries cannot record, retrieve and share content as part of a wider network or family of libraries. Libraries unable to implement agreed upon standards are excluding themselves from best content and from developing interconnected digital libraries of the future" (Kavanagh, 2001 p. 18).

2.9.3 Inadequate Financial Resources.

School libraries need to be adequately funded so that they can be fully operational and attractive. Though the Ghana Government and the University continues to provide funds to buy textbooks and other library materials, the budget allocation has been declining, specifically to students with visual impairment who need specialized text books and prints. Furthermore, the availability of these material resources do not match the student population. As a result, only recommended books are used by teachers who are the sole providers of information without allowing students to discover their own learning by using libraries to access reference information sources meet their academic needs (Moyo & Chapota, 2012).

2.9.4 Poor Organization of Reference Collections and other Resources.

An effective reference section requires well trained and experienced library personnel to manage reference collections and make them available to students (Ikoja-Odongo, 2008). Due to the lack of qualified personnel and lack of poor funding in school libraries in the university, most reference collections are poorly organized and cannot be accessed and retrieved by students especially students with visual impairment. They are neither catalogued nor classified and sometimes they are just dumped in one place making them almost inaccessible to students especially students with visual impairment (Nabuyanda, 2011).

Instead donors as well as the stakeholders of the libraries are to concentrate on electronic technological devices which are excellent tools students can use to gain access to the core curriculum. Using other assistive technology, such as speech synthesisers 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& Baker, 1994). Assistive technology, in all its forms, allows students with vision impairment to achieve the same learning outcomes expected of their sighted peers (Glodowski, 2006).

2.9.5 Irrelevant Reference Collections

Though donors should be commended for their effort in the provision of textbooks including reference materials in school libraries, most of the collections and reference materials are based on western literature which makes them irrelevant to meet local needs of the students. Furthermore, other experts have blamed donors for donating library materials to school libraries located in urban areas compared to rural areas (Anderson, 2009). This difference has jeopardized the quality of reference and information services in school libraries located in rural areas.

2.9.6 The Unavailability of the OM Instructor

Emphasizing the importance of the right to access education by all, the UNESCO (2012) asserts that "If the right to education for all is to become a meaningful reality, we must ensure that all learners have access to quality education that meets basic learning needs and enriches lives. Still, today, millions of children, youth and adults continue to experience exclusion within and from education around the world"p.9. The UNESCO Convention against Discrimination in Education (1960) and other international human rights treaties prohibit "any exclusion from or limitation to educational opportunities on the basis of socially ascribed or perceived differences, such as economic condition, ability, etc. Education is not simply about making schools available for those who are already able to access them" p.11. "It is about being proactive in identifying the barriers and obstacles learners encounter in attempting to access opportunities for quality education, as well as, in removing those barriers and obstacles that lead to exclusion" (UNESSCO 2012 p.12).

One of the ways of making quality education available is to ensure that the plight of the disabled is addressed by allowing them to have access to basic assistance at any University to which they are admitted. Article 24 of the Convention fortifies the importance of education and classified education for the disabled and enjoins state parties to provide an inclusive education system at all levels and to provide lifelong learning directed to the realisation of their full potential by ensuring that they receive the support required, within the general education system, to facilitate their effective education (UNESSCO 2012). This brings to the fore the intrinsic role of an instructor in orientation and mobility (O&M) in providing such professional services. One of the significance of providing O&M services to the students with visual impairments is to

ensure specific support within and beyond their regular curriculum in order for them to engage effectively with various environments (Lancioni et al. 1998).

The instructor also instills the culture of belief in one's, confidence and self-efficacy in visually impaired students as a significant factor in the motivation to address the mobility challenges presented as a result of visual impairment. The instructor's role is also to assist students in the development of spatial concepts, orientation and mobility techniques, long cane skills and transition programmes within the university's environments. The instructor as a strategist assists in directing the student's attention to the environment to gather sensory information (Fazzi & Petersmeyer, 2001). Students are encouraged to have ownership within the learning process and independence at a level appropriate to the individual student's development. O&M is a vital part of the student's educational plan, offering the opportunity for access to the world at large and safe acquisition of travel skills. In this respect, the students actively make use of their senses. "Helping the students to use their senses more effectively enables them to be more aware of their surroundings. This means that they often know when they are at a particular spot and, by closely examining it, can start to create a comfort zone for themselves. A comfort zone could be described as a place which is familiar to the students, where anxiety is lower, and where the students feel less stressed" (Naubethong State Special School, 2011, p.10).

There are myriad considerations that affect the provision of O&M instruction for this unique population, some of which are identified here. As stated earlier, "orientation and mobility are the fundamental challenges in making visually impaired students independent on campus"p.14 (Long 1990). Concerning the independent functioning of visually impaired students on campus, all visually impaired students are compelled to familiarize themselves with their new rooms and the convenient routes to and from

the rest rooms as soon as they arrive on campus. After successful registration by students with visual impairments at the beginning of the academic year, the instructor completes the assessment forms that include personal details and the medical and disability history of the visually impaired students (Anthony, 1993). The purpose of this is to have on record information about the health situations of the students in order to know how to respond to any eventuality should they occur. The record will provide guidance on what and how to take care of the affected student. Provision and rendering of disabilities services present unique challenges to the instructor because of various needs of the students which are not similar but different and based on the situation of each student. Although there is no single approach that can be applied to all the myriad and complex conditions that confront students with visual impairments or blindness and multiple disabilities, several strategies and techniques, many of which are reported in the literature, seem to prove beneficial (Ellen et al. 2007). During O&M practices, one of the methods used is to ensure that students maintain physical contact with the environment. This "helps in concept-building and orientation and also provides a necessary sense of security" (Perla & O'Donnell, 2004: 47). The instructor usually enlists the cooperation and support of the students and work together with them to develop the training programme.

The programme is designed in such a way that it does not interrupt the students' lectures (Hazekamp& Huebner, 1989). Training starts as soon as the programme is finalized. However, training is usually prolonged because it is the first time that the student will be exposed to such skill training. The training programme includes sighted guide skills, pre-cane and cane techniques, street crossings and routes to and from the lecture halls (Lahav & Mioduser 2002). The instructor works after hours and on Saturdays because of the demand and the yearly increase in the admission intake of

visually impaired students registering at the University (Jacobson 1993). The necessity of attending lectures also contributes to the need for after-hours training. Most of the students still embrace the habit of using their self-taught cane techniques. Training about the university environment is a continuous process because of the constant changes in the lecture venues. These activities and services being provided by the instructor are practical demonstrations of what the Convention prescribed to be done to provide basic assistance to the persons with disabilities as articulated in Article 4 which stipulates that: To enable persons with disabilities to live independently and participate fully in all aspects of life, states parties shall take appropriate measures to ensure that persons with disabilities have access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures shall include the identification and elimination of obstacles and barriers to accessibility. Skills of daily living (SDL) are also offered because they are very important and form part of making them independent. Most visually impaired students are more interested in learning how to sign, withdraw money from ATMs and count bank notes. Exploring the unknown can be very frightening and threatening for many visually impaired students. Only trust and confidence in the instructor and in the environment would allow them to reach out and interact. Against this backdrop, the instructor begins by taking the students to familiar places, “paying attention to environmental factors such as lighting, level of noise, temperature and so on”.

In a study at the University of Limpopo, South Africa it was revealed that the university plays significant roles to ensure the safety of students with visual

impairment within the university setting. Some of these roles could be adopted by the University of Education, Winneba to promote a safer stay of students with visual impairment on campus. The O&M instructor assists students to learn by allowing the students to touch through her in order for them not to lose their sense of security and protection (Perla & O'Donnell, 2004). Every academic year, the Disable Student Unit (DSU) invites the University community to an event to inform and sensitize them about the issues of students with disabilities. This is done mainly to create awareness on how to interact with them within the university environment. For example, in one of the awareness events, management and the committee for persons with disabilities was invited for a lunch under blindfolds. This gave them an insight into what it takes to be blind and at the same time function effectively and efficiently just like non-disabled persons. This awareness campaign was successful and thereafter the story was published in the University magazine. As a result of this success, a letter was written to the Human Resource Department to the effect that in subsequent new staff inductions, a visit to the DSU should be part of the programme. Pursuant to this, all new staff members are expected to come to the DSU where everybody discussed disability issues followed by a blind simulation activity; to wit: a tour of the unit under blindfold. In 2011, the awareness creation and campaign were very successful. University staff members and students were invited to join the DSU on a fun walk. The response was very encouraging and the comments and feedbacks from the attendees were very motivating and encouraging.

The awareness has extended to as far as the shopping complex adjacent to the University where staff members were taught and trained on how to assist persons with disabilities in case they meet them in and outside of the University. Similarly, in 2011, the instructor was, on two occasions invited by the Centre for Academic

Excellence at the University (CAE) to give presentations to the lecturers on the issues of how to handle the visually impaired students in the classroom. The lecturers responded very positively and benefitted from the presentations. They now send lecture notes for the blind students to be transcribed to braille at the DSU and allow students to record the lectures during the course of delivering lectures.

Visually impaired students were excluded from most of the campus activities. Concerned about this situation, the instructor invited the University health promoter to discuss about the inclusion of visually impaired students in the social and sporting activities on campus. Consequent upon this, some of the students joined Gentlemen's and Ladies' clubs. During one of the camp meetings organised by the University, one of the visually impaired students won a trophy during games. Even though the situation has changed for the better, there is still room for improvement. The instructor has established a good relationship with other departments on campus. She also ensured that all facilities were upgraded to meet the demands of disabled students. More importantly, in housing, she has made representation to the housing department and the management on the need to make housing accessible to the students with disabilities by giving them first priority. This is being implemented on a yearly basis. With regard to security and parking, she informed the management and the University community of the need to ensure that cars are parked at the designated parking areas to prevent unanticipated obstacles to the visually impaired. She also impressed on the need to erect different signs to facilitate smooth movement of the visually impaired students at different strategic locations. Furthermore, the O&M instructor goes out once a week to check if there is anything that might pose a danger to visually impaired students or cause disorientation. In case there is, she recommends swift action to remove the obstacle. The appointment of the O&M instructor has

drastically improved the lives of the disabled students on campus and in particular students with visual impairments. Visually impaired students are now able to go to their different lecture halls independently. Their academic performances are improving. In addition, the number of visually impaired students registered with the University has increased since 2010. All of these activities have been achieved through collaboration. The DSU staff members are very supportive and form part of the planning disability awareness campaigns by offering various assistance as at when the need arises.

An important step in serving students with visual impairment is the development of national catalogues of accessible formats. An example is VISUCAT Canada that offers VISUTEXT a library of electronic text available through internet that allows clients and partners to search, order and view electronic books in braille or text format (Shelag, 2001). NUCAF is the accessible catalogues in special formats in the UK regarding both traditional and electronic texts in cooperation with specialized and public libraries (Brophy, 1999). However, Ghana seem to be one of the African countries lagging behind as we seem not to have most of these facilities in place at our various institutions of learning to support students with visual impairment.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0Introduction

The chapter describes the methods and materials used to collect data to investigate the challenges students with visual impairment face at the University of Education, Winneba. This covers; research approach, design, location of the study, target population, sampling techniques, sample size, construction of research instruments, pilot study, validity, reliability, data collection techniques, data analysis, logistical and ethical considerations.

3.1Research Approach

This study employed the multiple sources of data approach. This approach enables the researcher to use instruments that are both quantitative and qualitative.

In a further explanation to this approach by Creswell and Plano-Clark (2007),multiple sources of data involves, philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analyzing, and blending both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of the research problems than either approach alone.

3.2Research Design

This research adopted the case study research design which involved a social unit comprising students with visual impairment, guides of students with visual impairment and resource persons of the University of Education, Winneba.

Avoke(2005) explains case study as the development of detailed and interactive knowledge about a single 'case' or a small number of related cases. Citing Robson (2002) and Gall et al (1996), Avoke explains that the design is a strategy for doing research, which involves an empirical investigation of a particular contemporary phenomenon within its real or natural context using multiple sources of evidence and involves an 'in-depth study of instances of a phenomenon in its natural context and from perspective of the participant involved in the phenomenon'. Explaining further, Avoke reiterates that a phenomenon is seen as the process of events, persons or things of interest to the researcher, while a case is a particular instance of the phenomenon.

The case study research design was adopted because the researcher sought to investigate into challenges of students with visual impairment at the University of Education, Winneba. Using this design, the views of the students with visual impairment, resource person and the guides of students with visual impairment were sampled. This design also allowed the researcher to obtain first hand information through a range of data collection techniques such as interviews, observation and questionnaires.

The researcher employed both quantitative and qualitative analyses. Creswell and Plano-Clark (2011), state that the use of mixed methods is "practical" in that the researcher is free to use all the methods possible to address a research problem. It is also practical because individuals tend to solve problems using both numbers and words, combine inductive and deductive thinking and employ skills in observing people as well as recording behavior. The use of mixed methods also enhances confidence in the validity of the findings (Somekh & Lewin, 2005). The qualitative data from the observation and quantitative data from the questionnaires were used side by side to reinforce, enhance, elaborate or compliment data from the other source

(Creswell& Plano Clark, 2007). The use of qualitative methods allowed the researcher to find answers to questions that may have not been captured in the questionnaires and this reflected their frame of reference, language and provided richer descriptions that complimented the information gleaned by quantitative means (Creswell &Plano Clark, 2011).

Qualitative research methods are designed to provide the researcher a means of understanding a social phenomenon by observing or interacting with the participants of the study.

Qualitative methods have the potential to generate rich descriptions of the participants' thought processes and tend to focus on reasons "why" a phenomenon has occurred. However, qualitative research methods also have their negative sides. As Creswell and Plano-Clark (2007) point out, "qualitative research is seen as deficient because of the personal interpretations made by the researcher; the ensuing effect is that biasness is created. There is also difficulty in generalizing findings to a large group because of the limited number of participants studied" (p. 9). Although qualitative research methods have become increasingly popular, it has not yet been fully accepted by all members of the educational community.

Creswell and Plano-Clark (2007) came out that, quantitative research is "weak in understanding the context or setting in which people talk, the voices of participants are not directly heard in quantitative research. Further, quantitative researchers are in the background, and their own personal biases and interpretations are seldom discussed (p. 9)".

By combining qualitative and quantitative methods the weaknesses in one method can be offset by the strengths in the other method (Creswell, 2003; Creswell & Plano-

Clark, 2007). In particular, as Creswell and Plano-Clark (2007) explain, a problem exists when the quantitative results are inadequate to provide explanations of outcomes, and the problem can best be understood by using qualitative data to enrich and explain the quantitative results in the words of the participants. Situations in which this problem occurs are those in which the quantitative results need further interpretation as to what they mean or when more detailed views of select participants can help to explain the quantitative results. (p. 35)

In other words, mixed methods research helps answer questions that cannot be answered using only qualitative or quantitative methods alone. Mixed methods provide a "more complete picture by noting trends and generalizations as well as in-depth knowledge of participants' perspectives (p. 33)".

3.3Location of the Study

The study took place at the University of Education, Winneba campuses. The University of Education, Winneba currently has three campuses namely North, Central and South campus. All the three campuses were selected purposively because they have students with visual impairment.

3.4Population

The population involved all students with visual impairment at the University of Education, Winneba. The justification for involving the students with visual impairment was based on a slogan by the Disabled Persons Organizations (DPOs) that "Nothing about Us without Us", they actually the group of people experiencing the challenges and hence the appropriate group of people to explain the depth to which they face challenges based on the key themes raised in the research questions.

This made the researcher deem it important to involve all the students with visual impairment at the University of Education, Winneba in the population.

3.5 Sample Size

In all, sixty two(62) students with visual impairments were sampled for the study. All the sixty two (62) students with visual impairments involved in the study were undergraduate students but at different levels in the university. Fifteen (15) were level hundred (100) students; twenty three (23) were in level two hundred (200) and the remaining twenty four(24) in level three hundred (300). The justification for selecting only the students with visual impairment from the population is that, they are the best respondents to be able to tell their experiences and challenges within the University. The breakdown of participants is represented in the table below:

Table 3.1: Break down of the sample size

Participants	**No. of Males**	**No of Females**	**Total**
Students with visual impairment	36	26	62
Total	**36**	**26**	**62**

Table 3.1presented the breakdown of the participants involved in the study who were served with questionnaires and observed during the time of data collection.

3.6 Sampling Techniques

The non-probability sampling technique involving the purposive sampling techniques was adopted in selecting the respondents for the study. According to Cohen, Manion and Morrison (2003), purposive sampling enables researchers to handpick the cases to be included in the sample on the basis of their judgment and typicality. The purposive sampling technique was adopted in the selection of students with visual impairment

because it enables the researcher to build up a sample that is satisfactory to specific needs. The intention was to describe a particular context or phenomenon in an in-depth manner and not to generalize to a context or population.

3.7 Instrumentation

The instruments used in the collection of data were a close-ended questionnaire for students with visual impairment and an observational guide. Semi structured, open ended questions were used because they encourage a free response from the participants (Creswell, 2008). The justifications for using these instruments were that case studies lend itself to the use of multiple instruments. According to Robson (2003) case study uses a range of data collection techniques such as questionnaire, interview, observation and documentary analysis. However this study made use of only questionnaires and interviews. The use of multiple data collection instruments ensure validity and reliability of data generated through triangulation. A digital microphone recorder was used by the researcher to record the interviews conducted for the study.

3.8 Questionnaire

The researcher administered questionnaires to students with visual impairment. The reason for serving these categories with questionnaires is that they constitute a large number. The justification for using questionnaire is that Cosby (2001) states that the use of questionnaire is generally less costly and also allows the respondents to be completely anonymous as long as no identifying information such as names and social security numbers are asked. In addition, Bryman (2004), observes that with self completion questionnaire, respondents answer questions by completing the questionnaire themselves. Also questionnaire becomes cost effective as well as devoid of errors. This is so because the interpretation of data is based on the answers given by the respondents.

Dempsey and Dempsey (2000) further explained a questionnaire as a paper and pencil data collection instrument filled in by respondents for the purpose of the research. The questionnaires were structured using the research objectives and was self administered to the various respondents. The format of the questionnaires was guided by considerations of appeal to respondents and ease of reading and supplying the required data so that research participant's time were not wasted during the data collection. The researcher with the consent of the students with visual impairment read out the questions to the respondents and the options selected by the respondents ticked. The questionnaires were designed to use scaled response questions. The Likert response scale was employed to measure the strength or intensity of respondents' opinions. An attempt was made to keep the questions in simple language in order to minimize potential errors from respondents. Similarly, the number of questions in each set was kept low as much as possible to encourage respondents to take their time in answering the questions. The content of the questionnaire was principally obtained from the reviewed literature.

The questionnaire was structured into five sections, which included demographic background of the respondents, the environmental challenges that affect the participation of the students with visual impairment, the curriculum or instructional adaptation to the benefit of the students with visual impairment, the social challenges students with visual impairment encounter and accessing support from resource persons. The participants with the assistance of the researcher and resource persons completed the questionnaires. The questionnaire enabled the researcher to achieve a high response rate. It provided a relatively simple and straight forward approach to the study of lecturers' methods of teaching students with visual impairment as well as the school environment and socialization. The questionnaire was efficient at getting

information from many people in a short time and at relatively low cost. It also allowed anonymity which encouraged frankness in responses on sensitive issues (Robson, 2002) such as the instructional adaptations employed by lecturers to assist students with visual impairment to participate successfully in learning. Questions are useful in that they can generate frequencies agreeable to statistical treatment and analysis (Hayford, 2013). This is so because the interpretation of data is based on answers given by the respondents.

The closed-ended form of questionnaire used in this study permitted limited responses while the open-ended type of questionnaire permitted any responses in the participant's own words. Close ended questions according to Cohen, Manion and Morrison (2003) are quick to compile and straight forward to code (for computer analysis), and do not discriminate unduly on the basis of how articulate the respondents are. Cohen et al. (2003) further explain that the open ended questions enable the respondents to write a free response in their own terms, to explain and qualify their responses and avoid their limitations of pre-set categories of response.

A set of 5-points Likert scaled questionnaire were constructed and designed for the students with visual impairment. They contained five sections A, B, C, D and E of which section B was to solicit information on the state of the physical environment, C was to gather information on the instructional methods by lecturers, D was on information regarding socialization issues regarding students with visual impairment and section E was to solicit information on the kind of support students with visual impairment derive from resource persons and the resource centre. However, section A was designed to elicit responses from the respondents regarding their personal data. In all, there were thirty four (34) questions for the students with visual impairment.

The respondents were requested to indicate the extent of their agreement or otherwise to each of the statements on the variables addressed in research questions 1-4 of the study. These included the physical environment, instructional adaptation and teaching methods, socialization and support from resource persons. All the items were designed on a 5-point scale and coded strongly agree 5, agree 4, neither agree nor disagree 3, disagree 2 and strongly disagree 1.

In section F, the respondents were requested to provide responses to the open-ended questions which sought information on the specific instructional adaptation and methods used in teaching to their benefit, the support given by the Special Education Department. Others included the kind of challenges faced during these processes.

The Likert (rating) scale is a very powerful and useful device in research that is relatively easy to develop. Scoring and analyzing of data gathered using the SPSS version 16 system on the computer become easy hence the researcher's preference for the scale. Rating scales are widely used in research, for they combine the opportunity for a flexible response with the ability to determine frequencies, correlation and other forms in quantitative analysis (Cohen, Manion& Morrison 2003). Cohen et al. explained further that the rating scales afford the researcher the freedom to fuse measurement with opinion, quantity and quality. However they cautioned that the rating scales have limitations.

These have to do with the scales' inability to provide equal intervals between the categories; respondents deliberately falsifying their replies; the instruments not allowing the respondents to add any other comments about the issue under investigation and finally there may be problems with interpretation as the extremity of

the voting may have been lost in a crude aggregation. To address these limitations, the open-ended questions were designed to invite an honest, personal comment from the respondents. Though the open-ended questions were used to address the shortcomings of the multiple choice items used in rating scales, Robson (2003) and Creswell (2005) observe that open-ended questions equally have limitations in the areas of coding and analysis of responses from the respondents. In spite of these limitations, the instrument was useful for this research.

3.9 Observation

Oso and Onen, (2011) describe observation as a tool that provides information about actual behaviour and allows the researcher to gain firsthand experience without informants, records information as it occurs, and explores topics that may be uncomfortable to informants. Observation can also be understood as a process and a method of data collection in which the situation of interest is watched and the relevant facts, actions and behaviours are recorded. Observation was therefore chosen as one of the means to collect data because it has the power to enlighten and give clearer picture and first-hand information about situations to the investigator than what people can say. This allowed me to immerse myself in the local setting to understand and contextualize better in order to discover things that might otherwise have been missed if questionnaires alone were used to collect data (Denzin & Lincoln, 2011). An observation schedule was therefore prepared beforehand. Bryman (2008) gives a highlight of the observation schedule as a device that specifies the categories of behaviour that are to be observed. In line with Bryman's position, considerable time was used in preparing this to ensure that relevant areas of interest, for instance, how the non-visually impaired students relate with visually impaired students in various school gatherings were captured and included. Points captured in the observation

schedule ranged from inter-personal relationships between the students, interaction with teachers, classroom organizations, teaching and learning materials and teaching methods. Also included in the observation schedule is the physical layout of the school. Even though it does not correlate with the behaviour pattern as specified by Bryman (2008), it is thus essential for me as a researcher to observe how the physical layout and road network in the University enhance or affect mobility of the students with visual impairement. Direct behavioural observation along some of the above stated lines offered the researcher an explicit opportunity which allowed me to gather information live while taking notice of every bit of action for later scrutiny.

3.10 Validity and Reliability

Issues of validity and reliability are very important in research. Pervin (1984 as cited in Kvale & Brinkmann, 2009, p. 246) noted that, validity pertains to the degree that a method investigates what it is intended to investigate, to "the extent to which our observations indeed reflect the phenomena or variables of interest to us." On the other hand Kvale and Brinkmann (2009) consider reliability as what "pertains to the consistency and trustworthiness of research findings; it is often treated in relation to the issue of whether a finding is reproducible at other times by other researchers" (p. 245). Thomas (2009) on the other hand cautioned researchers against placing "too much importance on reliability stifling creativity when conducting in-depth interviews" (p. 59). In order to ensure validity of the instruments, the questionnaire designed were submitted to the supervisor and other test experts in the Department of Special Education of the University of Education, Winneba for modification where necessary. In addition, the researcher pre-tested the designed questionnaires on four (4) lecturers from the Special Education Department. The participants were asked to fill out the initial surveys based on their perception and opinion. The initial survey

took about 15 to 25 minutes to complete. Further discussion of the questionnaire was held with two lecturers in the area of special education. The instruction and some questions were not clear. The questionnaire was modified and redesigned based on the pre-test, and the final version of the questionnaire was completed after a review by the researcher.

3.11 Data Collection Procedures

Before the onset of the research, the researcher first visited the Head of Department of Special Education at the University of Education, Winneba and obtained permission to conduct the study in the department. He also informed the lecturers, resource persons, students and most importantly the students with visual impairment about the study and solicited permission from them and their assistance and cooperation to make the study successful. The researcher also had the opportunity to attend a Special Education Students Association (SESA) meeting where he created a rapport with most of the students both visually impaired and the sighted. During this period, the researcher briefed these students on the trends of the study. Below are the procedures involved in the collection of data.

3.11.1 Procedure I

The researcher personally booked appointments with the students with visual impairments involved in the study to discuss the appropriate and convenient time which the questionnaires will be administered on them. They agreed that due to their inability to read print, they will prefer the questionnaire to be read to them by the resource persons and the researcher so they can give their responses. Therefore from April 20th to April 25th2016, the researcher with the help of the resource persons administered the questionnaire to all the participants. Directions and explanations were given on how to respond to the questionnaire. All the respondents turned out to

answer the questionnaire hence a total of 62completed questionnaires were retrieved for analysis on the 25th of April 2016.

3.11.2 Procedure II

The researcher conducted lesson observations in classes where students with visual impairment are included. Five lessons were observed in the classes where Students with visual impairment are included to determine the suitability of teaching/learning resources and techniques. The researcher also observed the physical facilities of the university to ascertain their availability, and suitability in supporting inclusion of students with visual impairment. Things noted during the observation periods were factored into the actual questionnaires with the respondents to understand their experiences and reasons for such notifications during observation. It was prudent for me to observe classroom situations on how the teachers communicate with their visually impaired students, teaching strategies, using of teaching and learning materials or otherwise to ensure better understanding of their students. In all, five classroom observations were made in which three lasted between 35minutes to 45 minutes and two lasted for 90 minutes each depending on the duration of the lesson.

Observing a class with its related issues such as the atmosphere prevailing during the lesson, teaching method and way of relating to the students as well as interaction between the students coupled with my presence as a stranger in the class generated some tension in the first class I observed. Having noticed this, I tried as a researcher not to be too overt so as to avoid disrupting the class, but at the same time taking notice of as much information as possible. To avoid the disruption noticed in the earlier lesson observed, I employed a non-participant observation method in the subsequent lessons. I also observed how the sighted students relate with their visually impaired counterparts outside the classroom. Observation also provided me with the

opportunity to see learning resources that is teaching and learning materials available in the school. The observations were made from Monday the 16th of May to Friday the 20th of May 2016.

3.12 Analysis of Data from Questionnaire

The questionnaire data analysis first begun by identifying the major categories and prominent themes that emerged from the data associated with the key themes raised in the research questions. The analysis of data involved both exact data and interpretive. That is, the meaning ascribed to the data and finally reflective, that is the engagement with the data in the interpretive process. The demographic data in section A of the questionnaire was tabulated by frequencies of responses for individual items and reported by percentages in tables. The data in section B was analyzed using appropriate descriptive statistics involving standard deviations which enabled the researcher to use numerical values to represent scores in the sample. The retrieved questionnaire was scored and coded for analysis. An item-by-item analysis of data was conducted. The percentage of the total sample responding to each item was reported and the percentage of the respondents who chose each alternative for each question was given. The data was then presented according to the views of the respondents. Scores were assigned to indicate possible connection in responses of the respondents and then frequency lists were drawn. The “strongly agree” and “agree” and also “strongly disagree” and “disagree” were combined in the analysis to project a unique response. This was in accordance to what Best and Khan (1995) postulates that, using Likert-type scale, it is possible to combine to report percentages. As a result, the scores of the respondents for the study were easily analyzed. Summaries and conclusions were drawn from findings and supported with literature.

3.13 Analysis of Data from Observations

In analyzing the observation data, the researcher compiled all the observations made and hand written notes and typed them into segments. A segment here implies a unit of text that contained information that can be understood even when taken and read out of context. This was done to look for themes and similar ideas or responses to the questions posed to the respondents of which the respondents' information or speeches were translated in to specific categories for the purposes of analysis.

I venture to cling to Bryman's (2008) coding scheme on clear instructions which emphasized the point that, "coders should be clear about how to interpret what each dimension is about and what factors to take into account when assigning codes to each category, coders should have little or no discretion in how to allocate codes to units of analysis" (p. 288).

For instance, some of the themes that emerged were; mobility on campus, teaching methods, socialization and learning materials. With this in mind I then developed categories and coded them with clear instructions on how to interpret each code assigned.

Analysis of the collected data was done using mixed approach of interpretation and narrative analysis. Gall, Gall, and Borg (2009) expound interpretation analysis as the process of examining field data closely in order to find constructs, themes and patterns that could be used to describe and explain the phenomenon being studied.

Narrative analysis as stated by Kvale and Brinkmann (2009) focuses on the relationship among students and the kind of support given to the visually impaired students in and outside the classroom. Using this analytic method allowed the experiences of students with visual impairement in the university to speak for them.

Emerging themes were then organized into subthemes and categories which enabled the researcher provided the basic structure for further analysis and interpretation in an attempt to establish meaning of the data collected. In all, a qualitative approach was used in the analysis and interpretation of observation data.

3.14 Ethical considerations

Ethical issues in relation to undertaking a research have become very important and raise a lot of concern especially when it involves privacy and information security (Kvale & Brinkmann, 2009). It is therefore very important to consider ethical issues from the very start of any research until the end of findings. This implies that it is important for researchers to go through some steps before conducting a research. Seeking consent from the gatekeepers of the research area as well as the respondents is one of the vital ethical considerations in conducting research. Therefore to respect and consider ethics of research for this thesis, I soughtfor permission from the head, Department of Special Education of the University. Further an introductory letter was taken from the department of Special Education which I gave copies to the respondents and also my identity card as a student was used.

On the issue of seeking for informed consent from the research participants Kvale and Brinkmann (2009) explain that, informed consent entails informing the research participants about the overall purpose of the investigation and the main features of the design, as well as of any possible risks and benefits from participation in the research project. Informed consent further involves obtaining the voluntary participation of the people involved, and informing them of their right to withdraw from the study at any time.

In a further explanation, Bryman (2008) highlights this with a quote from the British Sociological Association (BSA) which states that "as far as possible the participation in a sociological research should be based on the freely given informed consent of those studied" (p. 121). From the above, it was necessary for the researcher to seek for the consent of the respondents.

3.15 Challenges

Some challenges were encountered during the administering of questionnaires and the conducting of interviews. Getting sighted students to be involved the study was very challenging as they were not willing to get involved as most of them claimed it was going to waste their time. Students with visual impairment on the other hand were not easy to get them involved as it was very difficult to convince them that the study was purposely for academics and issues raised were confidential. Most of them were not willing because they felt they were not safe as whatever they say may affect their stay on campus.

Another challenge encountered was changing of scheduled time for the administration of the questionnaire by participants without prior notification to the meeting time, this was very disappointing since the researcher had to wait for hours to meet with the participants or go back and come another time at their convenience.

CHAPTER FOUR

ANALYSIS OF DATA AND DISCUSSION OF FINDINGS

4.0Introduction

This chapter presents the results and discusses the findings of the study based on the research questions. The main areas presented are the physical environmental challenges that affect students with visual impairment at the University of Education, Winneba, the instructional challenges students with visual impairment face in the university, the challenges associated with socialization among students with visual impairment and sighted on campus and the challenges students with visual impairment face in accessing support from resource persons in the university.

4.1Demographic Information

This information was provided in section A of the questionnaires administered to the students with visual impairment. It was to solicit information on the gender of the respondents and level of the respondents at the university.

4.2Gender of respondents

Table (4.1) presents the result of the study on the gender of the respondents. The result indicates that, there are more (58.3%) male visually impaired students in the University of Education, Winneba than females (41.7%).

Table 4.1: Gender of respondents

Sex of respondents	Frequency	Percentage (%)
Males	35	58.3
Females	25	41.7
Total	**60**	**100**

n = 60, Source: Field Data, 2016.

4.3Academic level of respondents

The academic level of the respondents is shown in Table (4.2). The study revealed that, (25.0) percent of the visually impaired students in the university are in level 100, (38.3) percent in level 200 while the rest, (36.7) percent are in level 300.

Table 4.2: Academic level of respondents

Academic Level	Frequency	Percentage (%)
100	15	25.0
200	23	38.3
300	22	36.7
Total	**60**	**100**

n = 60, Source: Field Data, 2016.

4.4Analysis of research question 1 to 4

Research question one: What environmental challenges do students with visual impairment face in the university?

4.4.1Physical environment challenges students face in the university

In response to this research question, items 1-8 in the questionnaire for students with visual impairments and data from the observations made on the status of the University's physical environment were used to report the findings. Frequencies, percentage counts and standard deviations were used in analysis of responses gathered from questionnaire and observation data.

Table 4.3: Physical environment challenges students face in the university

Responses for Physical Environment	Mean	S.D
Zebra crossings are placed at appropriate points to ensure safety of students including students with visual impairment.	3.98	0.13
Students with visual impairment are able to access lecture halls with ease	3.98	0.43
Elevators are available to convey students with visual impairment to lecture halls on storey buildings	2.08	0.46
Lecture halls have suitable desks for students with visual impairment to use.	2.03	0.26
The compound is accessible to students with visual impairments	1.95	0.39
Walk ways are provided for all students including those with visual impairment	1.37	0.58
The halls of residence of students with visual impairment are accessible	1.27	0.55
Gutters have been covered to ensure safety for all students including those with visual impairment.	1.07	0.25
Composite mean	**2.22**	**0.14**

n = 60, Source: Field Data, 2016. Means were calculated from a scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Agree, 4 = Agree,5= Strongly Agree.

The result of the study as presented in Table (4.3) shows how the respondents perceive the physical environment of the University. Generally, the respondents 'disagreed' that the physical environment of the University of Education Winneba is conducive for students of the university especially students with visual impairment (Composite mean = 2.22, S.D =0.14). The respondents also 'disagreed' that elevators are available to convey students with visual impairment to lecture halls on storey buildings (Mean = 2.08, S.D = 0.46), lecture halls have suitable desks for students with visual impairment to use (Mean = 2.03, S.D = 0.26) and the perception that the compound is accessible to students with visual impairments (Mean = 1.95, S.D = 0.39).

The respondents however 'agreed' that, zebra crossings are placed at appropriate points to ensure safety of students including students with visual impairment (Mean =

3.98, S.D = 0.13) and are able to access lecture halls with ease (Mean = 3.98, S.D = 0.43). It worth noting that the students 'strongly disagreed' to the accession that the halls of residence for students with visual impairment are accessible (Mean = 1.27, S.D = 0.55) and gutters haven been covered to ensure safety for all students including those with visual impairment (Mean = 1.07, S.D = 0.25). In general, the responses showed that students with visual impairment accept the fact that the university to some extent is doing its best to ensure that the physical environment is made friendly to students with visual impairment. However, from their responses, there is evidence that students with visual impairment still go through some challenges in regard to the university physical environment.

Observations made by the researcher on research question 1 item 1 which is on the availability of zebra crossings on campus to promote easy movement of students with visual impairment revealed that, zebra crossings were available on the university compound and were placed at vantage points to the benefit of all students including students with visual impairment. However, the observations also revealed that even though zebra crossing are made available on campus to prevent challenges in crossing the roads, they are only found at the north campus of the university whilst the other two campuses of the university does not have such facilities. This therefore poses challenges to students with visual impairment when there is the need for them to cross the roads for lectures and other activities.

The observations made on item 2 of research question 1 was no different from the item 1 as there was evidence of ramps available at the north campuses while the other campuses did not have these ramps. Meanwhile observations made on the size of the office doors revealed that, the university has done well by making sure all the offices and lecture halls on the various campuses was wide enough to enable easy entrance by

all students especially students with visual impairment. However, it was observed that most of the offices including the Special Education Offices were found of storey buildings with high stair cases posing great danger to students with visual impairment who want to access the offices.

Also, observations made revealed that the campus of the university was well planned with well designed walkways to enable students especially students with visual impairment. But again these walk ways are only commonly seen at the north campus with very few at the south campus. This poses challenges to students with visual impairment who have lectures at the south campus. Other observations made revealed that the newly built storey buildings have elevator facilities that comfortably convey students including students with visual impairment to lectures.

Finally on research question 1 item 5, the researcher observed that the university has a lot to do with the covering of open gutters. The observation revealed that about 90% of gutters on the university campuses were not covered posing a great challenge to students with visual impairment. It was observed that the open gutters prevents students with visual impairment to be able to have confidence in individual traveling techniques since they have the fear of falling into the open gutters.

Research question two: What instructional challenges do the students with visual impairment face in the university?

4.4.2 Instructional challenges students with visual impairment face in the university

Table 4.4: Instructional challenges students with visual impairment face in the university

Responses for Instructional Issues	Mean	S.D
There are adequate hand frames and stylus for use by students with visual impairment during and after instructional hours.	4.88	0.45
Students with visual impairment are given enough time to finish quizzes and examinations.	4.05	0.39
Large prints are available for students with low vision.	2.98	0.43
Enough braille sheets are always available to students with visual impairment.	2.02	0.13
Lecturers use specialized teaching materials in teaching to benefit all students including those with visual impairment.	2.00	0.45
The Special Education Department carries out monitoring and evaluation on progress of students with visual impairments.	1.97	0.26
Adequate braille text and materials have been acquired by the department.	1.47	0.65
The library has ICT software, magnifiers, CCTV among others to the benefit of students with visual impairment.	1.32	0.50
The school's main library has enough talking text books, screen readers and large prints.	1.27	0.63
Resource persons are available during lessons to offer direct support to students with visual impairment.	1.13	0.34
A well-equipped resource centre for the blind is available in the university.	1.10	0.35
Composite mean	**2.19**	**0.28**

n = 60, Source: Field Data, 2016. Means were calculated from a scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Agree, 4 = Agree, 5= Strongly Agree.

Table (4.4) presents the result of the study with respect to the instructional issues confronting students in the University of Education, Winneba especially students with visual impairment. Overall, the students with visual impairment 'disagreed' that,

instructional materials provided by the university is adequate to facilitate teaching and learning for students with visual impairment (Composite mean = 2.19, S.D = 0.28). The students with visual impairment 'strongly agreed' that there are adequate hand frames and stylus for use by students with visual impairment during and after instructional hours (Mean = 4.88, S.D = 0.45). They also 'agreed' that students with visual impairment are given enough time to finish quizzes and examinations (Mean = 4.05, S.D = 0.39).

The respondents however, 'disagreed' that, enough braille sheets are always available to students with visual impairment (Mean = 2.02, S.D = 0.13), they also disagreed that lecturers use specialized teaching materials in teaching to benefit all students including those with visual impairment (Mean = 2.00, S.D = 0.45), findings from the statistics showed that the students with visual impairment disagreed on the fact the the Special Education Department carries out monitoring and evaluation on progress of students with visual impairments (Mean = 1.97, S.D = 0.26) and the perception that adequate brail text and materials have been acquired by the department (Mean = 1.47, S.D 0.65).

The students also 'strongly disagreed' that the university library has ICT software, magnifiers, CCTV (Mean = 1.32, S.D = 0.50) among others such as enough talking text books, screen readers and large prints (Mean = 1.27, S.D = 0.34) to the benefit of students with visual impairment. The respondents further 'strongly disagreed' that resource persons are available during lessons to offer direct support to students with visual impairment (Mean = 1.13, S.D = 0.34) and a well-equipped resource centre for the blind is available in the university (Mean = 1.10, S.D = 0.35).

From the above analysis on instructional issues at the University of Education Winneba, there is evidence that most students with visual impairment are not satisfied with the instructional materials provided by the university. Hence from their responses, it is clear that most students with visual impairment encounter challenges during instructional hours and the resulting effect is poor academic performance. Also from the responses, there is evidence that most totally blind students disagree that the university provides them with enough Braille sheets for academic purposes.

The results further portrays that there are challenges in terms of accessing brailed documents in terms of textbooks and other educative materials. The result also brought to light that, students with visual impairment have challenges in terms of accessing large prints, making use of CCTV and the use of the internet library for academic achievements.

However, students with visual impairment agreed that a resource centre for persons with visual impairment was available which offer support to them. Meanwhile the results also brought to light that even though a resource centre for the blind was available, there were inadequate resource persons available to aid students with visual impairment at the resource centre and the classrooms where necessary.

From the observations made on the instructional issues, item 1 which was on the availability of resource persons during lectures revealed that, the university have only two resource persons employed hence they are assigned to only the resource centre. This therefore becomes a challenge to students with visual impairment as they sometimes seem to need the support of a resource person.

Observations made on the availability of talking text books and other assistive technology devices for students with visual impairment revealed that there were none

of such devices at the university main library. Instead it is only the department of Special Education library that has some of these devices that can support students with visual impairment academically. Meanwhile the observations made revealed that even the few text books and CCTV available were not in use as the library seem to be out of use for a while now. However, the researcher observed that enough time was allocated to students with visual impairment to complete given assignments and quizzes. This was to the advantage of the students since they use extra time to finish assignments as a result of their impairment.

Lecturers on the other hand were observed to adapt some of their teaching methods in order to benefit all students including students with visual impairment. However, the researcher observed that the university does not have enough specialized teaching materials to suit the learning needs of students with visual impairment posing challenges to these students as they need to struggle to understand what is being taught. On the issue of brailed text materials and talking textbooks, it was observed that very few brailed text books were available for use by students with visual impairment but as for the talking textbooks, none seem to be in existence.

Another observation made was that, students with visual impairment were excluded from Information Computer Technology (ICT) classes. This was a challenge to students with visual impairment as they needed skills in ICT to be able to conduct researches for their assignments as well as project works.

Research question three: What challenges in terms of socialization do students with visual impairment experience in the university?

4.4.3 Social challenges student with visual impairment experience in the university

Table 4.5:Social challenges student with visual impairment experience in the university

Responses for Social issues	Mean	S.D
Students with visual impairments are able to interact with other sighted students during extra-curricular activities.	4.93	0.25
Students with visual impairment are able to communicate effectively with drivers and other service providers within the university.	4.13	0.57
Students with visual impairment experience stigmatization and marginalization from other sighted students.	4.02	0.22
Students with visual impairment attend all social gatherings and are included in all activities of the university	3.95	0.39
Students with visual impairment are involved in co-curricular activities	1.30	0.91
Composite mean	3.67	0.14

n = 60, Source: Field Data, 2016. Means were calculated from a scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Agree, 4 = Agree,5= Strongly Agree.

The social issues that students with visual impairment perceive to be affecting them at the University of Education, Winneba are represented in Table (4.5) above. Generally, the respondents 'agreed' that some social issues affect them in their day to day activities in the university (Composite mean = 3.67, S.D = 0.14). The students 'agreed' that students with visual impairment are able to communicate effectively with drivers and other service providers (Mean = 4.13, S.D = 0.57), experience stigmatization and marginalization from other sighted students (Mean = 4.02, S.D = 0.22) and attend all social gatherings (Mean = 3.95, S.D = 0.39) because they are included in all activities of the university. But then again the students 'strongly

agreed' that students with visual impairments are able to interact with other sighted students during extra-curricular activities (Mean = 4.93, S.D = 0.25).

However, the visually impaired students 'strongly disagreed' that they get involved in co-curricular activities in the university (Mean = 1.30, S.D = 0.91). In other words, the students strongly agreed that they do not get involve in co-curricular activities in the university.

With the analysis of the challenges in socialisation, the results were that students with visual impairment did not encounter much challenge in socializing with their sighted counterparts. Students with visual impairment had a good relationship with other service providers as well. Hence it was evident that students with visual impairment had very little challenge in terms of socialization. However, the findings showed that, students with visual impairment were excluded by the university from participating in extracurricular activities as none of the extracurricular activities favoured them.

The observations made showed that the University of Education Winneba, does not involve students with visual impairment in most of the extracurricular activities especially sporting activities. This is as a result of lack of specialized equipments and plans for students with visual impairment rendering them incapable of involving themselves in the sporting activities available in the school.

The researcher observed that, students with visual impairment and their sighted colleagues had a very good relationship since it was obvious that they interact and socialize more often during instructional hours and after instructional hours. However, the researcher also observed that even though students with visual impairment interacted easily and socialized with their sighted colleagues, they had special friends that they trusted to guide them when moving around campus.

Issues of marginalization were seen as most of the sighted students viewed students with visual impairment to be incapable of performing certain tasks. As a result the sighted students did not allow the students with visual impairment to get involved in some activities which became a challenge to the students with visual impairment as they find themselves being stigmatized against and marginalized as a result of their impairment.

The researcher did observe that students with visual impairment interacted freely with service providers on campus including commercial drivers on campus that transport them to their lecture halls and back.

Research question four: What challenges do students with visual impairment face in accessing support from the resource centre?

4.4.4 Challenges students with visual impairment face in accessing support from the resource centre

Table 4.6:Challenges students with visual impairment face in accessing support from the resource centre

Responses for accessing support	**Mean**	**S.D**
Students with visual impairment receive regular support from the resource centre	4.04	0.26
Students with visual impairment are assisted by their sighted counterparts in learning	3.88	0.69
Embossers are available for brailing documents in large quantities for students with visual impairment.	2.00	0.32
Resource persons assist students with visual impairment to be able to use the library internet facility for research work.	1.28	0.85
The Special Education library has enough large printed text books to benefit students with low vision.	1.27	0.63
Composite mean	**2.49**	**0.28**

n = 60, Source: Field Data, 2016. Means were calculated from a scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Agree, 4 = Agree,5= Strongly Agree.

Table (4.6) above presents the result of the study with respect to the support services available to students with visual impairment in the University of Education, Winneba. The results show that on the item access to support, students with visual impairment 'somewhat agreed' that they have access to support services from the university (Composite mean = 2.49, S.D = 0.28). The students 'strongly disagreed' that resource persons assist students with visual impairment to be able to use the library internet facility for research work (Mean = 1.28, S.D = 0.85) and the perception that Special Education library has enough large printed text books to benefit students with low vision (Mean = 1.27, S.D = 0.63). They also 'disagreed' that embossers are available for brailing documents in large quantities for students with visual impairment (Mean = 2.00, S.D = 0.32).

The respondents however 'agreed' that, students with visual impairment received regular support from the resource centre (Mean = 4.04, S.D = 0.26) and are assisted by their sighted counterparts in learning (Mean = 3.88, S.D = 0.32).

Generally, students with visual impairment admitted that they received some level of support from the resource centre. However the findings also portrayed that the support level that they received is not enough hence there still exists some gaps to be filled. For example students with visual impairment were of the view that embossers were not available to print documents in large quantities to their benefit.

During the observation, the researcher observed that the sighted students assisted students with visual impairment during and after instructional periods. This was observed to have reduced the challenges students with visual impairment encounter during learning. It was also observed that sighted students assisted students with

visual impairment to use the internet facility for research purposes since the university does not involve persons with visual impairment in ICT lessons.

It was also observed that the resource centre for the blind offered enough support to persons with visual impairment after instruction hours at the resource centre for the blind. Some of the supports offered included brailing some of the lecture notes for them and also assisting them to operate some of the assistive technology devices like the tape recorders.

The researcher observed that, an embosser was available at the resource centre for the blind meant for printing braille materials in large quantities to benefit students with visual impairment. However, it was observed that the embosser was not functioning thereby creating a lot of challenges for students with visual impairment as they need to braille most of the materials using the hand frame and the stylus. Other observations were that due to the limited number of resource persons, students with visual impairment need to have schedules with the resource persons before they could be attended to posing challenges to them.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter dealt with the summary, conclusion and recommendations based on the results of the study which focused on an investigation into challenges students with visual impairment face at the University of Education Winneba.

5.1 Summary

The study involved 60 students with visual impairment. All the 60 respondents participated in the study. Purposive sampling technique was adopted in the selection of students with visual impairment because it enabled the researcher to build up a sample that is satisfactory to specific needs. The instruments used in this study were questionnaire and observations.

Questionnaire was administered on the students with visual impairment by the researcher. An observation guide was developed and used to observe the four key issues which were on the physical environmental challenges, the instructional challenges, the social challenges and the challenges involved in accessing support. Findings based on the questionnaire and observation for research question 1 indicated that the physical environment of the University of Education, Winneba is not friendly to students with visual impairment. The findings revealed that there were series of challenges and dangers that the physical environment poses to students with visual impairment. However, other findings also revealed that some parts of the campus were being rehabilitated and to some extent benefit students with visual impairment and other sighted students. These had to do with a new faculty block fitted with an elevator and some parts of the roads at the north campus designed with speed ramps and zebra crossings to the benefit of all students.

However, the findings revealed that the University of Education, Winneba, has a lot more to do to improve upon the physical environment of the campus especially with the south campus. The north campus on the other hand could be a potential safe place for habilitating students with visual impairment if a little more is done on improving upon the campus for example covering of open gutters.

For research question 2, results showed that there were very few instructional challenges students with visual impairment encounter as a result of the lecturers' awareness on disability related issues. The few challenges that confronted students with visual impairment as far as instruction is concerned include; unavailability of resource persons during instructional hours, the lack of speakers and recorders for the benefit of students with visual impairment and the unavailability of specialized teaching materials for use by lecturers to the benefit of all students including students with visual impairment.

As regards research question 3, findings based on the socialization issues revealed that the university does well to academically include students with visual impairment thereby promoting some level of socialization. However, findings also revealed that students with visual impairment are not included in sporting activities since the university has no planned sporting activity that can enable students with visual impairment participate in hence they are excluded. Meanwhile sports are one of the greatest activities that promote socialization among people in general.

Findings for research question 4 based on the questionnaire and observations indicated that access to academic support by students with visual impairment was very poor. This conclusion was drawn from the key points that evolved from the interviews and questionnaires. These key issues include; inaccessible libraries,

inadequate reference materials and inaccessibility to information regarding events on campus.

5.2Conclusion

The current study was set to investigate into the challenges students with visual impairment face within the University of Education, Winneba. The university admits all students including those with visual impairment hence the university is an inclusive setting.

I will therefore refer to the three overarching dimensions of inclusive school development which are: creating inclusive cultures, producing inclusive policies and evolving inclusive practices:

Creating inclusive culture is concerned with creating an environment in the school, where everyone feels welcomed and valued. Generally it is a school where teachers, students, parents and practitioners feel secured, accepted and they have an opportunity to collaborate with one another (Booth, 2011).

Producing inclusive policies is about planning the school for all where everyone in the community setting is involved, and support for diversity is promoted. However, evolving inclusive practices is all about developing what is to be taught and learnt, so that inclusive values and policies can be reflected (Booth et al., 2002). It focuses on the flexibility of the curriculum, where learning activities are planned to meet the needs of all learners including learners with special educational needs. It is where students engage actively in learning and they help each other. However, the findings revealed that in the learning environment, students with visual impairment face challenges as there is inadequate teaching and learning materials for the visually impaired learners. Also social interactions of students with visual impairment were

poor. In order for challenges faced by students with visual impairment to be reduced, the three dimensions mentioned are absolutely essential to achieve that purpose.

5.3 Recommendation

In light of the findings, it is suggested that the following factors should be considered in resolving the challenges students with visual impairment face at the University of Education, Winneba.

1. The Development section and the estate department of the University of Education, Winneba should consider the welfare and safety of students with visual impairment when developing the campus. It will be very important for the university to include an advocate for persons with disability in their development committee to share ideas on how to plan the structures on campus to the benefit of all including students with visual impairment.
2. The university should consider providing periodic in-service training programme for both lecturers and resource persons to update their skills and competencies which is very crucial to improve upon the learning of students with visual impairment.
3. There is the need for the university to employ more resource persons such that some will be available during instructional hours to assist students with visual impairment hence reducing the work load on lecturers.
4. There is the need for the Special Education Department to rehabilitate their Information Computer Technology centre so that students with visual impairment could benefit from the use of the computers and books for research purposes.
5. The university should partner with the sports college to be introduced to sporting activities that could involve all students including students with visual

impairment so that occasionally, when sporting activities are organized, students with visual impairment would be involved for socialization to take place.

6. There will be the need for the resource centre for students with visual impairment at the university to collaborate with the other departments on campus so that, information to be posted on notice boards will be also brailed by the centre to the benefit of students with visual impairment.

5.4 Implication for further research

Persons with disabilities in general receive most or all their education in special schools generally out of their homes and communities in the past. However, integrated education has now been accepted globally as the new trend of education for students with disabilities due to the numerous benefits that accrued to it. Findings from the research and the literature reviewed for the study revealed the many problems that overwhelmed integration of students with visual impairment at the University of Education, Winneba.

Findings also showed that in spite of the numerous challenges students with visual impairment encounter at the university, much has been achieved by students with visual impairment academically, socially and functionally.

However, much is yet to be achieved to make the university more accessible and friendlier to students with visual impairment. The scope of the current study was limited to only the University of Education, Winnba in the Central Region of Ghana.

Considering the above, it is therefore imperative that further research is conducted to investigate the challenges students with visual impairment face within the university.

However this study should involve other universities that include students with visual impairment and the sample size increased.

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APPENDICES

APPENDIX A

QUESTIONNAIRE ON INVESTIGATION INTO CHALLENGES OF STUDENTS WITH VISUAL IMPAIRMENT AT THE UNIVERSITY OF EDUCATION, WINNEBA

QUESTIONNAIRE FOR STUDENTS WITH VISUAL IMPAIRMENT

SECTION A

Please you are required to answer the question with the tick (y sign in the appropriate box or by supplying the needed information.

Personal Data

Sex: Male [ ] Female [ ]

Level: Level ! 00 [ ] Level 200 [ ] Level 300 [ ]

SECTION B

(Physical Environment)

INSTRUCTION: Please for each of the following statements, tick (V) the appropriate column which approximates to the present state of affairs at the University of Education, Winneba.

NO	STATEMENT	5	4	3	2	1	
		S/A	A	N	D	S/D	For Scoring only
1.	Students with visual impairment are able to access lecture halls with ease						
2.	Lecture halls have suitable desks for students with visual impairment to use.						
3.	The compound is accessible to students with visual impairments						
4.	The halls of residence of students with visual impairment are accessible						
5.	Walk ways are provided for all students including those with visual impairment						
6.	Zebra crossings are placed at appropriate points to ensure safety of students including students with visual impairment.						
7.	Elevators are available to convey students with visual impairment to lecture halls on storey buildings						
8.	Gutters have been covered to ensure safety for all students including those with visual impairment.						

SECTION C

(Instructional Issues)

INSTRUCTION: Please for each of the following statements, tick (V) the appropriate column which approximates to the present state of affairs at the University of Education, Winneba.

NO	STATEMENT	5	4	3	2	1	
		S/A	A	N	D	S/D	For Scoring only
1.	Resource persons are available during lessons to offer direct support to students with visual impairment.						
2.	There are adequate hand frames and stylus for use by students with visual impairment during and after instructional hours.						
3.	The schools main library has enough talking text books, screen readers and large prints.						
4.	The library has ICT software, magnifiers, CCTV among others to the benefit of student with visual impairment.						
5.	Adequate brail text and materials have been acquired by the department.						
6.	Students with visual impairment are given enough time to finish quizzes and examinations.						
7.	Lecturers use specialized teaching materials in teaching to benefit all From the students including those with visual impairment						
8.	Enough brail sheets are always available to students with visual impairment.						
9.	The Special Education Department carries out monitoring and evaluation on progress of students with visual impairments						
10.	A well-equipped resource centre for the blind is available in the university						
11.	Large prints are available for students with low vision.						

SECTION D

(Social Issues)

INSTRUCTION: Please for each of the following statements, tick (V) the appropriate column which approximates to the present state of affairs at the University of Education, Winneba.

NO	STATEMENT	5	4	3	2	1	
		S/A	A	N	D	S/D	For Scoring only
1.	Students with visual impairment are involved in co-curricular activities						
2.	Students with visual impairments are able to interact with other sighted students during extra-curricular activities.						
3.	Students with visual impairment experience somatization and marginalization from other sighted students.						
4.	Students with visual impairment attend all social gatherings and are included in all activities of the university						
5.	Students with visual impairment are able to communicate effectively with drivers and other service providers within the university.						

SECTION E

(Accessing Support)

INSTRUCTION: Please for each of the following statements, tick (V) the appropriate column which approximates to the present state of affairs at the University of Education, Winneba.

NO	STATEMENT	5	4	3	2	1	
		S/A	A	N	D	S/D	For Scoring only
1.	Students with visual impairment are assisted by their sighted counterparts in learning						
2.	Resource persons assist students with visual impairment to be able to use the library internet facility for research work.						
3.	The Special Education library has enough large printed text books to benefit students with low vision.						
4.	Students with visual impairment receive regular support from the resource centre						
5.	Embossers are available for brailing documents in large quantities for students with visual impairment.						

APPENDIX B

OBSERVATIONAL GUIDE

OBSERVATION GUIDE (PHYSICAL ENVIRONMENT) The researcher will observe the specific physical school facilities in the school. The information gathered from the observation is intended to help the researcher to conclude whether the physical school environmental factors posses challenges to students with visual impairment or not.

Variables	Statement	Available	Notavailable
1. Availability of Zebra crossings on campus to promote easy movement of students with visual impairment.			
2. Availability of ramps and wide doors to allow for easy movement of the students with visual impairment			
3. Availability of wide pathways around the school compound to prevent students with visual impairment from running into obstacles.			
4. Elevators are available to convey students with visual impairment and other students to lectures.			
5. Covered gutters are available on campus			

(INSTRUCTIONAL ISSUES)

The researcher will observe the instructional issues in the school.

The information gathered from the observation is intended to help the researcher to conclude whether the instructional issues posses challenges to students with visual impairment or not.

Variables	Statement	Available	Notavailable
1. Availability of resource persons during instructional hours			
2. Availability of talking textbooks, screen readers among others at the main library			
3. Allocation of enough time to students with visual impairment to complete quizzes, class work and assignments.			
4. Availability of specialized teaching materials to be used by lecturers to benefit all students including students with visual impairment.			
5. Availability of enough Braille texts and materials for use by students with visual impairment.			

(SOCIAL ISSUES)

The researcher will observe the specific social issues in the school that students with visual impairment experience.

The information gathered from the observation is intended to help the researcher to conclude whether students with visual impairment face challenges in terms of the socialization.

Variables	Statement	Available	Notavailable
1. Involvement of students with visual impairment in co-curricular activities			
2. Interaction among students with visual impairment and the sighted students outside instructional hours.			
3. Prevalence of somatization and marginalization			
4. Inclusion of students with visual impairment in activities on campus			
5. Effective communication among students with visual impairment and other care givers on campus.			

(ACCESSING SUPPORT)

The researcher will observe the specific support available and provided in the school to the benefit of students with visual impairment. The information gathered from the observation is intended to help the researcher to conclude whether the kind of support provided by the university poses challenges to students with visual impairment or not.

Variables	**Statement**	**Available**	**Notavailable**
1. Evidence of support from sighted students to students with visual impairment in learning			
2. Availability of resource persons to assist students with visual impairment to make use of the library			
3. Availability of support from the resource centre for the blind			
4. Availability of large prints and specialized text books provided by the university			
5. Embossers availability			

APPENDIX C

CONSENT FORM FOR STUDENTS WITH VISUAL IMPAIRMENT

I am student of University of Education, Winneba studying Master of Philosophy in Special Education. The title of my thesis is An Investigation into Challenges students with visual impairment encounter at the University of Education Winneba.

It is an academic exercise in partial fulfillment of the award of MPhil in Special Education degree.

In relation to this I want to administer questionnaires to students with visual impairment. 1 will investigate (a) the challenges students with visual impairment encounter in relation to the school's physical environment (b) the challenges in terms of teaching and learning (c) challenges in terms of socialization and finally (d) challenges in terms on support from resource persons.

All the information gathered from the participants will be treated as confidential and will not be accessible to any other person but probably my supervisor Samuel Kweku Hayford (Phd) of the University of Education Winneba, Special Education Department. Taking part in this study will not be harmful to the participants in anyway while the information recorded will be deleted at the end of the project.

Please in case for a further clarification contact me through the address below:

Name: Success Bright Morny

E-mail: inornysuccess@yahoo.com/skmorny1991@gmail.comCell phone numbers: +233 204119798 / +233 242009869

I have read the above information and I am willing to participate in the study.

Please tick [√]

Low Vision [ ] Totally Blind [ ]

Date: ……..……. Signature: ……