UNIVERSITY OF GHANA, LEGON

DEPARTMENT OF INFORMATION STUDIES

INFORMATION SEEKING BEHAVIOUR OF VISUALLY CHALLENGED STUDENTS IN PUBLIC UNIVERSITIES: A STUDY OF UNIVERSITY OF GHANA, LEGON AND UNIVERSITY OF EDUCATION, WINNEBA.

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THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PHILOSOPHY (MPHIL) DEGREE IN INFORMATION STUDIES.

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DECLARATION

I hereby declare that except for references to other people's work which have been duly acknowledged, this thesis has not been presented either in whole or in part to any institution for any purpose.

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DEDICATION

This work is dedicated to my husband Dr. C. A. Boamah, my daughter Sharon Ampomaa Boamah and my parents Mr. J.K. Appiah and Madam Rose Ankomah of blessed memory.

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LIST OF ACRONYMS AND ABBREVIATION

ASK	Anomalous State of Knowledge
BVI	Blind and Visually Impaired
BVIVS	Blind and Visually Impaired Vocational Students
CCTV	Closed – Circuit Television
CNIB	Canadian National Institute for the Blind
GES	Ghana Education Service
ICT	Information Communication Technology
IFLA	International Federation of Library Association
JAWS	Job Access with Speech
LC	Library of Congress
LISU	Library and Information Statistics Unit
OPAC	Online Public Access Catalogue
OSSN	Office of Students with Special Needs
RC	Resource Centre
RNIB	Royal National Institute for the Blind
SPSS	Statistical Package of Social Sciences
UEW	University of Education, Winneba

UG	University of Ghana
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
University 'A'	University of Ghana
University 'B'	University of Education, Winneba

ABSTRACT

Research on information seeking behavior of the visually challenged students was carried out in University of Ghana, Legon and University of Education, Winneba to investigate whether the services provided by those universities accommodated the information seeking behavior of visually challenged students or not. The theoretical framework for the study was Wilson's (1999) Information Behaviour Model. The survey method was used to collect data and 80 copies of a questionnaire were distributed to visually challenged students in both universities. Out of the 80 copies of the questionnaire distributed, 68 were completed and returned giving a response rate of 85%. The major findings of the study were that only one of the universities surveyed provides special services for visually challenged students. There were no specific policies from both universities Resources Centre (RC)/ Office of Students with Special Needs (OSSN) for the provision of information services for this group of students. The visually challenged students got information to meet their academic needs through discussions with colleagues, visiting the RC/OSSN, browsing the Internet and relying on lecturers. Most of the students preferred electronic format depending on their level of sightedness. Also facilities, equipment and staff were found to be inadequate. The challenges facing students in seeking information include: print materials, mobility problems, poor library facilities and slow Internet connectivity. Recommendations made include a written service policy, provision of assistive technology devices and computers with Job Access with Speech (JAWS) software to improve information services for these special groups of visually challenged students

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Information is needed in all human activities and this modern world has been termed as the period of information dispensation, with information-bearing materials in different formats (Ortlieb, 2014). Giving equal access to information is essential to the establishment of an information community which also applies to people with disabilities. Visually challenged students experience varying degrees of sight loss that may necessitate diversity in the level of their information needs and type of library resources required to cater for them. In managing their work load, this set of students often experience difficulties in accessing information to suit their needs in university libraries. Accessing information is a good resource required by students to excel in their educational pursuits (Katz, 2013).

Many a time, to search for relevant information of any format is more often challenging especially for the visually challenged students. It is more frustrating and time consuming for information users. At times, most of the information seekers give up in the course of seeking information due to various challenges they encounter (Halloway, 2001). Visually challenged students require specialized materials to help in accessing and seeking relevant and useful information (Hill, 2013). This means that extra time is required for information processing and transcription from information sources (Case & Davidson, 2011). It may become difficult or impossible for visually challenged students to find materials in the library without specialized assistance. Understanding the information needs of different

library users is essential to set-up information systems. Meanwhile, if librarians are to serve the library patrons realistically, they need to bear in mind the changing needs and variations in information gathering of these patrons to be able to provide services that would be most useful to their needs (Luo, 2011).

Blindness and visual impairment can be found in all countries in the world and Ghana is not exempted. Considerable changes in the education of people with impairments have led to an increase in their educational aspirations and thus, an increasing number of visually challenged people are in tertiary institutions. Since the publication of The Standard Rules on the Equalization of Opportunities for Persons with Disabilities, and United Nations Educational, Scientific, and Cultural Organization (UNESCO) Public Library Manifesto (1994), "the awareness that information is a key and fundamental right even of the disabled has developed extensively". The International Federation of Library Association (IFLA) Guidelines for Development of The Public Library Service (2001) assert that: "the development of collections should be based on the principle of access for all and include access to formats appropriate to specific patrons, for example braille and talking books for blind people." In view of this, libraries and librarians ought to make information accessible to information users to contribute to the evolving information to the general public. Hence, they have the duty to make information available to all kinds of patrons irrespective of their disability. Yet, some people are left out and among these unfortunate ones are the visually challenged (Friend, 2009).

Even though visually challenged students cannot read the print materials, they can access/use information in different formats. Due to individual differences the way people search for information differ in respect of physical characteristics, motivations and source preferences (Saumure and Given, 2004). With the help of Information Communication Technology (ICT) and adaptive technology, the chances for the visually challenged students to find and use information have been greatly enhanced and their independence have also increased. More researches are therefore required to learn more on how students with visual impairment find and access information**.**

1.1.1. History of the Office of Students with Special Needs (OSSN) at University of Ghana, Legon.

The University of Ghana, Legon started offering admission to students with special needs in 2001. The Office of Students with Special Needs started in a section of the Balme Library. A research conducted by Alemna and Armah (2007) on the provision of library and information services to the visually impaired students in public universities in Ghana perceived that, the needs of students with various disabilities and in particular visually impaired students were not taken into consideration This compelled the Balme Library to create the Braille Library section to serve the visually challenged students admitted to the University. Initially, the Braille Library was created with the visually challenged in focus but with time, it included other students with disabilities of various kinds.

The Braille Library started with two students, one was deaf and the other one was hard of hearing. They both qualified to be admitted to the University in the 2001/2002 academic year. According to the then Director of Special Education Division of the Ghana Education Service, Mrs. Margaret Kwao of blessed memory, the University management was reluctant to offer these two students admission because the University then did not have any facility in place for such students. So the Director of Special Education Division intervened to provide resource personnel to assist these students while the University offered the students admission. The University agreed to this proposal, so the Special Education Division sent three resource personnel. These resource personnel were to assist the students with hearing impairment as note takers and interpreters in addition to two Braille transcribers from the Ghana Education Service (GES) who were already working with visually challenged students.

In the 2002/2003 academic year, there was a reshuffle at the Special Education Division and two resource personnel were transferred to the University to take over. In the year 2005, the Ghana Education Service withdrew its services to tertiary institutions due to a policy directive and that gave opportunity to some resource personnel to be appointed by the University. The Office under the supervision of University of Ghana, became known as Office of Students with Disability reporting to the then University Librarian, Prof. A.A. Alemna.

In the 2006/2007 academic year, Dr. Kwabena Adu Poku was appointed by the Vice - Chancellor to coordinate the affairs of students with disability admitted into the University. The Office was then moved into a single room in the Students' Union Building in the 2008/2009 academic year with five resource personnel. The Office was then commissioned on March 25, 2009 and was renamed Office of Students with Special Needs (OSSN). In the 2012/2013 academic year Dr. Kwabena Adu Poku retired from active service and a new Coordinator in the person of Prof. Isaac Asante was appointed to coordinate the affairs of the Office till date. Through his noble initiative, the Office has now moved from the Students' Union Building into a more spacious accommodation behind the College of Agriculture and Consumer Sciences.

1.1.2. Categories of Students with Special Needs

These are the following:

1. Visually challenged
2. Hearing impairment
3. Physically challenged
4. Medical problems

1.1.2.1. Personnel at the OSSN

The following are the categories of personnel of the Office:

1. Coordinator
2. Administrative Staff
3. Resource Personnel
4. National Service Personnel

1.1.3. A Brief History of the Resource Centre at University of Education, Winneba (UEW)

The erstwhile University College of Education, Winneba now University of Education, Winneba was the first University in Ghana in 1992 to integrate students with two sensory disabilities (visual impairments and hearing impairments) in the University to enroll in diploma courses. As a result, a Resource Centre was established by the University in 1998 to serve students with special needs in the system by supporting them with transcription and brailing of scripts (for the students) to meet their academic needs. The Unit is under the Department of Special Education of the University.

1.1.3.1. Categories of Students with Special Needs

The categories of such students in the University are;

1. Visually challenged
2. Hearing impairment
3. Physically challenged
4. Motor difficulties

1.1.3.2. Personnel at the Centre

The Centre has the following categories of staff:

1. Co-coordinator
2. Resource persons
3. National Service Personnel (Auxiliary Staff)
4. Students on internship (Auxiliary Staff)

1.2. Statement of the Problem

Universities in Ghana enrol students from different backgrounds and with different medical conditions, into different programmes. Some of these are described as special needs students with varying forms of disabilities. In relation to information needs and seeking behaviour, these students encounter more challenges than the other groups of students on campus. Some of the challenges include lack of sign language interpreters for hearing impaired students, unfriendly physical structures for physical handicapped and visually challenged students, lack of computers to read electronic texts and use Internet resources, lack of funds and financial assistance for their services and resources are also lacking. The most vulnerable of the group are the visually challenged individuals.

There is the need to attend to the information needs of visually challenged students who face different experiences in comparison with the sighted ones in universities. In spite of the social and economic importance of educating the visually challenged and the positive influence they have on society, library management practices in universities tend to be less favourable to their plight. In addition, given the importance and increasing information needs of the visually challenged to perform and excel academically, the library managements in universities have a vital role to play in improving the quality of library resource planning, control and decision making for the survival and advancement of these categories of students so as to fulfil their academic dreams.

Information seeking behaviour of visually challenged students in their everyday life have been studied by many information studies professionals including Sehic, (2013), Davies, (2007), Saumure and Given, (2004). Many researchers have shown interest in studying the information needs of various library patrons. However, a literature search reveals very

little study of the challenges faced by visually challenged students in seeking information in tertiary institutions (Islam and Ikeda, 2014).

Literature on user studies in Ghana is deficient in information seeking behaviour of the visually challenged. Ofosu- Tenkorang (2011) studied the information needs and information seeking behaviour of the legal profession in Ghana. Tackie and Adams (2007) also investigated the information seeking behaviour of engineers in Ghana. With this gap in mind, the researcher aimed at finding out the information seeking behaviour of visually challenged students and also determines the kind of information services that have been provided to them by the University of Ghana, Legon and University of Education, Winneba respectively.

1.3. Purpose of the Study

The purpose of this study was to investigate the information needs and information seeking behaviour of the visually challenged students in University of Ghana, Legon (UG) and University of Education, Winneba (UEW) with the view of making recommendations for effective information service provision for this category of library users.

1.4. Objectives of the Study

The specific objectives of the study were:

1. To identify the information needs of visually challenged students in the University of Ghana, Legon and the University of Education, Winneba.
2. To identify the sources of information for the visually challenged students in the University of Ghana and the University of Education, Winneba.

3. To investigate the methods used to acquire required information in the University of Ghana, Legon and the University of Education, Winneba.
4. To identify challenges faced by visually challenged students in seeking information in the University of Ghana, Legon and the University of Education, Winneba.
5. To make recommendation based on the findings of the study.

1.5. Research Questions

The research questions of this study are as stated below:

1. What are the information needs of visually challenged students in the University of Ghana, Legon and the University of Education, Winneba?
2. What are the sources of information for visually challenged students in the University of Ghana, Legon and the University of Education, Winneba?
3. What are the methods used to acquire required information in the University of Ghana, Legon and the University of Education, Winneba?
4. What are the challenges faced by the visually challenged students in seeking information in the University of Ghana, Legon and the University of Education, Winneba?

1.6. Scope of the Study

There are three public universities which admit students with special needs, the University of Education, Winneba, the University of Cape Coast and the University of Ghana, Legon, This study only focused on University of Education (UEW), Winneba and University of Ghana (UG), Legon. Although, all the three universities have resource centres for the

visually challenged the reason for choosing these two universities was that University of Education, Winneba pioneered the enrolment of students with special needs and University of Ghana was the last university to enrol such category of students. Again, they have more of the visually challenged students. The study also focused on students known by the Resource Centre/Office of Students with Special Needs (OSSN)/ of University of Ghana (UG), Legon and University of Education, Winneba and registered as blind or visually challenged.

1.7. Theoretical Framework

A theoretical framework is a hypothetical outlook that guides the study and raises the questions that are expected to be dealt with. Creswell (2003) defines theoretical framework "as a collection of interrelated concepts which can be simply a theory, but it can also be more general and a basic approach to understand a concept" A theoretical framework describes the types of variables that you need to observe. They provide a standpoint to guide you as to what subjects are significant to survey, and the group of persons that require to be studied. It is an instruction method of building from the data to broad themes, to a generalized model or theory. With the advent of information need and seeking behaviour, different models were proposed for identifying different steps involved in this process.

Krikela's (1993) article on information seeking behavior patterns and concepts defines and develops an overarching theory explaining the information seeking, gathering and giving process, moving from the recognition of need to the search for and assimilation of

information. The move towards persons-centred studies was initiated more or less independently by a number of researches. Belkin (1982), Wilson (1984) and Dervin (1986) are the most commonly accredited with this move. They handled the problem of information needs from intellectual perspective.

Belkin's (1982) work was tailored for more effective information retrieval systems. He proposed an "anomalous state of knowledge" in the user, which the method must seek to match, if the retrieval was to be operational. Dervin's (1986) approach to the problem of information seeking behaviour adopted the sense- making approach. The main ideas of this sense – making approach are situations gap and uses. Her focus is on how everyday communication embodies the process of information transfer and diffusion.

1.7.1. Wilson's 1999 Model

Wilson's (1999) model is the model for this study which is the revised edition of the 1996 model. Wilson's (1999) model pinpoints the need to search information seeking in context. The model permits people to be conceptualized as one entity, which suits the setting of the concept in the disability group. Wilson (1999) has come out with different models of information behaviour for so many years. For example, from 1981 to 1999, his information behaviour models show that different factors bring about specific information needs. Wilson's (1999) information behaviour model carefully studies patrons from the perspective of their information need, information seeking and information behaviour. Wilson's (1999) model will be used as a framework for the study as it allows for a description and clarification of user information behaviour. The researcher finds the model to be more appropriate to the population under study than other models.

According to Niedzwiedzka (2003) Wilson proposes that "information needs are secondary needs caused by primary needs which in accordance with definitions in psychology can be defined as physiological, cognitive or affective". Cognitive needs arise in an effort to find sense and order in the world. The growth of a specific need is influenced by the setting, which can be the person himself/herself, or his position in the work place. Uniqueness of individuals strongly controls the information behaviour of a person. Personality of an individual affect the choice of information needs. Information needs of a lecturer may be different from that of a post graduate student and the needs of the same person may differ depending on the variations in circumstances.

The role a person plays in life is the result of the behaviour patterns displayed in society for the specific role. Therefore a lecturer, a student or a father has some specific duties which are related with their occupied positions and job description. The Wilson's (1999) model (see Figure 1) portrays information seeking behaviour arising as a result of a need, which dates back to Belkin's (1982) "Anomalous State of Knowledge" (ASK) approach which presupposes the existence of a "gap" in the knowledge base of the user which needs to be filled by information. In order to satisfy that need, in Wilson's (1999) words, the "user makes demands upon formal or informal information sources or services, resulting in success or failure to find relevant information. If successful, the user can make use of the information found but if the information found failed to satisfy the need, the user has to repeat the search process".

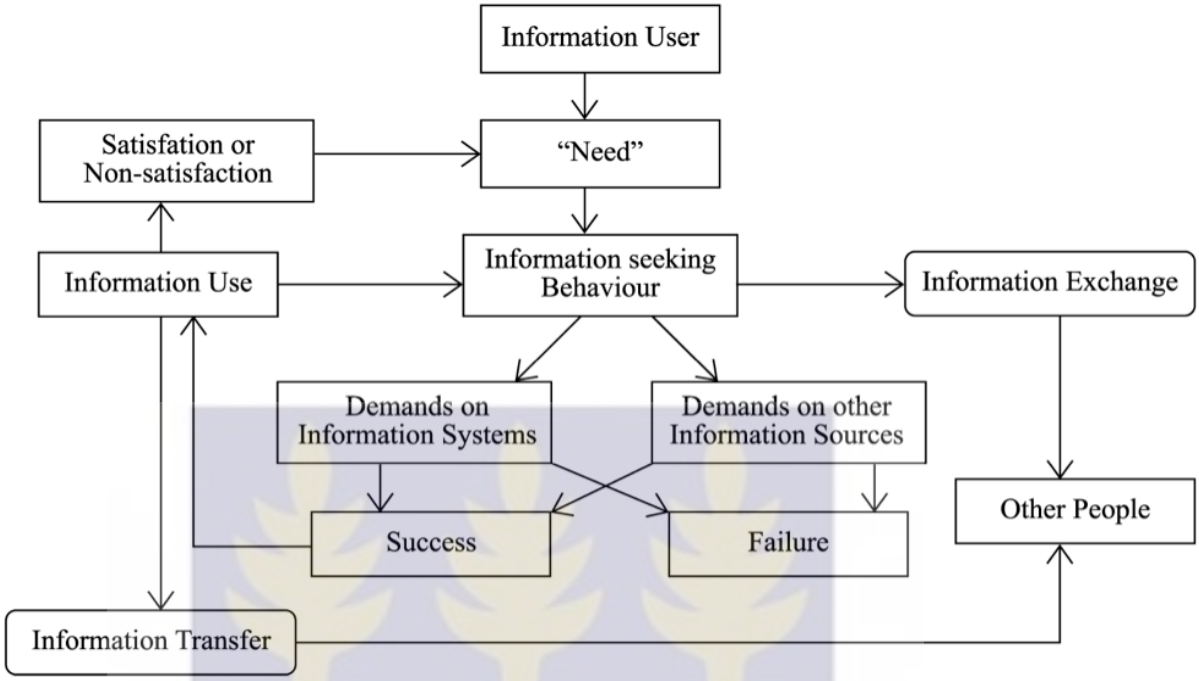

Figure 1.1: Information seeking behaviour model

Source: Field Survey, 2016

The model demonstrates that an aspect of the information seeking behaviour may include different people through information exchange.

1.8. Significance of the Study

People with disability are not marginal minority but rather a crucial economic resource for national development. The world has embraced the idea of empowerment of the vulnerable including the disabled and one of the strategies and tools of empowerment is "education for all or information for all". This tool has been implemented for the disabled for some time now but there is the need to find out the benefits to the disabled so as to make recommendations for improvement. An in-depth account of user information needs

and information seeking behaviour is essential to the delivery of information services. This study will fill some gaps in knowledge regarding the nature of the problems and limitations confronted by visually challenged students in seeking for information. The study is deemed important given the scarcity of adequate literature on the existing information seeking behaviour of visually challenged individuals and the other groups of people in Ghana.

The study will be relevant to information practitioners, policy makers and researchers. First and foremost, it will help the information studies professionals to adopt strategies to improve information seeking behaviour for visually challenged students. Also, fundamental decisions can be made to improve on services provided for visually challenged students and knowledge of the information seeking behaviour can also serve as an input for decision makers. It will also add to the knowledge and literature on how visually challenged students seek for information.

1.9. Definition of terms

This section briefly defines key terms which will provide the context in which they are used in this study.

Disability – Avoke, (2004) defines disability as any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.

Special needs students – Students with special needs are individuals who required special education and related special services in order to achieve their fullest potential. A student may have the special education needs of more than one category. Some may have multiple disabilities for example; one student may have visual impairment and mobility difficulties. Such a student required an intensive support to be able to perform well (Bozeman, 2007).

Visual impairment – Visual impairment include the totally blind, low vision and the partially sighted because of disease or disorder of the eye and optic nerve. The term blindness typically refers to vision loss that is not correctable with eyeglasses or contact lenses. Visual impairment may not mean a total absence of sight however, some people who are considered blind may be able to perceive slowly moving lights or colours (Otibu 2014).

Sign language – Sign language is a communication system using gestures that are interpreted visually (Wilcox, 2008).

Assistive technology – Assistive technology is used by individuals with disabilities in order to perform functions that might otherwise be difficult or impossible, it include mobility devices such as walkers and wheelchairs as well as hardware, software and peripherals that assist people with disabilities in accessing computers or other information technologies for example, screen reader, screen magnifier, close circuit television, braille printer and braille embosser for visually challenged students (University of Washington, 2009).

Screen reader - Screen reader is a software programme that uses synthesize speech to "speak" graphics and text out loud. This type of programme is used by people with limited vision or blindness (Scagnelli 2007).

Closed circuit television – Close circuit television magnify a printed page through the use of a special television camera with a zoom lens and displays the image on a screen (American Foundation for the Blind, 2012).

Braille embosser – Braille embosser is a braille printer that embosser's computer generated text as Braille on paper (Centre for public education, 2012).

1.10. Organization of the Study

The study was organised into six chapters as follows:

Chapter One: covers the background of the study, statement of the problem, purpose, objectives, research questions, scope, theoretical framework, significance of the study and organization of the study.

Chapter Two: deals with the literature review. Reviewing specific areas related to the current study under the following: visual impairment, information needs, information seeking behaviour, information seeking behaviour of students, information seeking behaviour of visually challenged people, information seeking behaviour of visually challenged students, information seeking and access and information use.

Chapter Three: describes the research methodology which covers the research design, selection of cases, selection of subjects, the study population, data collection instruments, data analysis and ethical consideration.

Chapter Four: deals with the presentation and interpretation of the findings.

Chapter Five: discusses the results of the study and interprets the findings.

Chapter Six: deals with summary of the findings, conclusions and recommendations based on the outcome of the research.

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CHAPTER TWO

Literature Review

2.1. Introduction

According to Creswell (2015) literature review "provides a framework for establishing the importance of the study as well as a benchmark for comparing the results with other findings."

A literature review is a form of text that aims to review the critical points of existing knowledge on a particular topic. Literature was reviewed under the following sub themes:

1. Visual impairment
2. Information needs
3. Information seeking behaviour
4. Information needs and information seeking behaviour of students
5. Information seeking behaviour of visually challenged people
6. Information seeking behaviour of visually challenged students.
7. Information seeking and access
8. Information use

2.2. Visual Impairment

Otibu (2014) cited Ocloo (2011) that visual impairment includes the totally blind, low vision and the partially sighted. He further defines the blind as having a "visual acuity of 20/200 or less in the better eye even with correction". The partially sighted as having a "visual acuity of 20/70 and those with low vision as having a visual acuity between these two points 20/30 (P30)"

He further opined that some are totally blind, others can perceive light from dark, while others have a minute residual vision which can help their movement. Blind person cannot read printed material but those with low vision will need low vision aids. He also stated that partially sighted include individuals who require gigantic print. Majority of the visually challenged people are afraid of light while some partially sighted or low vision people may require a powerful light before they can see properly.

Bozeman (2007) describes people with low vision as a partially sighted people. It is one of the two categories of visual impairment. The degree of vision loss may differ considerably, which indicate that each student with low vision or blindness needs individual modifications to study. Bozeman (2007) continued that most of the students with visual problems have "low vision" meaning they are print users but may need distinct equipment.

> "Blindness refers to the total loss of eyesight as opposed to degree of visual impairment. Blind persons might experience difficulty in moving around and knowing where things are, doing some activities of daily living, writing, reading and following visual signs or commands" (Cory, 2003).

Ashton (2000) described a person with low vision as the individual who has limitations in distance vision but is able to see objects and materials within a few meters away. Ashton (2000) also maintained that a person with low vision is the one whose visual condition is such that it interferes with efficient learning but who is still able to use print as his/her

chief medium of learning. People with visual impairment normally need some assistive devices and services which take into account the level of needs. Some people require much specialized eyeglasses or large print and other equipment to assist them to compensate for their low vision. The low vision constitutes a major drawback of visual ability as a result of pre-natal, peri-natal and post-natal conditions.

In Ghana, most children with low vision attend regular schools without any requisite support. According to Ocloo, et al (2002) many children with low vision will find themselves in regular classrooms because it provides them with education in the least restricted environment. They continued that teachers in Ghana or elsewhere need to bear in mind that children with low vision have challenges in learning fast and they usually have problem with effective communication and interacting with the environment.

2.3. Information Needs

The idea of information in information science is described in various means. Information is defined as data that is organized to produce meaning and that actively informs some phenomenon of interest. This means that its value is largely dependent on the context and the user and it is the user who determines what information is. All information is transmitted by means of communication and only useful if it is relevant, reliable and accurate.

Information need is assumed therefore as "evolving from a vague awareness of something missing, which necessitates the seeking of information that might contribute to understanding and meaning" (Kuhlthau, 1993). Belkin (1982) saw information as "a

method used to solve a problem, which is regarded as an inadequate state of knowledge, better known as an Anomalous State of Knowledge (ASK)". The information need is a prerequisite that moves individuals to search information. Wilson (1999) states that there must be a cause when a person experiences an information need. Information need is defined by Case (2002), as "a recognition that your knowledge is inadequate to satisfy a goal that you have".

Information needs are intractable or not easily dealt with (Wilson, 1981). This is because there has always been difficulty in identifying the setting in which information needs are obtained. Also, because need is personal and it only takes place in the mind of the person in need, and cannot be seen by any person. The experience of a need is only revealed by inferring from the actions or through the utterances of the person in need. Information needs however, form part of all facets of everyday life - at home, work place, school, market and so forth. It forms an integral part of living and cannot be done away with. No matter where mankind finds himself, he need to be adequately informed to help make intelligent and far reaching decisions in life. The rapid technological changes have also made it more imperative that mankind is rightly and adequately informed. This means that at the very core of information needs, people always find themselves in situations where they must give answers to questions, understand problems or solve them. To be able to do this effectively, people would seek out for more information.

2.4. Information Seeking Behaviour

The term information seeking behaviour has been used by many information studies professionals and scholars in 1950's. "Emphasis on user needs has prompted the concept to be investigated drawing upon models from the disciplines of psychology, sociology

and communication theory" (Hayden, 2005). Facts produced by user studies can aid in improving information systems and information services. Information needs and information seeking behaviour are the most essential study areas of user studies which are influenced by many issues. Research outcomes in these parts of user studies show that the two differ from one discipline to the other.

Wilson (2000) states that "information-seeking behaviour is the purposive seeking of information as a consequence of a need to satisfy some goals". In the process of searching information, individuals may relate with information systems like library and computer-based systems such as the World Wide Web. In the everyday activities of human beings, people need information to assist them take decisions concerning their lives and businesses /careers and so on. This implies that individuals need information in their daily life.

Case (2002) defines information seeking as "a conscious effort to acquire information in response to a need or gap in one's knowledge". During the information seeking process, several factors are at play such as identifying, choosing and locating a likely information provider that will satisfy the information needs of that particular person. Case (2002) further states that information seeking is everywhere in human activities, whether gathering data for work, making sense of everyday life or looking for information is a basic behaviour that shapes the lives of people.

Uheghu (2007) defines information seeking behaviour as "the way in which information users conduct themselves when searching for information". In the same line, Ajiboye and Tella (2007) describe information seeking behavior as "the way and manner people gather and seek for information for their personal use, knowledge updating and development".

2.5. Information Needs and Information Seeking Behaviour of Students

A lot of studies in information science regarding a facet in university students' information behaviour have termed students' use of library services and problems in using those services. Wilson (1994) divides the research field of information needs and uses in system studies and user studies. According to Eskola (2005), Wilson "includes the studies conducted until the beginning of the seventies under the general heading of library surveys in his review of research in information needs and uses". In the last decade, interest in students' library use and information behaviour have gained the ascendency mainly because of large student numbers and also the fact that libraries need to know their clients or patrons and provide the best services for them.

Callinan (2005) conducted a study on the first year and final year students in University College of Dublin on the information seeking behaviour of undergraduate biology students. This study also aimed at investigating information seeking behaviour at various class levels. The study's findings highlighted the positive areas of information seeking from the students' viewpoint including the barriers encountered. It also revealed the changes in the range of use of sources of information in the different class years. Students

were not using the library's electronic databases, because of lack of awareness. They only did so from websites and web-based lecture notes.

Majid (2002) also investigated the usage of information resources by computer engineering students of the Nanyang University, Singapore and concluded like several other studies, which indicates that the usage of databases, electronic journals and other electronic information sources was remarkably low. This was more alarming because students offering computer engineering were expected to be more acquainted with computers and to exhibit a higher level of information retrieval skills. Their choices were books, lecturers, the internet and friends.

Whitmire's (2001) longitudinal study examined changes in library use by students at the various class levels. The study revealed that students had different needs at the different class levels. However, library was not patronized by the students at the various class levels but the degree of involvement by students in a variety of library activities increased during the three years of study.

Owolabi, Jimoh and Okpeh (2010) conducted a study to determine information seeking behaviour on Polytechnic students in Nigeria. The study shown that students use information mainly for academic purposes and their main source of information are text books. The study also indicated that, the level of study has an impact on students' choice of information and the students are satisfied with information acquired in the library. The study recommended that the Polytechnic managements should stock the library with more

current books and journals and to conduct in- service training for library staff to make them effective and efficient in meeting students' academic needs.

Opare- Ababio (2011) conducted a study to determine the information needs and information seeking behaviour of undergraduate students of the Tema Campus of Methodist University College, Ghana. The study indicated that most of the students patronized the library on a daily basis and were highly aware of the library facilities and also had considerable amount of awareness and knowledge about the scope of resources available in the library except that of the Online Public Access Catalogue (OPAC). Further, the study revealed that the students seek information purposively to broaden their subject knowledge, to enhance their course work and assignments, prepare for examinations and tests, as well as their lecture notes. The study made recommendations in the areas of enhancement of continuous user education, expansion of services and facilities to cater for the increasing number of students, automation of the library, and the need to equip the library with both print and electronic resources.

Dzansi (2008) conducted a study to determine the information seeking behaviour of the University of Ghana medical school students. The study provided a detailed understanding into the information needs and information seeking behavior of the medical students with the main results being that the medical students indeed have information needs and they sought information primarily from their lecturers and lecture notes. They also employed other means in accessing information just like other groups of students and therefore used multiple sources of information. The study concluded by recommending

that the library needs to foster a closer collaboration with the lecturers who have been recognized as primary source of information for the students.

An investigation conducted by Agyapong (2005) on information seeking behaviour of graduate students pursuing programmes in Information Studies at the University of Ghana, stated that students are motivated by diverse compulsive desires to seek information. It also found out that students use resources available within their immediate environment, use multiplicity of channels of information and that there was a high use of the library as an information resource. The study made recommendations in the areas of user education, information technology, accommodation for the library and other resources.

Folitse (2002) investigated information seeking habits of students of University of Education Winneba, Mampong Campus. The study showed that the library services are known to students. They used different methods when seeking information. Majority of the students, 97 per cent consult librarians in order to obtain information. They also consult reviewed articles, follow up reference and footnotes from textbooks, others also consult friends. Recommendations have been made to solve some of the problems found in the study. For example: students' inability to locate materials in the library, no computer services (Internet services) to access information worldwide. Suggested solutions offered include the provision of adequate textbooks and also enhancing access to computers.

2.6. Information Seeking Behaviour of Visually Challenged People

Information studies professionals have undertaken a number of studies with an idea to understand the motive behind their information seeking, the method they use, and what influences their information seeking behaviour. Lifetime settings determine the way the visually challenged seek or acquire information either being independent or living with extended family, the nature of vision impairments and individual information seeking preferences. Although information behaviour of visually challenged people, particularly in the setting of their daily life information behaviour has been studied by different information studies professionals and researchers, and very little work has been published specifically on the information needs, information source and information seeking behaviour of people with visual impairment (Case,2003).

A study conducted by Beverly, Bath, and Barber (2011) examined the health and social care information needs of people with visual impairment. The study stated that visually challenged people needs are varied due to their condition. The study also revealed that not all their needs were being met by information providers' at the hospital and eye clinic department. Information providers did not deliver information in the person's preferred format.

Beverly, Bath, and Barber (2007) provided a valuable understanding into the information behaviour of visually challenged people by testing the particular and universal information model to the information behaviour of visually challenged people seeking health and social care information. The findings was that Moore's (2002) and Wilson's

(1999) models provided a suitable outline for analyzing and accepting the information needs and information behaviour of visually challenged people in relation to health and social care information. The study emphasized the significance of creating conducive atmosphere and adopting mutual understanding to allow people to seek and obtain the required information.

The Canadian National Institute for the Blind (CNIB, 2005) conducted a comprehensive survey on the everyday lives of visually challenged young people in Canada. Three hundred and thirty (330) visually challenged youth took part of the survey. The results of the study were focused on three (3) areas: the vocational domains, social domains, and the activities of daily life. The report covers some of the emotional and affective aspects of people living with visual impairment, including frustration in personal relationships, dating or marriage, and the difficulties of job seeking leading the seekers to give up. The CNIB also undertook a two year study to explore the information needs of visually challenged people. The study examined a variety of issues such as income, employment, education and social integration of visually challenged people including services provided to meet their needs. CNIB recommended making library accessible to different categories of users.

Craven (2003) conducted a study on the information seeking behaviour of visually challenged people with web based resources. Twenty sighted and twenty visually challenged people were used as a sample size. The users used different information seeking tasks and online resources. The outcome was that visually challenged users spend

more time to do searching online. The kind of devices used also had an impact on the search process because a well sophisticated equipment offer the user a more flexible approach to searching.

By asking visually challenged people about their needs is a survey undertaken by the Library and Information Statistics Unit (LISU) at Lougborough University in the United Kingdom (UK) with support from Share Vision (Davies, Wisdom and Creaser, 2001). The results showed that, the users are pleased with the library services. Recommendations were made to create awareness of library services to the users.

The Royal National Institute for the Blind (1999), investigated the financial information needs of blind and sight impaired people. The study indicated that visually challenged people prefer receiving their financial information in large print than standard print. They further stated that the youth also prefer to read Braille or a computer disk.

2.7. Information Seeking Behaviour of Visually Challenged Students

Visual impairments sometimes determine the way students use information and from specific sources relevant to their needs (Kamei- Hannan et al., 2013). Kumar and Sanaman (2015) conducted a study to examine the challenges faced by the blind/ vision- impaired users during the web access in the leading academic and special libraries of Delhi, India. The result clearly stated that blind and visually challenged users encountered a lot of challenges in the libraries of Delhi, India when accessing web. Kumar and Sanaman (2015) recommended three kinds of web-based resources for the libraries to their users. These are the Internet, subscription to databases and a library's own website which can

be accessible by visually challenged users. Kumar and Sanaman (2015) concluded that these challenges can be easily overcome through web technologies.

Tengku – Rafidatul, Abdllatif, Asmadi and Mohdhafez (2015) conducted a study to test the relationship between identified factors from the past research (information needs, information quality, personality, rationalism then cost) towards choice of information among Blind and visually impaired (BVI) vocational students in Malaysia. The finding revealed that only information need, personality and cost have a significant relationship with the Blind and visually impaired vocational students (BVIVS) choice of information source while information quality and rationalism does not.

Sehic's (2013) study on six blind and three visually challenged students in Croatia indicated that materials in the libraries do not cater for their needs and that blind and visually challenged students, when looking for information and materials for academic purposes relied most often on interpersonal sources such as radio and the Internet. The students preferred electronic format than Braille format. Thus, assistive technology devices played an essential role in their information seeking.

Smith and Rosenblum's (2013) study revealed that students with visual impairments find themselves in a condition that triggers the need to seek and use information. For example, students constantly find themselves in need of information to write assignments, essays, tests and any other academic related information. They further stated that during lecture

time, visually challenged students needed specialized tools like specialized Braille computers to generate required information.

A research conducted by Sahib (2011) on information seeking behaviour of visually challenged searchers focused on the challenges they face when using online search interfaces. She made a proposal to design an accessible search interface to meet the unique needs of users of screen readers and also campaign for cognitive load to perform a vital role in design decisions.

In order to satisfy individual specific needs of students with visual impairments, a series of programmes, choices and services must be provided (Davies, 2007). Academic information needs of these students must be addressed by the institutions management. Davies (2007) further stated that educators of students who are visually challenged should know prior to enrolling at the university and the manner in which these unique needs of individual's student could be met is to provide choices for delivering specialized services. Service providers should know that all students have the same educational needs (do the same courses) but not all can benefit from the information services provided in teaching. Davies (2007) repeated that academic needs of students with visual impairments varied as the result of their level of study, particular degree programmes and age of the students. Consequently, the required information services will vary according to the students' degree of sight impairment as well as the extent to which they personally encounter barriers.

Case (2002 stated that, irrespective of students visual impairment every individual has needs which will not be similar to others. In addition, individuals' needs are often specific to a particular situation to be met at a certain time. In such instances a "one-size-fits all" approach to the provision of services should not be adopted not unless the services are universally designed. Case (2002) opined that, a suitable assessment of these exceptional academic needs in areas connected to students with special needs and instruction adapted to meet these needs are important to provide a suitable educational software design. In other words, it can be said that these students have sophisticated needs. For instance, it is important to understand that visually challenged students must complete similar work as his sighted peers using disability-specific skills which take time to master. Reading and writing of Braille by a skilful Braille user, is also time consuming.

McCarthy (2002) reviewed literature on information needs of visually challenged students. His analysis revealed that visually challenged students need to access library collections as well as to learn information literacy skills. McCarthy (2002) further stated that most of them do not receive library orientation to know how the library operates. He continued that visually challenged students must learn how to utilize a wide range of resources both print resources in the library and on-line resources including the Internet and periodical databases like their sighted peers do. He concluded that visually challenged students can use materials that are in print, when given assistive technology devices such as an optical scanner, Braille embosser, Close- Circuit Television (CCTV) and computer with Job Access with Speech (JAWS) software.

Saumure and Given (2004) examined information seeking behaviour of visually challenged students in Canada, with special emphasis on the adaptive technology. The result indicated that technology plays an essential role in the information behaviour of visually challenged students. They concluded that introduction of assistive technology and the increase of information in electronic format has improved their independence and augmented the chances of the visually challenged persons to find and use information.

Williamson, Schauder and Bow (2000) investigated information seeking by blind and sight impaired students with particular emphasis on the role of the Internet. Their study addressed matters of the information needs, information source, the role of the Internet and the challenges to the use of the Internet. They concluded that visually challenged people need to be provided with varieties of ways of meeting their information needs, as offered by people with normal sight. They further stated that, since the system has been described as an era of information revolution and then there must be the opportunities for special needs people to participate fairly in the information society.

A research conducted by Fakoya (2015) in University of KwaZulu- Natal, South Africa examined how visually challenged university students accessed information and the challenges they faced. The findings revealed that the neglect to meet the information needs of visually challenged students has negative repercussion on their studies. The recommendation emphasized the need to implement the University of KwaZulu –Natal disability policy and allocating a sufficient budget for the purchase of assistive devices and to incorporate principles of universal design in the information system.

An investigation conducted by Seyame's (2009) on information seeking behaviour of visually challenged students at the University of KwaZulu- Natal; Pietermaitzburg Campus revealed that information needs of the students revolved around their academic information needs. The study further revealed that all the respondents used the library as the primary resource when searching for information. However, the Disability Unit of the University played a major role in ensuring that information that the students found was repackaged for them in a usable format. Friends and classmates were also found to be useful in this regard by some of the respondents. Most of the students preferred electronic compared to print information formats, depending on their level of sightedness. Seyame (2009) also concluded that barriers experienced by the students were as a result of the lack of incorporating the needs of the visually challenged students into the design of the institution's information systems.

A study conducted by Shunmugam (2002) at University of Natal, Durban indicated that librarians, colleagues and resource personnel play a key role in their information seeking process and serve as facilitators for special needs students information seeking.

2.8. Information Seeking and Access

Information has a vital role in assisting, supporting and improving people's life. Each person has a diverse set of approaches for finding the information he/ she needs for his/ her everyday activities. This also refers to the blind or visually challenged students. Rains and Min (2008) stated that in developed countries, most libraries have sophisticated systems (programmes and software) that help students in locating library materials, databases, e-

journals and other electronic sources of information. However, the truth of the matter is that not every student, particularly those with visual impairment benefit from the availability of such sources as they are expected to click, drop and drag using technology that depends on sightedness. Information seeking behaviour and the use of interfaces still worries visual abilities which students with visual impairments do not possess. Universal design in this regard seems to be the solution to the design of websites.

Davies (2007) stated that information plays an essential aspect in the lives of people with special needs. There is also substantial appreciation of the fact that information is not easily accessed by all, and this is true by a lot of people with visual impairment. For example, the fact that information is there for a student with visual impairment is not enough. The crucial question is whether that particular information is accessible in a usable format to the student with visual impairment, using any information seeking behaviour he or she chooses.

A study conducted by Beverley et al. (2004) found out that information for visually challenged was not properly packaged, not at the right time and insufficient details. The Royal National Institute for the Blind (RNIB), (2003) stated that the importance of making information accessible for visually challenged people was stressed in recent United Kingdom (UK) legislation, such as the Disability Discrimination Act. RNIB (2003) continued that "information for visually challenged people should be made available in alternative formats such as large print, Braille, accessible web sites and audio tape".

The Wales Council for the Blind (2002), also stated that recent advances in Information Communication Technology (ICT), in particular assistive technologies such as screen magnification software, screen synthesizers, screen readers, Braille embossers, closed circuit television and character recognition software have the influence to offer information in more accessible formats to visually challenged people.

2.9. Information Use

In agreement with Wilson's (1999) model, it was obvious that if users' information needs were to be satisfied then information processing and use was vital part of the response. Thus, users having acquired or sought the required information then had to make sense of this information. Information use is a behaviour that consists of individual using information to satisfy his or her information needs.

Williams (2002) pointed out that individuals do not utilize all the information they need due to the fact that they do not receive what they need, the information may not be significant to them or at times they are not conversant with their need. In order to make information seeking behaviour process to be complete, the information obtained must satisfy the user's needs, failing which the search process must start all over again.

Brophy and Craven (2007) studied how visually challenged users interacted with and accessed information using ICTs. This study stated that the groups of people who are likely to be deprived by websites are those for whom websites have been designed without taking their needs into consideration, such as those with visual impairments. A common theme that

can be traced through these studies is that, despite the awareness of accessibility issues and the importance of accessible services, there is lapses concerning the specific aims for applying accessibility features on websites. Therefore, there is a need to design features enabling access for all.

Budricks (2007) did a need assessment on visually impaired students; the focal point of this study was on problems, limitations and difficulties encountered by visually challenged students, the available services of the Disability Unit, the accessibility of technological resources and the identification of limitations of the available services. Although Budricks (2007) did not include the attitudes of the university population to visually impaired students, the results yielded were similar to those that were raised by **S**hunmugam (2002) as librarians, colleagues and resource personnel play a vital role in their information seeking. Similarly, there is a real need to address attitudinal barriers at all levels of the institution that continue to locate the problem of disability (with perceived personal limitations) in the learner rather than the limitations of the system with its inability to meet the varieties of academic needs among this small group of students.

A study conducted by Seyama (2009) at KwaZulu- Natal also revealed that visually challenged students were able to use the information after a laborious exercise which involved a time-consuming process of repackaging into an accessible format. The information that was acquired from the library was not readily usable without recourse to the further intermediation of the resource personnel.

A literature search shown little studies on information needs and information seeking behaviour of visually challenged students in Ghana. However, Fiawotoafor (2008) conducted a study on persons with disability and access to information in Ghana. He found out that no country can achieve any meaningful and sustainable development unless it taps all its human resources, including persons with disabilities. Access to information must be a routine part of everyday life. Access to information is a basic right that must be enjoyed by all, including persons with disability. It is therefore necessary that every barrier militating against enjoyment of this right with regard to persons with disability be removed in order to ensure their full integration into society.

Alemna and Dodoo (2003), Ayiah (2007) and Appiah (2009) conducted studies on provision of library and information services on the visually challenged students in University of Ghana. Alemna and Dodoo (2003) highlighted the problems encountered by the visually challenged in accessing library and information services in Ghana and concluded that these students have the same needs as that of sighted people. They suggested that the Government of Ghana and the information studies professionals should pay close attention to people with visual impairment and make provision for their reading needs.

2.10. Conclusion

The literature review has shown that ICT has the potential of providing people living with visual problems an enabling environment to connect and collect information everywhere in the world. This can be possible with the installation of suitable software which can run on a modified computer. The users of such a system have to be trained on how to manipulate and use the computer. In the words of Openheim (2001), the Internet has the

ability to modify the lives of the visual impairments. However, this is only feasible if necessary modifications are made. The modification will reflect the extent of the severity of visual disability of the users.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

According to Kumekpor (2002), "a method implies a way or a procedure of getting specific things done. It is the idea of a laid down or accepted or normally adopted way of getting specific procedure, techniques, ideas and thought processes followed in getting specific things done and or in achieving particular ends or objectives". A method, according to Kumekpor (2002), has the following characteristics:

1. A distinct system of procedure or set of procedures, principles governing the attainment of specific ends, results or objectives,
2. Particular or specific ways or steps involved in approaching or finishing answers to a problem,
3. Rules and procedures subject to specific conditions of use or of applicability,
4. Specification of procedures, steps and stages in achieving desired results,
5. Regularity and consistency of procedures.

The chapter is discussed under the following headings: research design, selection of cases, selection of subjects, study population, data-collection instruments, analysis of data and ethical consideration are also presented.

3.2. Research Design

A research design is a scheme of research that is used to response to the study objectives. It is the outline used to solve a particular problem. It provides way and organizes the research. A research design "guides the researcher in data collection and analysis" (Nuhu, 2010). A good research design enables a researcher to generate valid findings. According

to Luck and Robin (2009), "a research design is the determination and statement of the general research approach or strategy adopted".

The research design adopted for this study was the case study approach to explore the information seeking behaviour of visually challenged students in University of Ghana, Legon and University of Education, Winneba respectively. A case study is used to learn more about an individual or a selected group of people or a single unique case. A case study typically involves the observation of individual units.

3.2.1. Justification for the use of case study approach

In this study, using a case study approach for the study was appropriate because the case study method seeks to analyze and recognize the varieties of circumstances and issues involved in each situation or event before taking a conclusion or solution for the specific event or case and so on. Hart (2005) defines a case study as **"**a focus on person, group, settings which allows an investigation of the details, including contextual matters of a phenomenon." On the same line of thinking, Babbie and Mouton (2001) pointed out that case studies are appropriate for research that aims to offer a detailed report of a small number of cases. The case study focuses on a single unit or case and seeks to describe the situation in order to achieve a comprehensive understanding of the events under study.

This approach suits the research problem as it sought to understand comprehensively the information seeking behaviour of students with visual impairments. The case study will not focus on seeking frequencies of occurrences, but in seeking significantly into information seeking by the students thereby offering awareness into the provision of services for visually challenged students. The case study involved investigating the types

of resources in the two institutions and how they were used by the visually challenged students.

3.3. Selection of Cases

The researcher chose University of Ghana, Legon (UG) and University of Education, Winneba (UEW) as the cases for this study because there are only three public universities in Ghana which enroll students with visual impairments. These are University of Education, Winneba, University of Cape Coast and University of Ghana, Legon. Among these three universities, University of Education pioneered the enrollment of students with visual impairment and University of Ghana was the last university to enroll such categories of students. Again they both have an adequate number of visually challenged students.

3.4. Selection of Subjects

This research covered the visually challenged students who were expected to satisfy the following criteria:

1. Those who were either totally blind or visually challenged;
2. Those who were registered as students at the University of Ghana, Legon and University of Education, Winneba respectively;
3. Those who were known by the Office of Students with Special Needs in University of Ghana, Legon and University of Education, Winneba and registered as blind or visually challenged and

4. Those who utilized or required one or more of the specialized support services made available through the Office of Students with Special Needs to facilitate their learning and integration on campus.

3.5. Population

Population refers to the set of people from which a sample is selected. According to Fraenkel and Wallen (2000), "a population refers to the larger group to which one hopes to apply the results of his/her findings". It is the group that is importance to the researcher, the group to whom the researcher will like to simplify the results of the study. The research population is considered as an essential part of any survey. A target population comprises of all elements about whom survey information is obtained.

For the purpose of this study, the population covered eighty (80) visually challenged students in University of Ghana, Legon and University of Education, Winneba which are hereby randomly designated as University 'A' and University 'B' respectively. Visually challenged students were chosen as a target population because they were the focus of the study and would therefore provide the needed information for the study. In view of the small size of the population, the entire population was used as the sample size therefore there was no sampling procedure. Table 3.1 gives a breakdown of the population under study.

Table 3.1: Population of visually challenged students by University

UNIVERSITY	POPULATION	PERCENTAGE (%)
University 'A'	20	25%
University 'B'	60	75%
Total	80	100%

3.6. Sources of Data

"There are two major sources used in social research to gather information about a situation, persons, problems or phenomenon" (Kumekpor, 2002). These are categorized as, primary and secondary sources.

3.6.1. Secondary Sources

The aim of literature review is for the researcher to take a critical look at the literature that already exists in the area he/she is investigating. A literature review is a critical analysis that shows an assessment of the existing literature and a relationship between the different works. It also shows the importance of the research. Secondary sources data were obtained through documentary sources such as books; journal articles, the Internet, newspapers, magazines, thesis, dissertations, conference proceedings, reports, and documentaries. Literature review has been the core in the whole process of this research. It has enabled the researcher to acknowledge the contributions of earlier works and also to chart a way forward in all stages of the research. As such, the researcher reviewed many books, journal articles and the Internet among other sources on the subject matter.

3.6.2. Primary Sources

Data from the primary source referred to the new facts gathered from the field for the purpose of analysis. It provides first-hand information. Primary sources of data collection include observation, questionnaire and interview.

3.7. Data Collection Instruments

According to Kumekpor (2002) social investigation demands that information should be gathered from human beings and institutions on specifically defined topics. There are various instruments that can be employed to collect primary data. Information can be gathered through the use of observation, questionnaire and interview. The selection of an instrument influence by the purpose of the study, the resources available, the skills of the researcher, and the characteristics of the population. In choosing an instrument for data collection, the background information of the study population show an essential role. Some populations for one way or the other may not feel comfortable for specific technique of data collection or feel easy to express their ideas in a questionnaire form. Therefore, in making a choice on the type of data collection method, the researcher must decide the kind of people he/she will choose, their job description, the mood of the social environment and the mind-set of the people (Walliman 2008). This study employed the questionnaire method to gather primary data.

3.7.1. Questionnaire

"A questionnaire is a document or form containing a number of questions on a particular theme, problem, issue or opinion to be investigated" (Kumekpor, 2002). Kumar (2005) stated that "a questionnaire is a written list of questions, the answers to which are recorded by the respondents". The respondents, usually read the questions, analyse it and then put down the answers. Walliman (2008) gave the following advantages of questionnaire;

1. They are cheaper to administer
2. They can be administered to a large number of individuals at the same time, so data collection is less time consuming
3. The respondents are anonymous
4. Respondents are less likely to over- report socially desirable behaviour on a questionnaire

He also presented the weaknesses of questionnaire as low response return rate and lack of opportunity to clarify questions and responses.

Walliman (2008) indicated that, questions that are asked of respondents are the ultimate core of a research. He also indicated that focus, brevity and clarity are the three most important attributes of a questionnaire. Focus means every question should focus directly on a single specific issue or topic. Brevity implies that questions should be as short as possible in order not to create difficulties for the respondents. Lastly, clarity indicates that the meaning of the question must be clear to all respondents.

3.7.1.1. Design of Questionnaire

The questionnaire for the study contained questions meant to establish the information seeking behaviour of visually challenged students and the services they are exposed to. The questions were structured and divided into six main sections bearing in mind the objectives of the study.

Section one dealt with biographical data. The respondent demographic and background information was captured on gender, age, level and category of study and residence.

Section two dealt specifically with information needs. This section asked questions on students' information needs and the various issues that inspire their information behaviour, how the students went about seeking information, whether information acquired satisfied the students' academic information need or not.

Section three dealt with the sources of information the students prefer to use.

Section four dealt with the method they used when seeking information.

Section five dealt with provision of information services that are provided by the visually challenged students and to ascertain whether they are satisfied with such services.

Section six dealt with the challenges they faced in seeking information and also solicited respondents' suggestions on improvements of services and general comments on information seeking for visually challenged students.

3.8. Data Collection Procedure

The questionnaire for visually challenged students in University 'A' and University 'B' were transcribed to Braille format to make it easier for respondents to answer. The questionnaire was administered to visually challenged students by the researcher and the

answered questionnaire was retrieved from respondents on a later visit. The answered copy of the questionnaire was then sent to the Resource Centre to transcribe their responses from Braille format to print format. All these were done within a period of six weeks.

3.9. Data Analysis

Data of a study are raw information obtained in the course of an investigation. Analysis means a critical investigation of material in order to recognize its portions and its connections to ascertain its trends. The procedure of data analysis is a constant one which involve various steps, entry, editing, tabulation, coding and computer processing (Twumasi, 2001). Data analysis involves careful matching of the study objectives and the results. Data gathered should be analyzed using the most standard systems and the information generated and packaged in a user friendly manner (Alhassan, 2015).

Data collected from the students were transcribed from Braille format to print format. After getting the responses into print format the Statistical Package for Social Sciences (SPSS) was used to analysis the data obtained from the questionnaire. Simple descriptive statistics such as frequencies, tables, percentages and figures were used.

3.10. Ethical Considerations

According to Babbie (2005), "anyone involved in social science research needs to be aware of the general agreements shared by researchers about what is proper and improper in the conduct of scientific enquiry". This is what is referred to in social science research as ethical issues. Fraenkel & Wallen (2000) have indicated that "all subject should be

assured that any data collected from or about them will be held in confidence". They went further to explain that whenever possible, the names of the subjects in a study should be changed from all data collection forms. This according to them can be done by allocating a number or letter to each form or subject that can be asked to furnish information in disguise such that not even the researcher can link the data to a specific topic. As indicated earlier on, the selected universities did not have their names identified but were denoted by letters of the alphabets. All respondents were assured of their safety and confidentiality. Apart from that, the respondents were allowed to participate or answer questions out of their own freewill. The researcher also conducted the research in line with the University of Ghana codes of conduct for research. Also, to avoid plagiarism the researcher acknowledged all sources that were used in the study by providing complete references of such sources. Lastly, data was not manipulated to fit research objectives.

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CHAPTER FOUR

ANALYSIS AND FINDINGS

4.1. Introduction

This chapter presents the results drawn from the questionnaire administered to visually challenged students from University of Ghana, Legon and University of Education, Winneba. The questionnaire was organized according to the research objectives.

4.2. Response Rate

A total of eighty (80) copies of the questionnaire were sent out to visually challenged students in the University of Ghana, Legon and University of Education, Winneba which are hereby randomly designated as University 'A' and University 'B'. Out of the 80 copies of the questionnaire that were distributed to the respondents in both universities, a total of sixty- eight (68) copies were returned giving a response rate of 85%. According to Babbie (2005), "a response rate for a survey study of this nature is adequate enough for analysis and reporting should at least be 50%". Babbie (2005) further stated that a response rate of 60% is good while 70% is very good.

In University 'A' 20 copies of the questionnaire were sent and all the subjects completed the questionnaires giving a response rate of 100% but constituted 29% of the sample size of 80. In University 'B'60 copies of the questionnaire were sent out and 48 were completed and returned, representing 80% but formed 71% of the sample size. Thus, the percentage of returned copies of the questionnaire from both Universities was 85%.

4.3. Background Information

Data was gathered on the background of respondents with the idea to define how it influenced their information seeking behaviour. The background information included gender, age, level of study, programmes and residential status. These have been presented under the following sub-headings.

4.3.1. Gender of Respondents for Both Universities

Respondents were asked to indicate their gender. This question was posed to ascertain the number of students who were either male or female. This provides a better understanding of the population of students under study. Though, this is not part of the main objectives of the study, it helps in determining the gender background of the respondents. Figure 4.1 depicts the gender distribution of the respondents from both universities.

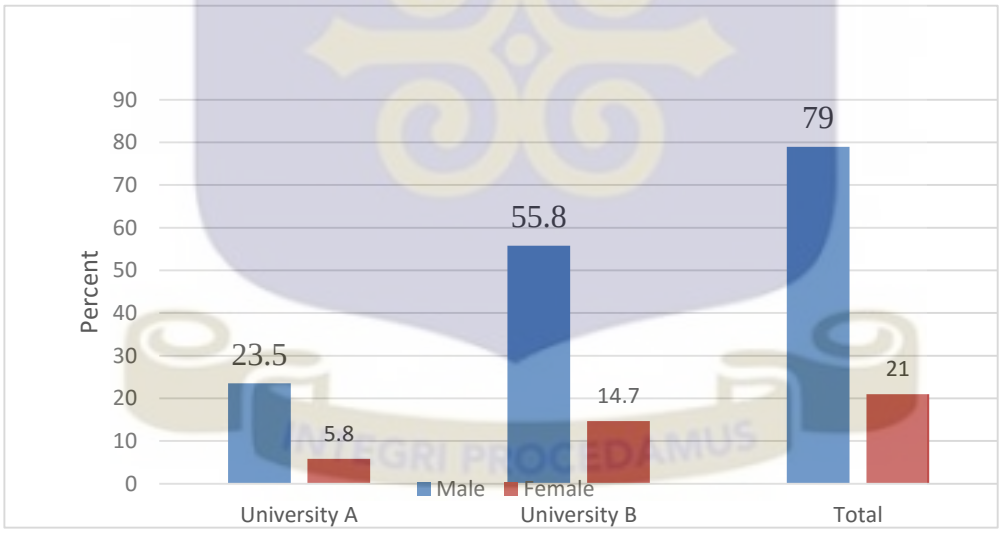

Figure 4. 1: Gender distribution of respondents

Figure 4.1 above reveals that 54 (79%) respondents from both University A and University B were males and 14 (21%) were females. In this study, University B had the highest number of respondents (70.5%) for both males and females. It was observed that

more males were covered than females from both universities in the study. This provided a true reflection of the gender of the students admitted in the two universities that is more males were admitted than the females.

4.3.2. Age of Respondents from Both Universities

Respondents were asked to indicate their ages in a range that was provided.

Table 4.1: Age distribution of respondents for both universities

Age	University A		University B		Total	
	F	%	F	%	F	%
17 – 21	4	5.9	0	0	4	5.9
22 – 26	10	14.7	30	44.1	40	58.8
27 – 31	3	4.4	0	0	3	4.4
32 – 36	0	0	0	0	0	0
37 – 41	3	4.4	18	26.5	21	30.4
42 and above	0	0	0	0	0	0
Total	20	29.4	48	71	68	100

Source: Field Survey, 2016

Data gathered shows that 4 (5.9%) respondents from both universities were between the ages of 17-21, 40 (58.8%) were in the age range of 22-26, while 3 (4.4%) were in the category of 27-31. None of the respondents was in the age range of 32-36 while 21

(30.9%) were in the age range of 37-41. None of the respondents from both universities was in the age range of 42 and above.

The ages of the respondents in the two universities show that 40 (58.8%) of the respondents were young adults falling within the age range of 22-26. This indicates that the universities admit a lot of young adults who were between 22-26 years. On the other hand, University B had the highest number of respondents 18 (26.5%) between the age range of 37-41. This indicates that, there were more elderly respondents among University 'B than University 'A' respondents. The reason is that University 'B' is the pioneer university that admitted students with special needs and also run education courses since most of the visually challenged students are teachers.

4.3.3. Level of Study

The respondents were asked to show their levels of study in order to make a distinction between undergraduate and postgraduate respondents to ascertain whether the respondents' level of study had an impact on their information seeking behaviour.

Table 4.2: Level of study of respondents from both universities

Level of study	University A		University B		Total	
	F	%	F	%	F	%
600	1	1.5	0	0	1	1.5
400	4	5.9	1	1.5	5	7.4
300	5	7.4	2	2.9	7	10.3
200	8	11.7	17	25	25	36.7
100	2	2.9	28	41.1	30	70
Total	20	29.4	48	71	68	100

Source: Field Survey, 2016

From the responses gathered, 67 (90.5%) were undergraduates while 1 (1.5%) was a postgraduate. As shown in Table 4.2 , 1 (1.5%) respondent was a level 600 who was a postgraduate student from University 'A', 5 (7.4%) were level 400 students, 7 (10.2%) were level 300, 25 (14.2%) were level 200 and 30 (70.0%) were level 100 students. In the case of level of study, University B had the highest number of respondents 28 (41.1%) who were in level 100 than University A. However, University 'A' had its highest number of respondents 8 (11.7%) in level 200 and also had a postgraduate students. The finding also indicates that in both universities most of the respondents were in level 100.

4.3.3.1. Programmes Offered

Table 4.3: Programmes offered from both universities

Programme of study	University A		University B		Total	
	F	%	F	%	F	%
Social Work & Religion	10	14.7	0	0	10	14.7
Political Science & Sociology	9	13.2	0	0	9	13.2
Communication Studies	1	1.5	0	0	1	1.5
Special Education & Social Studies	0	0	35	51.5	35	51.5
English Language	0	0	10	14.7	10	14.7
Guidance & Counselling	0	0	3	4.4	3	4.4
Total	20	29.4	48	71	68	100

Source: Field Survey, 2016

In respect of the programme offered, within University 'A' 10 (14.7%) were studying Social Work and Religion, 9 (13.2%) were studying Political Science and Sociology and 1 (1.5%) was studying Communication Studies. Similarly, the findings from the data obtained from University 'B' revealed that, 35 (51.5%) of the respondents were studying Special Education and Social Studies, 10 (14.7%) were studying English Language while 3 (4.4%) were studying Guidance and Counselling. It can generally be concluded that

most of the respondents in the study from the two universities belonged to the Social Sciences discipline. The Social Sciences has the largest group of programmes in most public universities in Ghana. The findings also indicate that majority of the respondents representing 35 (51.5%) offer Special Education and Social Studies. The fact is that most students with special needs offer Special Education course.

4.3.4. Residential Status

The respondents were asked to indicate their residential status in the university. All the respondents from both universities confirmed that they were resident in the university halls. In a follow up question which indicate the floor in which they were, University 'A' respondents indicated that they were in the ground floor and in lower beds. In the case of University 'B' most of the respondents were in ground floor just few indicated that they were in the first floor and all slept in the lower beds. The respondents from both University 'A' and University 'B' indicated that, there were open gutters on the road and the distance from their halls of residence to their lecture halls was far, but the distance was longer in the case of University 'B' than University 'A'.

4.4. Information Needs

The first objective of the study was to determine the information needs of visually challenged students. This objective had multiple or varied responses. Respondents' opinions were sought and the results are presented in Figure 4.2 below.

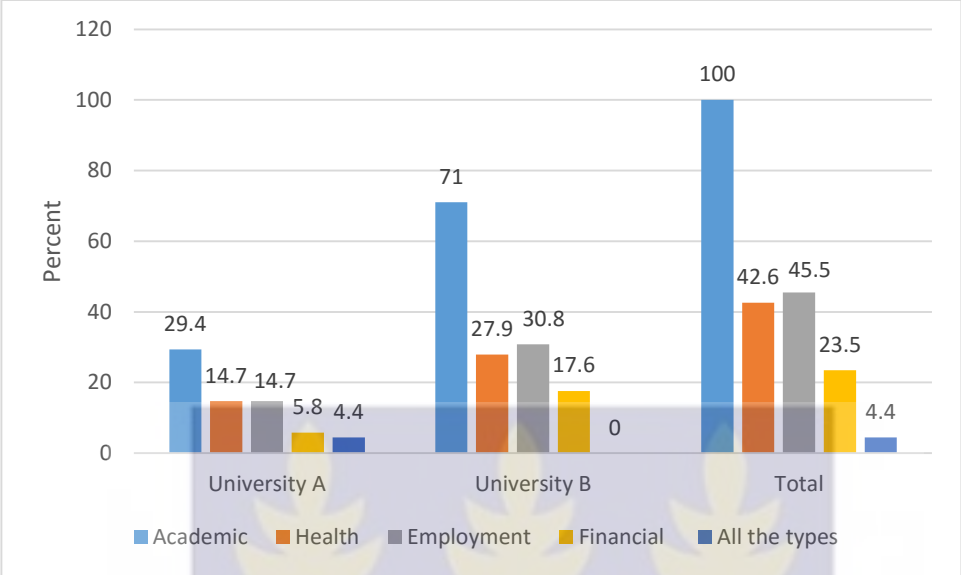

Figure 4.2: Information needs

Source: Field Survey, 2016

From Figure. 4.2, regarding the information needs by respondents, the results that were gathered shows that 68 (100%) respondents from both universities required information on academic issues, 31 (45.5%) required employment information, 29 (42.6%) required health information, 16 (23.5%) required financial information and 3(4.4%) required all the mentioned types of information. In this study, University B had the highest number of respondents 21 (30.8%) seeking employment information because most of the respondents were adult. The findings therefore indicate that academic, employment and health information were the information needs, needed by respondents of the two universities. This goes on to show that students' needs are varied, it is clear from the data that academic, employment and health information needs form a fundamental part of visually challenged students' life on their campuses.

4.5. Information Sources

The second objective of the research was to determine the sources of acquiring information by respondents. Respondents' opinions were sought and the results are presented in Table 4.4 below.

Table 4.4: Sources of acquiring information from both universities

Sources of information	University A		University B		Total	
	F	%	F	%	F	%
Radio	10	14.7	15	22	25	36.7
Colleagues	8	11.7	30	44.1	38	55.8
Text book	3	4.4	7	10.2	10	14.7
Group Discussion	5	7.3	8	11.7	13	19.1
Lecturers	7	10.2	12	17.6	19	22.9
Handout	3	4.4	1	1.4	4	5.8
Internet	14	20.5	12	17.6	26	38.2

Source: Field Survey, 2016

From the responses in Table 4.4, it can be deduced that 38 (55.8%) relied on colleagues as their source of information, 26 (38.2%) browsed the Internet as their source of acquiring information while 25 (36.7%) of the respondents from both universities indicated radio as their source of acquiring information, 19 (22.9%) relied on lecturers to acquire information, 13 (19.1%) got information through participation in group discussions as their source of information, 10 (14.7%) consulted textbooks to acquire information and 4 (5.8) indicated hand out as their source of acquiring information. From the study, the results indicate that a significant number of the respondents 38 (55.8%) from both universities depended on colleagues to gain information. The results also indicate that, the main source for acquiring information by respondents from University 'A' was the Internet whilst University 'B' was through colleagues.

4.5.1. Format of Information Source

The respondents were further asked to indicate their preferred format of information they needed to meet their needs. Figure 4.3 presents the frequency distribution of respondents to the question that sought to find out how respondents wanted the needed information to be delivered.

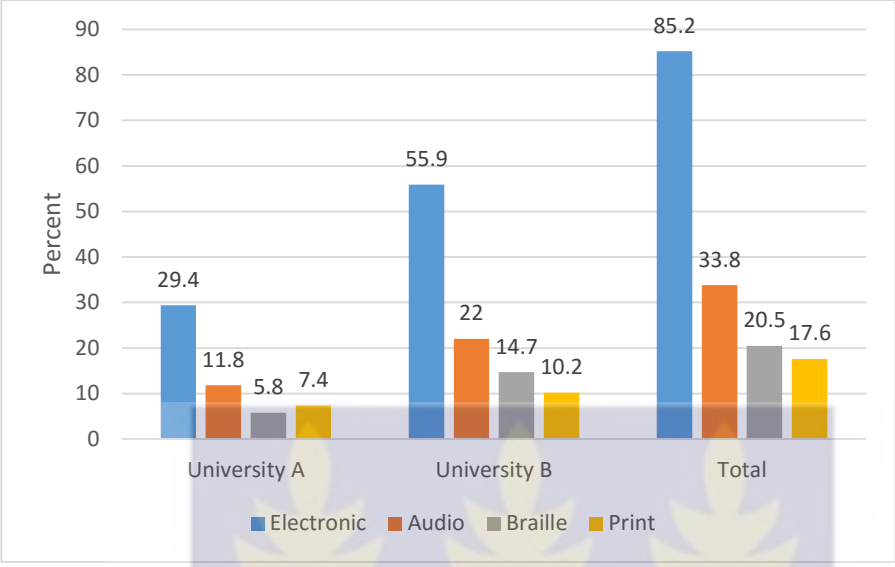

Figure 4.3: Preferred format of information source

Source: Field Survey, 2016

The results that were gathered showed that 58 (85.2%) of the respondents from both universities needed their information source in an electronic format, 23 (33.8%) preferred audio format, 14 (20.5%) preferred Braille format, 12 (17.6%) preferred print format and 2 {2.9%) preferred all the types mentioned. The responses indicate that 58 (85.2%) of the respondents from both universities needed their information source to be in an electronic format followed by audio format and print.

4.6. Reason for Seeking Information

The study was to find out the reason why the students sought for information. The respondents were given some options/ reasons as a guide to choose from in responding to the query.

1. To pass examination
2. To keep up with new knowledge
3. To obtain material for learning
4. To seek better understanding of a topic and
5. To obtain materials that might be useful for my research work.

The respondents were then asked to select one or a combination of the reasons for seeking information as identified above. Their responses are illustrated in Table 4. 4 below.

Table 4.5 Reason for seeking information

Reason	University A		University B		Total	
	F	%	F	%	F	%
To pass examination	5	7.3	20	29.4	25	36.7
To keep up with new knowledge	10	14.7	14	20.5	24	35.2
To obtain materials for learning	16	23.5	24	35.2	40	58.8
To seek better understanding of a topic	4	5.8	10	14.7	14	20.5
To obtain materials that might be useful for research work	6	8.8	4	5.8	10	14.7
All the reason	3	4.4	2	2.9	5	7.3

Source: Field Survey, 2016

It is evident from Table 4.4 that, 40 (58.8%) sought for information to obtain materials for learning, 25 (36.7%) from both universities sought for information to pass examinations while 24 (35.2%) sought information to keep up with new knowledge, 14 (20.5%) sought for information to seek better understanding of a topic, 10 (14.7%) sought for information to obtain materials that might be useful for research work and 4 (7.3%) required all the above mentioned reasons for seeking information. In this study, both University 'A' and University 'B' 40 (58.8%) respondents sought for information purposely to obtain materials for learning followed by enabling them to pass examinations

4.7. Respondents Information Seeking Behaviour

Everyone has a various ways of finding information he/she needs for a living and visually challenged students are not exempted. The question enabled the respondents to indicate how they went about meeting their information needs. Table 4.5 below depicts the responses of respondents.

Table 4.6: Methods used in seeking information in both universities

Methods	University A		University B		Total	
	F	%	F	%	F	%
Internet	16	23.5	10	14.7	26	38.2
Colleagues	7	10.2	20	29.4	27	39.7
Textbooks	9	13.2	13	19.1	22	32.3
Lectures	5	11.7	11	16.1	16	23.5
Library Staff	3	4.4	0	0	3	4.4
Resource Centre/OSSN	9	13.2	24	35.2	33	48.5
Journals	2	2.9	7	10.2	9	13.2

Source Field Survey, 2016

Table 4.5 shows that, 33 (48.5%) visited the Resource Centre/OSSN to seek for information, 27 (39.7%) preferred relying on colleagues, 26 (38.2%) of the respondents from both universities preferred the Internet as a way of meeting their information needs while 22 (32.2%) consulted textbooks as a way of meeting their information needs, 16(23.5%) relied on lecturers to meet their information needs, 9 (13.2) consulted journals to meet their information needs and 3 (4.4) sought the assistance of library staff. The results of the study indicated that majority of the respondents 33 (48.5%) relied on the Resource Centre/OSSN followed by colleagues 27 (39.7%) and the Internet 26 (38.2%)

as their method for meeting their information needs. However, more respondents from University 'A' preferred the Internet while in University 'B' most of the respondents preferred the Resource Centre to require information. It also shows that the respondents acquired the required information through both formal and informal ways such as using online resources, consultation with lecturers and visiting the Resource Centre/OSSN.

4.8. Services Provided by the Library, Resource Centre/ OSSN

In order to determine the services that the libraries and Resource Centre/OSSN provide for the students with visual challenges, the respondents were requested to respond to a series of questions regarding the services for the visually challenged students. These included whether respondents were aware of the information services provided, how respondents got to know about such services, whether the services were useful and if there were a policies guiding the services rendered to students with special needs.

4.8.1. Library Use and Services

The mandate of any library is to provide relevant and up to date materials with a view to fulfil the information needs of users. The respondents were asked about the use of the library for their academic work. Their responses are presented in Figure 4.4.

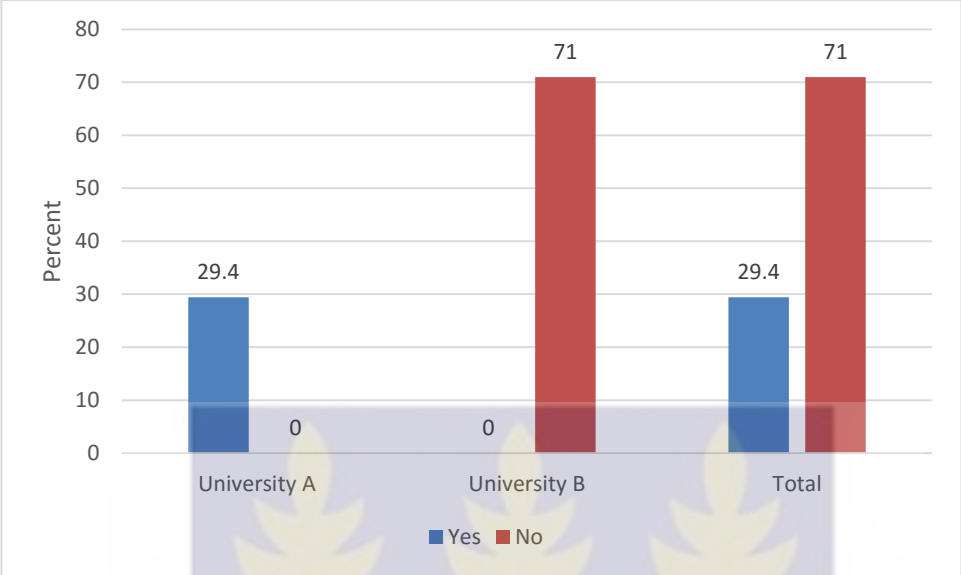

Figure 4.4: Library use

Source: Field Survey, 2016

With respect to the question concerning the use of the library for their academic needs, within University 'A', all the respondents 20 (29%) indicated that they patronized the university library while University 'B' 48(71%) did not patronize the university library for their academic needs. The results show that only University 'A' respondents use the library.

4.8.1.1. Reasons for not using the University 'B' Library

Respondents from University 'B' were asked to state the reasons for not accessing the university library. Figure 4.5 below depicts the responses of respondents.

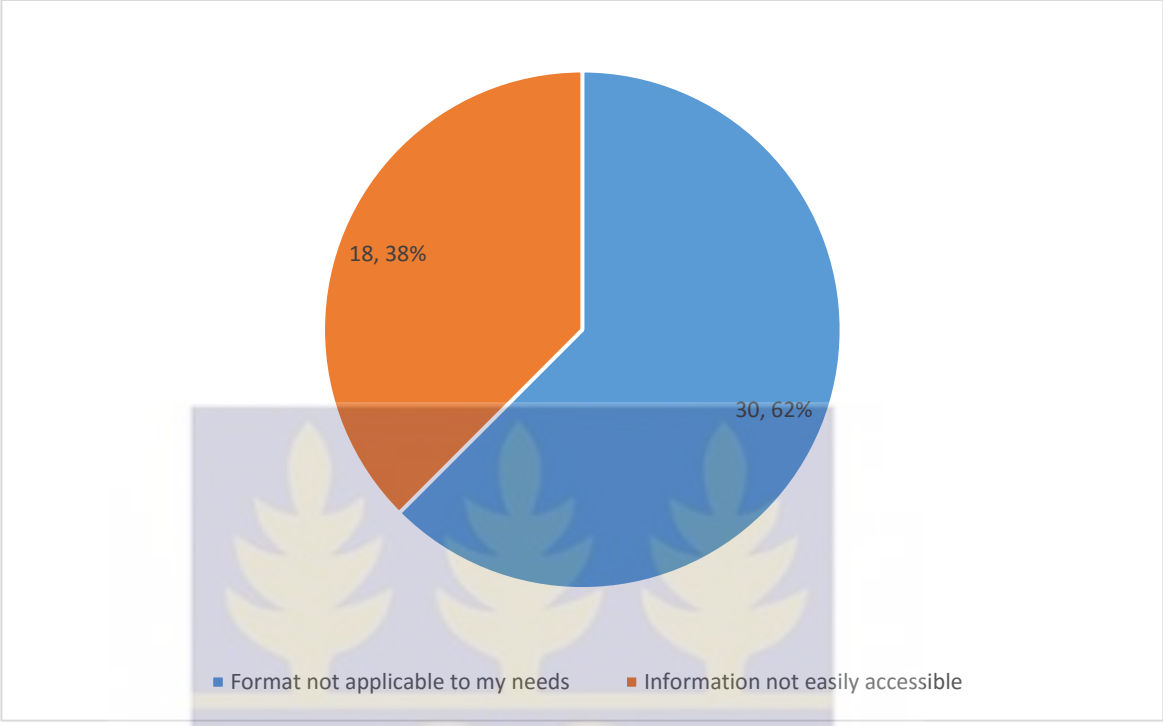

Figure 4.5: Reasons for not using the University 'B' Library

Source: Field survey, 2016

As shown in Fig.4.5, 30 (62.5%) respondents from University 'B' did not use the university library because the materials were not accessible and 18 (37.5%) respondents indicated that the formats were not applicable to their needs. The results show that none of the respondents in University 'B' used the university library because the library collections were not accessible to some of them whilst to the rest the problem had to do with the format of the collections.

On the frequency of usage of the university library all the University 'A' respondents who used the library, reported visiting the library on weekly basis and they all relied on library staff for assistance. When they found the required material the respondents sent it to the

Office of the Students with Special Needs (OSSN) for repackaging to make it useable to the students.

4.8.2. Specialized Library Services

The respondents were asked to state whether there were specialized services in the library for the visually challenged students. The respondents were further asked if services existed, in what form they were and if none why this was so. This question was asked in order to ascertain whether there were any special services provided to cater for the particular needs of visually challenged students or not.

Twenty (29%) respondents in University 'A' indicated that the library provided special services for them in the form of Braille Library and ICT Laboratory and also indicated that the facilities there were inadequate due to the fact that there were few computers, few personnel and the Laboratory too was not spacious. In the case of University 'B' 48(71%) of the respondents said there were no specialized services for the visually challenged students. In a follow up question, respondents were asked about why that was the case. Majority of the respondents in University 'B' noted cost implications saying that there was lack of financial and human resources. This means that the library had no funds to provide the specialized services for students with visual impairments. Other respondents did not know why there were no specialized services for the visually challenged students. The finding indicated that only 20 (29%) respondents from University 'A' used the university library because the library provided special services for them.

In order for the researcher to determine how well university libraries had helped in the academic performance of respondents, they were asked to rate the services of their libraries on a scale of 1- 5 with 1 being Poor and 5 being Excellent. Figure 4.6 below shows the frequency distribution of responses from both universities.

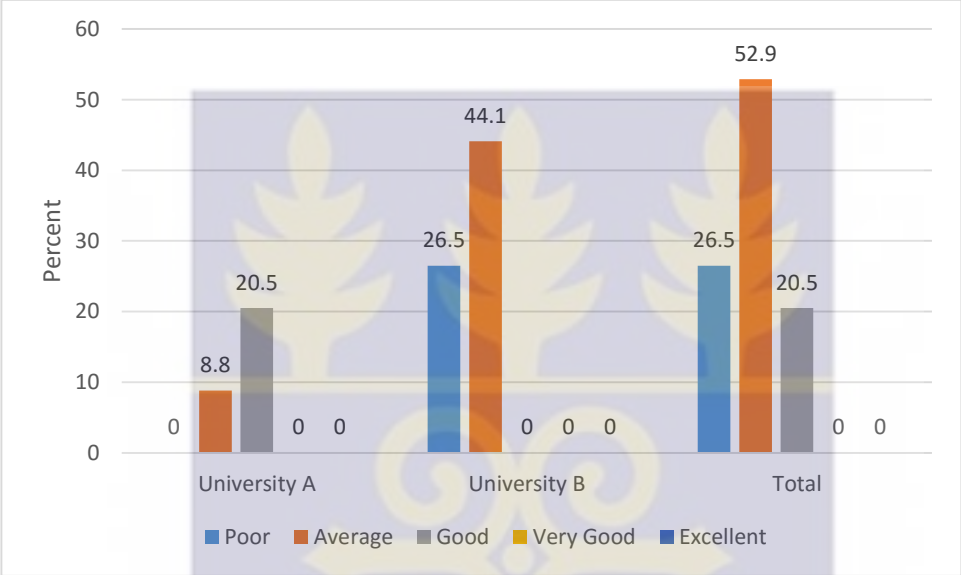

Figure 4.6: Rating services by the university library in academic performance

Source: Field Survey, 2016

Figure 4.6 shows the frequency distribution of responses to the question on how well the services by the libraries had helped in academic performance of respondents. Fourteen (20.5%) respondents from University 'A' rated the library as good and 6 (8.8%) rated it as average. In the case of University 'B' 30 (44.1%) respondents rated it as poor while 14 (20.5%) rated it as average. None of the respondents from both universities rated it as very good or excellent. Within University 'A', 14 (20.5%) respondents rated the library as good while in University 'B', 30 (44.1%) rated the library as average. The results indicate

that majority of the respondents from both universities rated the university library as average due to the services that they provided to them.

4.8.3. Awareness of Services Provided by Resource Centre/ OSSN

Respondents were asked if they were aware of the services provided by the Resource Centre/ OSSN. Their responses are presented by Figure 4.7 below.

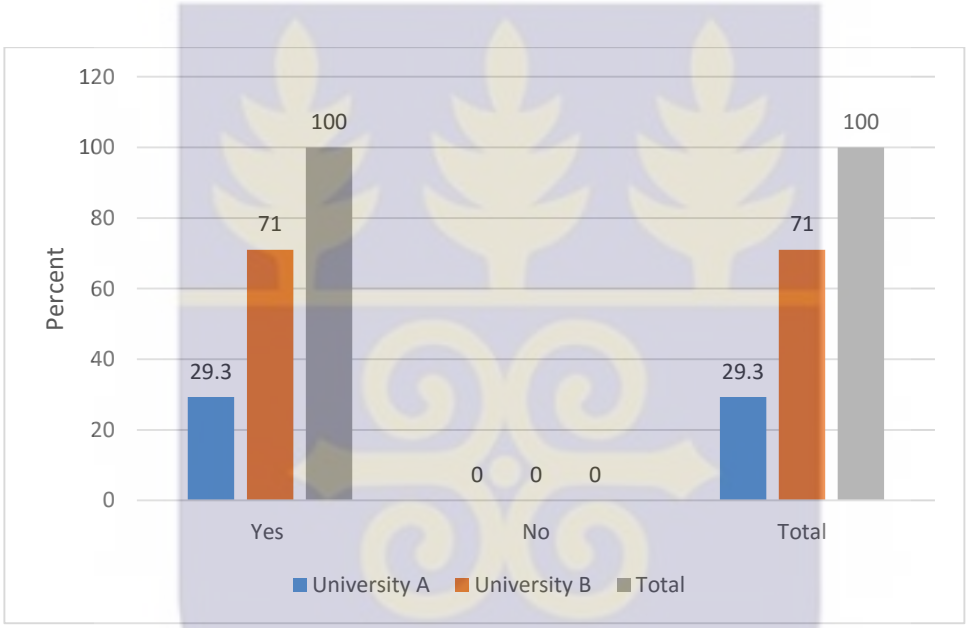

Figure 4.7 Awareness of services

From Figure 4.7, all the respondents from University 'A' and University 'B' answered in the affirmative. The respondents got to know the services through orientation given to them during fresh students' orientation at the beginning of the academic year.

4.8.3.1. Services Provided by Resource Centre/OSSN

There are a number of services which are specially tailored to fulfil the information needs of visually challenged students. These services are designed to facilitate access to information by respondents. The respondents were asked to indicate the type of services provided by the Resource Centre/OSSN. Services provided to the respondents in both institutions were production of handouts in appropriate format (Braille, soft copy), enlargement of font sizes of texts for students with low vision, transcribing braille assignments into print, supervising examinations and giving tutoring services.

Concerning user satisfaction of the services provided by the Resource Centre/OSSN Figure 4.8 below depicts responses by the respondents.

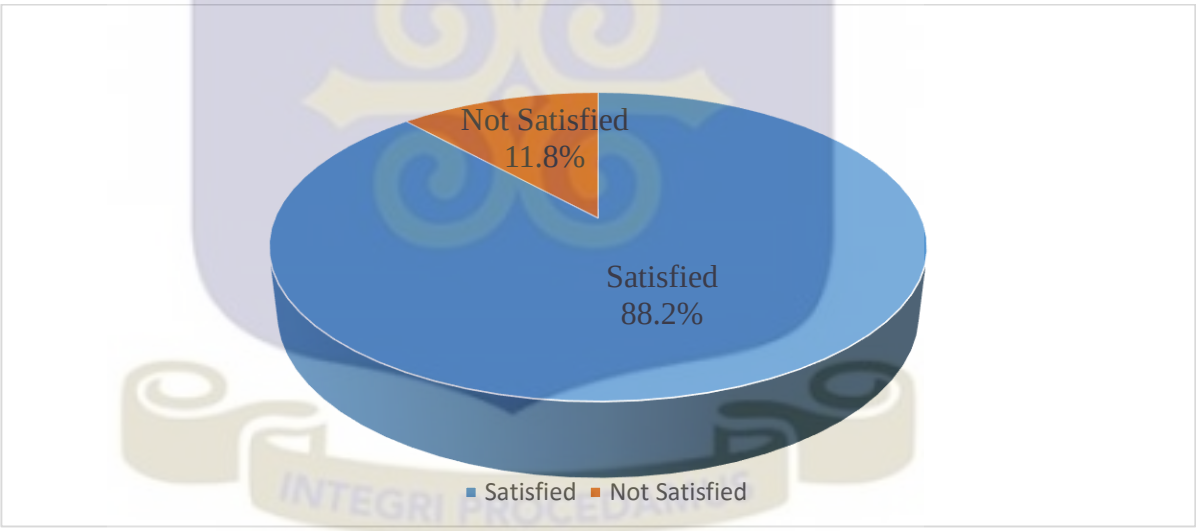

Figure 4.8 Level of user satisfaction

Source: Field Survey, 2016

From Fig 4.8, regarding the level of user satisfaction with the services provided by Resource Centre/ OSSN, in University 'A' 17 (25%) respondents were satisfied while 3

(4.4%) were not satisfied. In the case of University 'B', 43 (63%) respondents were satisfied and 5 (7.5%) were not satisfied. The results show that majority of the respondents 60 (88.2%) were satisfied with the services provided by the Resource Centre/OSSN.

Regarding the policy that guides the services provided by the library and Resource Centre/OSSN, all the 68 respondents from both universities indicated that there was no such policy for them. This shows that the two universities that enrolled the students with special needs did not have any policy guiding the services they provided for this small group of students.

4.9. Challenges Encountered in Seeking Information

The researcher sought to find out the challenges that were encountered by respondents in seeking information. This particular objective of the study had multiple or varied responses.

Table 4.7: Challenges encountered in both universities

Challenges	University A		University B		Total	
	F	%	F	%	F	%
Printed materials	18	26.4	36	52.9	54	79.4
Poor library facilities	12	17.6	20	29.4	32	47
Mobility problems	9	13.2	30	44.1	39	57.3
Slow Internet connectivity	10	14.7	8	11.7	18	26.4

Source: Field Survey, 2016

The result collated from both universities revealed that 54(79.4%) respondents considered printed materials to be one of their major challenges they faced when seeking information, 39 (57.3%) respondents rated mobility to be one of the challenges in seeking information, 32 (47%) respondents indicated poor library facilities to be a challenge they encounter in seeking information, while 18 (26.4%) respondents indicated that slow Internet connectivity was one of the challenges that disrupts their information seeking process. From the overall results it can be concluded that identified limitations were quite common to both universities. This is clear in the results demonstrated in Table 4.7 which indicated that 18 (26.4%) and 36 (52.9%) respondents from University 'A' and University 'B' respectively see printed materials to be their major hindrance in seeking information since reading requires sight.

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CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1. Introduction

This chapter discusses the research findings in relation to the research objectives, existing and relevant literature. The discussion is based on the objectives of the study and informed the collection and analysis of data. The results of the findings are discussed according to the research objectives and dwell on biographical information of respondents' information needs, reasons for seeking information, preferred source of information, methods used in seeking information, special services provided by the Library and Resource Centre/OSSN and the challenges they encountered in seeking information.

5.2. Background Information of Respondents

The results indicated that within University 'B' there were more males 38 (55.8%) students and females 10 (14.7%) students than University 'A' which has 16(23.5%) males and females 4 (5.8%) students. On the whole, it was observed that more males (79.4%) were covered than females (21%) from both universities. Generally, admission to higher institutions in Ghana is skewed in favour of males to females. It is possible to conclude that this trend is same with visually challenged students in the two universities

The age distribution of all the students indicated that within University 'A' 10 (14.7%) students were within 22-26 years and were young adults. Findings from University 'B' also showed that, 30 (44.1%) students were between the ages of 22-26. This findings show that in both University 'A' and University 'B' respondents were within the age range

of 22-26. Generally, there were more elderly students 18 (26.5%) within the ages of 37-41 among University 'B' than University 'A' which has 3 (4.4%).

With regard to the level of study, University 'A' had one student in level 600 (1.4%) that is post graduate whilst University 'B' had none. On the whole, there were more level 100 students 30 (70.0%) in both universities. From the responses gathered 67 (98.5%) of the students were undergraduates in both universities. Concerning the course they offered, most of the students 35 (51.5%) from University 'B' offered Special Education and Social Studies whilst University 'A' students 10 (14.7%) offered Social Work and Religion. It was concluded that most of the students in the study from both universities belonged to the social sciences. The social sciences is basically the largest group of programmes in most universities in Ghana. On whether they stay on campus or not, all the students from both universities confirmed that they were resident in the University and on the ground floor of their halls because of their condition. The respondents from both universities indicated that, there were open gutters on the road and the distance from their halls of residence to their lecture halls was far, but the distance was longer in the case of University 'B' than University 'A'.

5.3. Information Needs

People are generally motivated by different circumstances to seek information. However, in all these instances, the overriding motivation was to satisfy one need. This confirms Wilson's (1999) observation, that "there must be a resultant aim when a person experiences an information need". The study established that the visually challenged students like any other students needed information for their daily activities. They had

several different information needs which also needed several different sources to fulfil. The students from University 'A' and University 'B' have shown that they have different information needs but academic needs was found to be their highest need followed by employment and health needs. This finding corroborates Owolabi et.al (2010) study which also found that students use information mainly for educational purposes.

This finding also supports the findings of Seyame (2009) whose study also revealed that, information needs of the visually challenged students revolved around academic information needs. Some aspects of the findings also corroborate with Canadian National Institute for the Blind (CNIB, 2005) research which found out that visually challenged young people information needs include finance, employment, education and social integration.

5.4. Information Sources Used by the Visually Challenged Students

The extent of use of information sources and formats used are the key areas of information seeking behaviour. Thus, after identifying the respondents' information needs, the next step was to decide on which information sources were consulted and the information formats preferred by the visually challenged students. In this study, the visually challenged students' responses revealed that they used a combination of sources which included colleagues, Internet, radio, lecturers, group discussion, textbooks and handouts. The responses clearly showed that the students needed or used multiple sources of information for their studies and therefore did not depend on single source of information. Colleagues were their main source of acquiring information.

This confirmed a study conducted by Sehic (2013) that when visually challenged students are searching information and materials for educational purposes they relied mostly on interpersonal sources. From the study it also emerged that the students acquired the needed information through both formal and informal sources. This is in accordance with Wilson's (1999) model which states that users make demands upon traditional or non-traditional information sources to acquire the needed information. Furthermore, Williamson, Schauder and Bow (2000) findings concluded that visually challenged people deserve to be given varieties of ways of meeting their information needs, as are available for the sighted. They further stated that, while information is inevitable in human life, there must be a way for people with print disability to participate equally in the information society. Fidzani's (1998) study also revealed that students had a wide range of needs and they preferred information from their lecturers because they consider the source as reliable. As compared to other colleagues elsewhere, visually challenged students were no different in their use of variety of sources.

5.4.1. Preferred Formats Used in Seeking Information

The choice of students formats of information are greatly influenced by the degree of sightedness. With regard to the format that they preferred to access information both students from University 'A' and University 'B' had a high preference for electronic resources. This is because majority of the students 58 (85.2%) from the two universities preferred their information in the electronic format, followed by audio 23 (33.8%) and the reason for this was quite obvious as assistive technologies played a major role in their information seeking.

This also confirms earlier studies conducted by Sehic (2013), Seyame (2009) and Saumure and Given (2004) who respectively reported that visually challenged students preferred electronic format but not print format because print slows their reading down and often makes them dependent on other people. With the advent of information communication technology it is not surprising that these category of students also preferred audio formats. Indeed the use of audio resources plays an essential role in the life of visually challenged people and is something that cannot be avoided.

Furthermore, Saumure and Given's (2004) findings concluded that the growth of ICT and the increase of information in electronic format has enhanced their independence and improved the chances of the visually challenged students to find and use information. The most important thing is that the students had preference for more than one format. This meant that no one format was regarded as the best choice, however, a combined or multiple choice of formats was the preference of the students. In selecting information sources for the visually challenged there should be a balance in the acquisition of the various formats. The different formats of information sources therefore are what are needed to satisfy visually challenged students as no one format alone is adequate to meet their needs.

5.5. Reasons for Seeking Information

Information has a significant role in assisting, supporting and improving people's life. It came out of the study that, students seek information for various reasons, but the most prominent is, to obtain materials for learning and to pass examinations. Some also seek information to keep up with new knowledge and to seek better understanding for a topic.

Smith and Rosenblum (2013) affirm this purpose when they reported that students constantly find themselves in need of information to write assignments, essays, tests and any other academic related information. Furthermore, this study confirmed the findings of Opare- Ababio (2011) that students seek information purposively to broaden their subject knowledge, enhance their course work and to pass examinations and tests.

5.6. Information Seeking Behaviour

After the students had identified their information needs and located their preferred sources and format of information, it was equally important to identify the methods they used in searching for the information they needed for their academic work.

5.6.1. Methods Used in Seeking Information

Everyone has various ways for seeking the information needed for whatever circumstances they find themselves in. The different strategies employed in acquiring information also apply to the visually challenged students. Circumstances such as being a student, being alone or staying with family influenced the ways in which the students sought and acquired information. The information behaviour model by Wilson (1999) in Section 1.6 has been used as a framework which assists in accepting the information seeking behaviour the students exhibited.

From the study the most used method by the students in seeking information from both universities was accessing the Resource Centre, Internet, colleagues, textbooks and lecturers. The rest were journals and the library staff. Wilson's (1999) model indicates that once the information user has a need, she/he can make demands on information sources or systems, which the students did. The students, in this regard followed Wilson's

(1999) model. However, for most of them, their information seeking behaviour was never a success before they went to the Resource Centre (R.C)/ Office of Students with Special Needs (OSSN) for information repackaging before they could use it.

This is in accordance with a study conducted by Seyame (2009) which indicated that Disability Unit plays a major role to ensure that information that the students found was repackaged for them in a usable format. Seyame (2009) also reported that libraries, colleagues and friends played a vital role when searching for information. Furthermore a study conducted by Shunmugam (2002) established that librarians, colleagues and RC /OSSN play a significant role in visually challenged students' information seeking process. Appiah (2009) additionally reported that in searching for information by visually challenged students in Akropong School for the Blind, the students did not rely on their colleagues but rather they entirely depend on library staff and Resource Centre because majority of them are totally blind just few are partially blind.

5.7. Services Rendered by Libraries and Resource Centre/ OSSN

Knowing the information needs of various patron groups is essential in the preparation to set up information systems. Meanwhile, if academic librarians and information providers are to serve the academic community effectively, they need to know the varying needs and differences in information gathering of the different categories of patrons to be able to offer services to meet their required needs. The quality and scope of library collections are major determinants which influence users desire to use the resources of the library. A library cannot attract users if its collection is not accessible.

Students' library use and service was examined to help find out how diligent students generally use the library in their quest for academic information. Only University 'A' students used the university library because it has a special service for them. On the frequency of usage of the university library all the University 'A' respondents who used the library, reported visiting the library on weekly basis and they all relied on library staff for assistance. However, students in University' B' did not use the university library because it did not offer any special services for them and more so the materials were not accessible while the formats available were not applicable to them. Majority of the respondents in University 'B' noted that the library had no funds to provide the specialized services for students with visual impairments.

However, a study by Davies (2007) recommended that educators of students who are visually challenged should know prior to enrolling them at the university. In order to satisfy their specific needs, then different specialized services must be provided to them. Davies (2007) further went on to recommend that service providers should know that all students have the same educational needs (do the same courses) and not all can benefit from the learning information services delivered in teaching situations or access the information provided by the university to support their learning because of barriers presented by the manner in which the university operates. Craddock (2001) additionally reported that a library serving visually challenged students must provide such users with information they require in the appropriate formats and in a sufficient time for it to be useful.

A research by Akinola (2002) also revealed that facilities in the libraries of institutions that admit students with visual problems are grossly inadequate and visually challenged

library users in institutions do not derive any appreciable satisfaction from the library. Although students from University 'A' responded that they used the university library because it provides special services, they also lamented that the facilities in the Braille Library were far below expectation. In the case of Computer Laboratory, they mentioned that the number of computers there was not enough, there was the frequent breakdown of the computers and the room was not spacious. The library is responsible for acquiring and circulating information for its users but the responses from the students were enough to tell that a lot more needed to be done at the Braille Library and the Computer Laboratory respectively.

5.7.1. Policy on the Services for the Visually Challenged Students

The finding on policy on services rendered for the visually challenged students revealed that none of the two universities Resource Centre/ OSSN had a policy on services for the visually challenged students. This finding affirms Alemna and Dodoo's (2003) findings which show that, public universities in Ghana did not have written library policies for the visually challenged students. The finding, however, contradicts with that of Seyame (2009) who revealed that the University of KwaZulu- Natal had a library policy for the students and staff with disabilities to ensure efficient access to information for this special group of people in the University.

It is vital that a policy on the visually challenged be developed in every institution that admits students with special needs. If universities that enroll visually challenged students want to have an effective and efficient services for such students, they must plan for it by developing a policy. The policy should outline the overall objective of the services, the category of staff who will work with the students and equipment to be used.

A study by Craddock (2001) singles out the need for a collection development policy that clearly spells out what percentage of the annual budget should be spent on special services to illustrate the importance of a policy. He further recommended that if there is a collection development policy that takes care of services meant for the visually challenged students, library services for visually challenged users will always grow and that no area will be neglected. If such a policy is in place, it will serve as a guideline to direct and coordinate all the services provided by the visually challenged students in the universities that enrolled such students. Without it, there might be a haphazard or uncoordinated system of providing services to the visually challenged students. However, according to the findings, the lack of it has not adversely affected the provision of services to University 'A' and University 'B 'users since the Resource Centre/OSSN provides services such as scanning, transcription and brailing of materials to the students.

5.8. Challenges Encountered in Seeking Information

Nothing comes without drawbacks, and in the same way information seeking by visually challenged students like any other human endeavor were not without challenges. The fact that information is there for students with visual problem is not enough. The question is whether the information is accessible in a usable format to the students with visual impairment using any information seeking behaviour they choose.

As applied to this study, respondents from the two universities brought to the fore, some of the challenges they encounter when seeking information. These challenges from every

indication showed that the students find it difficult to achieve whatever goal or objective they intend to in their information seeking. The most pertinent of these were as follows:

1. Printed materials
2. Mobility problems
3. Poor library facilities (Braille scanner and Braille embosser) and
4. Slow Internet connectivity

5.8.1. Print Materials

University 'A' and University 'B' respondents found the issue of printed materials as a hindrance to their information seeking. This was a big challenged for the students in the two universities. Due to lack of sight, students with visual impairments encounter certain constraints in accessing information. For example, a high proportion of reading and information materials found in the public universities are in standard print format. Also any information intended for visually challenged persons had to be transcribed into Braille or read directly to them. This presents a major problem of access by the visually challenged students as they cannot read ordinary standard print.

A study by Kumar and Sanaman (2015) recommended that accessibility barriers to print can be easily overcome through web technologies. Furthermore, McCarthy's (2002) findings concluded that visually challenged students can use materials that are in print, when provided an assistive technology such as optical scanner, optical character recognition and Closed- Circuit Television (CCTV) for low vision students. This confirms Edward and Lewis (1998) finding which shows that access to the printed materials has

been described as one of the challenges facing visually challenged students anywhere they find themselves. Edward and Lewis (1998) further revealed that introduction of printed materials has not put the needs of visually challenged people into consideration. Today, Information and Communication Technology (ICT) look far more capable than standard print.

The solution for printed materials was to design information services that can resolve the unique needs of the visually challenged students. It also calls for heavy financial investment, which is not generally available in most academic institutions in Ghana. University administrators, librarians and publishers should endeavor to plan in advance to put things in place to ameliorate this problem.

5.8.2. Mobility Problems

Mobility problem was found to be the second challenge students encounter in their attempt to seek information. Students indicated that this type of challenges slow down their information seeking because they need to get somebody to accompany them when seeking for information. Mobility indeed is a big problem to visually challenged students and stakeholders should take their needs into consideration, particularly their movement to seek information in the library and Resource Centre/ OSSN. Physical impediment such as uncovered gutters and the absence of visually challenged friendly directional signs hinder access to information, since these students are afraid of injuring themselves they solicit the help of sighted friends. The implication of this is that if their colleagues/ friends are not available to lead them to the library they cannot seek for information.

Brown (2000) opines that physical environment and location are important criteria in determining access to information. This indication support the findings by Rowland (2007) that shows that the location of the visually challenged people also create problems to their information seeking process. People living with disabilities are sometimes suffer social discrimination that adversely have impact on their information seeking. Travelling or moving in a busy place may create a big problem. This problem always calls for assistance for visually challenged people.

5.8.3. Poor Library Facilities

Students made mention of poor library facilities as one of the difficulties they encounter in seeking information. In fact, facilities have a major influence on academic activities of students, and insufficient facilities lead to poor performance. However, students in University 'B; do not use the university library at all because it does not provide any special services for them and more so the collection in the library were not accessible and the formats too were not applicable to them. Though, University 'A' Library has Braille Library section and Computer Laboratory for the students but the facilities there were inadequate. This indication given by the students agrees with the findings by Friend (2009) that, library for the visually challenged people are not fully equipped.

The IFLA Guidelines for Development of the Public Library Service (2001) stressed that "all libraries serving the visually challenged should ensure that their collections and services complement and integrate with national agencies to provide access to as wide range of alternative formats and services as possible". This presentation by IFLA was not complied to both University 'A' and University 'B' libraries.

5.8.4. Slow Internet Connectivity

Lastly, students in both universities found the intermittent break in Internet connectivity as a major challenge in seeking information. A slow Internet speed made it difficult for users to enjoy smooth interactions on the Internet site as posited by Arthur & Brafi (2013). Also the slow Internet connectivity compels students to turn to other sources for Internet services such as cyber cafes. The effect of this is that, because it is a commercial service, students have to pay for the service. As such, they are not able to browse the internet as much as they would want and in the manner in which they find appropriate. This negatively affects their studies as they mostly browse for academic purposes. A study by Gerber (2003) stated that having access to the internet is vital because it influences positively on human life.

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CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

6.1. Introduction

This chapter presents a summary and conclusion of the study's findings in line with the objectives. Additionally, recommendations have also been made based on the findings as well as suggestions for areas for further research. The objectives of the study were to:

1. Identify the information needs of visually challenged students in University of Ghana, Legon and University of Education, Winneba.
2. Identify the sources of information for visually challenged students.
3. Identify the reason for seeking information by visually challenged students
4. Investigate the method used to acquire the required information by visually challenged students
5. Examine the information services offered by the library, Resource Centre/ OSSN for visually challenged students.
6. Identify challenges facing visually challenged students when seeking information.
7. Make appropriate recommendations based on findings of the study

6.2. Summary of Findings

The aim of this study was to examine the visually challenged students information seeking behaviour. Identifying students information seeking behaviour helped to determine whether the services that are provided by the University of Ghana, Legon and University of Education, Winneba met their information needs or not. The purpose behind the research objectives was to facilitate recommendations that would improve services that

are rendered for the visually challenged students at University of Ghana and University of Education, Winneba respectively.

The following are the major findings that emerged from the study:

1. The two universities admit more male visually challenged students than female students.
2. Academic information was found to be the most needed type of information by visually challenged students followed by employment and health in both universities.
3. Visually challenged students sought information to obtain materials for learning.
4. Most of the visually challenged students depended on their colleagues to acquire the needed information followed by the Internet, radio and lecturers.
5. Electronic source was found to be the most preferred format of information source needed by the visually challenged students in both universities and this was followed by audio format.
6. Visually challenged students acquired the needed information through both formal and informal channels.
7. Only University 'A' Library provide special services for visually challenged students. University 'A' students visit the library on weekly basis.
8. All the visually challenged students in University 'A' who used the Library sought assistance from library staff.
9. Facilities in the Braille Library Section and Computer Laboratory of University 'A' library were inadequate.
10. The Computer Laboratory was not spacious.

11. Visually challenged students from University 'B' did not use the university library because the collection were not accessible to them.
12. Visually challenged students from both universities were aware of the services provided by the Resource Centre/OSSN.
13. Personnel in the Resource Centre/ OSSN and Computer Laboratory were inadequate.
14. None of the University 'A' and University 'B' Resource Centre/OSSN had a policy for the services rendered to such students.
15. Printed materials, mobility problems, poor library facilities and slow Internet connectivity were found to be the challenges visually challenged students in both universities encountered in seeking information.
16. Information in printed materials was the major challenge visually challenged students encountered when seeking information due to their condition.

6.3. Conclusion

The study has revealed that students from both universities used formal and informal methods in seeking information. The study also revealed that visually challenged students have academic information needs just like any other group of students and these needs must be met. Vision loss prevents blind and visual impaired person from retrieving relevant information presented in standard print. It is very important in improving access to information for persons with visually challenged. Assistive technologies have change the information in print materials to audio and through voice activation device. Also print

characters have been changed to Braille characters. It is the expectation of the university library to meet the academic needs of all of its users, including those with special needs.

However, the study revealed that not all of the expectations of the visually challenged students were met by these university libraries. Students from University 'B' did not use the university library because the collections were not tailored to their use and this limit accessibility.

6.4. Recommendations

The study identified various issues pertaining to the service provision to the visually challenged students of University of Ghana, Legon and University of Education, Winneba. The recommendations focused more on the universities libraries because the libraries have been given the primary responsibility by the institution to ensure access and provision of information in the university. Based on the findings from the study, the researcher wishes to make the following recommendations**:**

6.4.1. Library/ Resource Centre/ OSSN Service Policy

Institutions admitting special needs students should endeavour to have library policies in place. These will serve as guidelines to direct and coordinate all services for the visually challenged. Such a policy should address issues regarding access to information, budgetary allocation, collection development and other privileges for the visually challenged. Without it there might only be a haphazard and uncoordinated system of providing service to the visually challenged.

6.4.2. Budget Allocation

Recognition of the needs of special needs should be included when planning budgets and allocating funds. There is a need for an increase in the budgetary allocation for university libraries in Ghana which admit such students so that they will be able to acquire special equipment for this group of students. An adequate budget will be of paramount importance because purchasing assistive technology devices involves considerable funds.

6.4.3. Provision of Assistive Technology Devices

The availability of a wide range of assistive technology makes it possible for people with visual impairment to operate computers and telecommunication equipment. Assistive technology devices can play a major role in giving persons with visual challenged access to information technology that enhances their academic and career opportunities. For example, computers with screen readers, screen magnifiers, Braille embosser, Braille note takers, scanners, voice recognition software as well as Closed- Circuit Television are necessary and should be made available for use by special needs students. There is also the need to train at least one library staff to be able to use these items and be able to assist the students in their use.

6.4.4. Improvement in Access Route

It is also important that the route to the Library and Resource Centre/ OSSN be marked out appropriately so that visually challenged students can find their way to these facilities. The university authorities should therefore ensure that open gutters and drains are covered to prevent injuries by visually challenged students.

6.4.5. Provision of more Computers with JAWS (Software)

In order to make life more bearable for the visually challenged students and to enhance their computer literacy and information seeking levels, it is recommended that managements of the universities should make adequate provisions of computers with JAWS software at the Computer Laboratory for visually challenged students. This will enable more students have access to information at the Laboratory.

6.4.6. Increased Personnel

The Resource Centre/ OSSN and Computer Laboratory personnel in the Centre were understaffed. This basically accounts for the delay in transcribing printed materials to Braille format and assisting such students in seeking information. It is therefore recommended that each of the Centres should have full time staff. University Management should ensure that personnel in the Centre are increased to handle visually challenged students so that students are served satisfactorily and on individualized basis. The personnel should be versatile to handle special needs students and they must have special education and ICT background.

6.4.7. Library Services for the Visually Challenged Students

There are a number of library services which are specially tailored to satisfy the information needs of visually challenged students. The researcher recommends that the institutions enrolling students with visual challenges should corroborate with Resource Centre/ OSSN to provide reading, Brailing, scanning and transcription services so that

pressure on personnel in Resource Centre will be reduced so that visually challenged students can get their reading materials on time.

6.4.8. Inter-Library Cooperation

The cost of providing equipment and resources for visually challenged students is very high. It is therefore recommended that universities which enrol special needs establish collaboration and cooperation with organizations that provide services to these students. In this manner, some resources can be acquired collectively and used through inter-library cooperation.

6.5. Areas for Further Study

Further research may be carried out in the following areas:

1. Research on the impact of assistive technology on the information seeking behaviour of the visually challenged students.
2. Research on barriers facing visually challenged students in seeking information need to be investigated.
3. Research on challenges facing visually challenged student in using the Internet.

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APPENDIX

QUESTIONNAIRE FOR STUDENTS

Dear Colleague,

I am carrying out a research on the topic **Information Seeking Behaviour of Visually Challenged Students at the University of Ghana, Legon and University of Education, Winneba**.

Kindly assist me by answering the questions below as candidly as possible.

All responses provided will be treated as highly confidential and will be used solely for the research purpose.

Thank you.

Yours faithfully,

Deborah Kore Appiah

BIOGRAPHICAL DATA

1. Gender Male ( ) Female ( )
2. Age :

   (a) 17-21 (b) 22-26 (c) 27-31 (d) 32-36 (e) 37-41 (f) 42 and above
3. Level of study:

   (a) 600 [ ] (b) 400 [ ] (c) 300 [ ] (d) 200 [ ] (e) 100 [ ]
4. What course do you offer? ……..

5. Are you resident on campus? Yes [ ] No [ ]

5b. If 'No' why? ……..

……

5c. If 'yes' which floor can you be located? (Please specify) ……

5d. Which university are you in? (a) University of Ghana (b) University of Education Winneba.

INFORMATION NEEDS

6. What information do you normally require? (Please tick as many as applicable).

Academic information

Employment information

Financial information

Health information

Others (please specify)

7. For what reason (s) do you need information? (Please tick as many as applicable).

(a) To pass examinations [ ]

(b) To keep up with new knowledge in my field of studies [ ]

(c) To obtain materials for learning [ ]

(d) To obtain materials that might be useful for my research work [ ]

(e) To seek better understanding of a topic [ ]

Others (Please specify) ……..

SOURCES OF INFORMATION

8. Where do you source information you need? (Please tick by a scale of preference).

(a) Textbooks

(b) Library

(c) Colleagues

(d) Group discussion

(e) Internet

(f) Lecturers

(g) Handouts

(h) Journals

(i) Radio

Others (Please specify)

……..

9. How do you prefer the format of your information? (Please tick as many as applicable).

Print [ ]

Braille [ ]

Electronic [ ]

Audio [ ]

Others (Please specify)

……

METHODS OF SEEKING INFORMATION

10. What method do you use to seek information? (Please tick as many as possible).

By asking library staff [ ]

Consulting colleagues [ ]

Browsing Internet [ ]

Relying on lecturers [ ]

Consulting textbooks [ ]

Consulting journals [ ]

Using Resource Centre/OSSN [ ]

Others (Please specify)……

PROVISION OF INFORMATION SERVICES BY THE LIBRARY

11. Do you visit the University library for information?

Yes [ ] No [ ]

11b. If 'Yes', how often do you visit Balme Library at Legon or Osagyefo Library at Winneba for information?

Daily [ ]

Weekly [ ]

Monthly [ ]

Quarterly [ ]

Yearly [ ]

Rarely [ ]

11c. If 'No' why? (Please elaborate) ……

…….

12. Do you find resources/ materials in the university libraries adequate?

Yes [ ] No [ ]

12b. If 'No' why (Please elaborate). …….

…….

13 What do you do when what you need is not in the university library? (Please tick as many as applicable).

(a) Give up

(b) Ask library staff for assistance

(c) Consult lecturers

(d) Seek information from the Internet

Others (Please specify) ……

……..

14a. Do you often require personal assistance in seeking information in the university library?

Yes [ ] No [ ]

14b. If 'Yes' please give reasons…….

……

……

14c. If 'No' why?

……..

15a. Does the Balme Library or Osagyefo Library provide any special services for students with visual problems?

Yes [ ] No [ ]

15b. If 'Yes' indicate the kind of special services provided for the students with visual problems……

15c. If 'No' please give reasons……

……

16. List other resources that are not at the Balme Library or Osagyefo Library that should be acquired to assist students with visual impairments.

……

……

17. Is there any policy guiding the services provided by the Balme Library or Osagyefo Library for visually challenged students?

Yes [ ] No [ ]

18. How would you generally rate the services of the Balme Library or Osagyefo Library? (Please choose one).

(a) Excellent [ ] (b) Very good [ ] (c) Good [ ] (d) Average [ ] (e) Poor [ ]

19. Are you aware of the services that are provided by the Office of Students with Special Needs or Resource Centre in University of Ghana or University of Education, Winneba?

Yes [ ] No [ ]

19b. If 'Yes' how did you get to know about those services? (Please elaborate).

……

……

19c. What are the services provided at the Office of Students with Special Needs and Resource Centre?

……

……

19d. Are you satisfied with those services?

Yes [ ] No [ ]

19e. If 'No', please

explain…….

…….

……

20. Is there any policy guiding services provided by the Office of Students with Special Needs or Resource Centre?

Yes [ ] No [ ]

CHALLENGES IN SEEKING INFORMATION

21. Do you encounter any challenges in seeking information?

Yes [ ] No [ ]

21b. If 'Yes', what is the nature of the problem?

……

……

22. Are there any other suggestions that you would like to make which can help you in seeking information in the University Library?

……

……

Thank you.