TITLE PAGE

CLASSROOM ENVIRONMENT AND RESOURCES REQUIRED FOR MEETING THE INFORMATION NEEDS OF STUDENTS WITH HEARING IMPAIRMENT IN NIGERIAN FEDERAL UNIVERSITIES

BY

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CERTIFICATION

Osadebe, Ngozi Eunice, a post graduate student of Library and Information science with registration number PG/PHD/09/50903 has satisfactorily completed the requirements of the research work for the award of Doctor of Philosophy. The work embodied in this thesis is original and has not been submitted in part or full for any other Diploma or Degree of this or any other University.

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DEDICATION

This work is dedicated to God Almighty for his mercies on me throughout the duration of this study.

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Ngozi E. Osadebe

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ABSTRACT

This study was conducted to examine Classroom environment and resources required for meeting the information needs of students with hearing impairment in Nigerian Federal Universities. The study employed descriptive survey design. Five research questions and four hypotheses guided the study. The population of the study was made up of 165 people consisting of 63 Lecturers and 102 students with hearing impairment. Data collection was done using two sets of questionnaires (One for Lectures and the other for students) and focus group discussion. Data collected from the questionnaires were analyzed using descriptive statistics involving mean and standard deviation. t-test was used to test the four postulated null hypothesis at 0.05 probability level. The results were presented in tables. Data from the focus group discussion were coded, sorted, tallied and relevant themes identified. The findings of the study showed that students with hearing impairment need information to improve language skill, complete class assignment, prepare for lectures, improve personal competencies, improve general knowledge, prepare for examination and acquire research writing skills. The findings also identified Sign Language Interpreters, Note takers, Overhead projectors, telecommunication device for the deaf, hearing aid compatible sound systems and air conditioners as classroom resources very highly needed in a classroom where hearing and hearing impaired students study alongside each other. The four null hypotheses postulated for the study were all accepted indicating that there were no significant differences in the opinions of hard of hearing and deaf students on the information needs of students with hearing impairment in Nigerian Federal Universities and in the opinion of lecturers and students on types of classroom resources required for meeting the information needs of students with hearing impairment amongst others. This finding has implications for library and information science practice in Nigeria in developing services and programs to cater for the interest of students with hearing impairment. Based on the findings, it was recommended amongst others that students with hearing impairment have information needs like every other student as such; libraries should create programs and services to meet their information needs. The study concluded that classroom environment and appropriate resources are important in the education of students with hearing impairment in Nigerian Federal Universities.

Key words: Hearing impairment, Classroom resources, Classroom environment, students, Nigeria, Federal Universities.

CHAPTER ONE

INTRODUCTION

Background of the Study

Information is crucial in the lives of students. Ajiboye and Tella (2007) defined it as the ingredient which students desire to construct meaning out of their learning. Information empowers students with the skill to discuss the subject content and reduce bias. Meeting the information needs of students is therefore of utmost important to students. Unfortunately, there seems to be a group of students whose information needs are not often considered in our universities. These are students with hearing impairment.

There are various types of impairment of which hearing impairment is one. Impairment refers to disturbances at the level of a bodily organ or function, whether physical or mental (0nu, 2008). In case of human beings, it can be in any part of the body. Thus, there are people with physical impairment, hearing impairment, amongst others. Hearing impairment is a generic name used to qualify anyone with hearing loss (Okeke, 2001). People with hearing impairment can be described as people who hear sound with difficulty and at a reduced rate compared to other people. Oladejo and Oladejo (2011) described people with hearing impairment as those with little or no ability to hear sounds through one ear (unilateral impairment) or both ears (bilateral impairment). The researchers also noted that people can as well be totally deaf or hard of hearing. Hallahan, Kauffman and Pullen (2009) defined the totally deaf people as those whose hearing disability precludes successful processing of linguistic information through audition, with or without hearing aid while a hard of hearing person generally, with the use of hearing aid, has residual hearing sufficient to enable successful processing of linguistic information. The

World Health Organization (WHO) estimated the number of people living with hearing impairment in the world as 360 million in 2011 (Adeboye 2015). Kodiya, Afolabi and Ahmad (2012) observed that majority of people with hearing impairment live in the developing world and that hearing loss is among the leading categories of chronic disabilities in developing countries.

The Nigerian National Population Commission (1998) gave the total number of people with hearing impairment in Nigeria as 104, 929. Among this number, 3,020 are within the higher education normal age range (18-30years). Unfortunately the census failed to report separate figures for the categories of deaf and hard of hearing.

Hearing impairment has been categorized differently by people based on their orientation. People with physiological viewpoint are interested primarily in the measurable degrees of hearing loss which are described in decibels (Db). Hearing sensitivity is measured in decibels (Units of relative loudness of sounds). Zero decibels (0Db) designate the point at which the average person with normal hearing can detect the faintest sound. People with hearing impairment of about 90dB or greater are considered to be deaf and people with impairment at lower decibel level are considered to be hard of hearing (Gergiulo & Metcalf, 2013). Smith (2007) identified five types of hearing impairment. Mild hearing loss (21-40Db); moderate hearing loss (41-55Db), moderately severe hearing loss (56-70Db), severe hearing loss (71-90Db) and profound hearing loss (91Db +). Hallahan, Kauffman and Pullen (2009) noted that people with educational viewpoint were more concerned about the age of onset of hearing impairment. The earlier the hearing impairment occurs in life, the more difficulty the child will have developing the language of the hearing society. The close relationship between hearing impairment and language delay is the key factor in people with educational orientation definition

of hearing impairment. People with educational orientation classify people born deaf as congenitally deaf while those who acquired deafness sometime in life after birth is said to be adventitiously deaf.

Hearing impairment can be acquired at different stages of peopleôs life. The time of the acquisition can be Pre-lingual, Post-lingual or Presbycuis (Betsy,2005;). Betsy, defined pre-lingual hearing impairment as a hearing impairment that is acquired early in life, before language is acquired in the natural way. Shemesh (2010) observed that Pre-lingual hearing impairment forces a person to learn spoken language mainly through artificial means (lip reading). Shemesh also observed that people with pre-lingual hearing impairment are deprived from auditory language input, because their main method of language acquisition ï print, does not convey as much language information as sound conveys. Okeke (2001) defined post-lingual hearing impairment as a type of hearing impairment that occurs after one has acquired language skills. The author noted that much of the problems of people with this type of impairment is in the area of oral communication, not language problem. Depending on the age at which the hearing impairment occurs, people with post-lingual hearing impairment have similar reading and writing skills with normal people, only a little delay in new idioms of the language (Betsy, 2005). Presbycuis hearing impairment is a hearing impairment that occurs at old age Betsy, 2005).

Students with hearing impairment as used in this study include the deaf and hard of hearing students who exhibit characteristics such as not responding to or confusing verbal directions, showing no surprise or being startled in situations that would normally evoke such response pattern, rubbing the ears frequently or turning the head in one direction as if trying to locate a sound, complaining of a ringing or buzzing sound in the ear , not responding when called from a

distance, complaining of discharge from the ear, gazing at the lips of a person speaking to him instead of the personôs eyes, misarticulating simple words, complaining that a normal sound or noise is too loud, avoiding situations that may require him/her to talk, speaking in an abnormally low, high or loud voice and making a response only when he/she seeôs the speakerôs face or gesture (Okeke, 2001).

Hearing impairment can have an adverse effect on communication, learning and interaction. Gergiulo & Metcalf (2013) observed that these adverse effects are often unrecognized by teachers unless the teachers are specially trained to recognize sensory impairments and understand their consequences. Oyewumi (2008) observed that hearing impairment is one of the disabilities that affect the learning process of an individual and hinders the general development. Wadesango, Gudyabgi, Eliphanos and Gudyanga (2014) observed that students with hearing impairment in inclusive classrooms (i.e classrooms where hearing and hearing impaired students study alongside each other.) feel isolated and have low self esteem and these lead them into irrational behaviors. These students miss out from most of the instructional processes in class because most university lecturers are not special educators who are versed in sign language (Oyewumi, 2008). As a result of the fact that many hard of hearing students use verbal communication as their preferred mode of communication, these students are often perceived as having more in common with hearing students than with deaf students. The difficulties these students face in class are often overlooked because of the belief that they can function easily in oral environment and have less need for support services than students who are completely deaf (Antia, Jones, Reed and Kreimeyer, 2009). This has resulted in frustrations and at times forceful withdrawal of the students from the Universities before graduation.

Further, hearing impairment forces the students to rely heavily on support services like interpreters and note takers in order to have access to general curriculum content (Briggle, 2005). Foster, Long and Snell (1999) observed that even with a comprehensive program of classroom support, access to classroom communication is a unique challenge for students who are deaf. The authors noted that students who use an interpreter experience time lag as the interpreter finishes signing 5 to 10 seconds after the lecturer must have finished speaking. By that time, the lecturers must have moved to other activity. Again, deaf students who rely on lip reading often experience a break in visual contact as some lecturers talk while writing on the board or read from papers held too close to their faces. Furthermore, in computer labs, instructors may speak while manipulating physical objects or performing tasks on projected screen leaving the students on the dilemma of choosing to watch the interpreter, instructor or screen.

The University of Vermont Centre on Disability and Community Inclusion, USA (2013) highlighted other barriers that limit access to classroom instruction for students with hearing impairment as lack of captions for videos, oral intensive lecture styles, group work or breakout sessions that involve quick discussions with mostly hearing peers and fast moving classes in which there is no time allowed for interpreters to catch up with discussions. These barriers inhibit successful learning for students with hearing impairment.

Regardless of the level of impairment, students with hearing impairment have information need like their peers and other information needs based on their circumstances. Barner & Sharon (2012) defined information need as the need for information that individuals ought to have to do their job effectively, solve their problems satisfactorily or pursue a hobby or interest happily. Information needs are affected by a variety of factors. These include, the range of information services available, the uses to which information will be put into, the background,

motivation and professional orientation and other individual characteristics of the user, the social, political and economic systems surrounding the user and the consequences of information use (Prasad, 2000). Students have various information needs. Olarongbe, Adepoju, Ademolake and Pedro (2013) noted that the information needs of library users in order of importance include information for academic purposes, general information, information for personal development, information on provision of social amenities, information on government policies and programs, Agricultural Information, Information on international politics, information on health, sports and security. Tahir & Khalid (2008) observed that among Arts and Humanities students the preferred method of meeting the information needs is through consultation with experts in the subject field and by conversation with colleagues. Olarongbe, Adepoju, Ademolake and Pedro (2013) posits that the greatest obstacle people face in meeting their information needs is non availability of relevant materials.

Meeting the Information needs of students with hearing impairment in the classroom poses a major challenge to lecturers, as many lecturers in higher institutions are not skilled in teaching students with hearing impairment. Inabilities of lecturers to meet the information needs of students with hearing impairment throw the students into academic problems. These academic problems include non participation in classroom activities, feeling of low esteem in class and feeling of isolation. Cawthon (2001) attributed these problems to poor communication between the students who are deaf and the lecturers. Poor communication between students who are deaf and instructors may be as a result of lack of efficient classroom environment and resources for the delivery of instruction to students with hearing impairment.

The ability to effectively meet the classroom information needs of students with hearing impairment in the same classroom with hearing students depends on the ability of the instructor

and the institution to take cognizance of the hearing impaired in their mist, provide classroom environment and resources that will enable the hearing impaired students to participate in classroom communications. Kurdziole (2011) posits that classroom resources are resources used by teachers to achieve goals. These resources may include human or material resources. The Centre for Disability and Community inclusion of the University of Vermont, USA mentioned interpreters, note takers, audiologist as the human resources needed for meeting the information needs of students with hearing impairment while the non- human resources are Telecommunication Device for the Deaf (TDD), Frequency Modulation Radio (FM Radio), Video Remote Interpreters, Radio Microphone and digital technologies like the computers and the internet. Kurdziole warns that these resources may not be considered as resources until they are enacted as one. The essence of classroom resources is to facilitate communication between the instructor and the students and among students. Students learn in unique ways. It is therefore important that viable classroom resources and environment is provided to take care of the unique ways in which students learn. This is even more vital when instructing students with hearing problems who are already disadvantaged due to their impairment.

Authors have defined classroom environment in various ways. OECD (2009) defined it as the setting in which student learning takes place. Hannah (2013) defined it as place where students learn various skills that are necessary for them to achieve success in the global economy. Classroom environment as used in this study includes all things in the learning area that can affect exchange of ideas between students and lecturers and among students. These include learning resources like books, technological equipment, human beings and their attitudes, seating arrangement and ventilation. Adelman & Taylor (2005) opined that classroom environment is the major determinant of classroom behavior and learning. This atmosphere can

range from a safe place where students are comfortable exploring the academic world to an unsafe place where students are victimized, cajoled and forced into passive listeners. Classroom environment can be positive or negative. When it is positive, learning is enjoyable but when negative, learning becomes burdensome. McLaughlini (2005) defined a positive classroom environment as a warm, caring learning environment where students are free to influence the nature of activities they undertake, engage seriously in their study, regulate their behavior and know of the explicit criteria and high expectations of what they are to achieve. De Vita (2000) suggests a number of things which Lecturers can do to create a positive classroom environment for their students. These include being aware of the different cultures that exist in the classroom in order to balance access to learning opportunities and equal engagement of all students in the class; utilize a large portion of the first class session to allow students to get to know each other and allow for informal interactions between the students and faculty amongst others. During examinations, Banik, Banik & Banik (2015) recommended that up to 25 percent extra time should be allowed for students with hearing impairment, invigilators may be permitted to use sign language to help students with hearing impairment read questions but should not explain what the question is asking and students with severe hearing impairment should be exempted from oral tests.

Certain factors affect the provision of positive classroom environment for students with hearing impairment in Nigerian Universities. Among these factors are: the lecture method of teaching in Nigerian Universities. This method of teaching denies the students with hearing impairment the ability to participate in classroom discussions which are crucial for learning. This has resulted in many of the students performing poorly while others abandoned their studies before graduation. Eleweke (2002) observed that ineffective teaching method was one of the

major factors that frustrate students with hearing impairment out from colleges and universities in Nigeria. Ojili (1997) opined that the absence of lecturers who are skilled in the use of sign languages is the greatest obstacle confronting students with hearing impairment in Nigerian Universities.

Large class sizes is yet another of the problems confronting higher education for students with hearing impairment. The Federal Government of Nigeria stipulated that student-lecturer ratio should be 30 students to one lecturer in the faculties of Social Sciences, Law, Art, Education, Administration and Management Sciences; 1:20 in the Sciences; 1: 15 in the Agricultural Sciences, Environmental Sciences and Engineering and 1:10 in medicine, Veterinary Medicine and Pharmacy. Yet in all Nigerian federal universities, the ratio is always more than three times the required ratio. An observation of a typical lecture session in any federal university in Nigeria show that the classrooms are always overpopulated. Wadesango, Gudyabga, Eliphanos and Gudyanga (2014) observed that large class sizes in institutions of learning has resulted on a style of information delivery in which students were passive listeners with little or no opportunity of involvement, to the detriment of students with hearing impairment.

Lack of classroom resources for effective teaching and learning is yet another problem encountered in Nigerian classrooms. Ajaiye (2007) noted that technologies (like FM radios and hearing aids) for teaching in classrooms where hearing and students with hearing impairment study alongside each other, which are widely available in Universities overseas are lacking in Nigerian Universities. These problems rob students with hearing impairment access to academic information which is crucial for personal development. Okah & Osiobe (2014) opined that the essence of university education is not only to acquire technocratic skills for employment but to

acquire core competencies and cognitive capacities to become lifelong learners and effective citizens. Being not well equipped to help him/herself, the person with hearing impairment becomes an ineffective citizen and a burden on the society. There is therefore need for studies on classroom environment and resources for meeting the information needs of this group of students in order to counter this problem. Unfortunately literature abound on the problems students with hearing impairment encounter in regular classrooms (Wadesango, Gudyabga, Eliphanos and Gudyanga 2014, Oyewumi 2008, Cawthon 2001) while none, to the best knowledge of this researcher exist on classroom environment and resource provision required for ameliorating these problems. It is this gap that this work intends to bridge.

Statement of the Problem

It has been observed that the education of students with hearing impairment in Nigerian Universities and colleges is confronted with many problems such as large class sizes, lack of teaching resources and inefficient teaching method. These problems have resulted in a situation where students with hearing impairment feel isolated in class, do not participate in class discussions, perform poorly and are frustrated out of school before graduation. This condition if unchecked will lead to a situation where Nigerians with hearing impairment cannot access higher education in Nigeria. Without higher education, the chances of being gainfully employed and contributing to the development of the nation are slim. Such a situation does not give room for growth and development of any nation. The problems of large class size, inefficient teaching method and lack of resources are associated with environmental issues which if well tackled will end the problems students with hearing impairment encounter in classrooms. Having known this, a proper study of the classroom environment where these students study and learning resources required in the classrooms becomes essential. A search through literature revealed abundant

information on the problems students with hearing impairment encounter in regular classrooms (Low self esteem, problems of poor communication between the students and Instructors, lack of support services) while none to the best knowledge of this researcher was seen or exists on classroom environment and resources required for ameliorating these problems. It is this gap that this work intends to bridge.

Purpose of the Study

The purpose of this study is to examine Classroom environment and resources for meeting the information needs of students with hearing impairment in Nigerian Federal Universities. Specifically, the study will seek to:

1. identity the information needs of students with hearing impairment in Nigerian Federal Universities.
2. ascertain the instructional methods required for meeting the information needs of students with hearing impairment in Nigerian Federal universities
3. identify the classroom resources needed for meeting the information needs of students with hearing impairment in Nigerian Federal Universities
4. identify the strategies required for creating positive classroom environment for meeting the information needs of students with hearing impairment
5. identify relevant examination environment to accommodate students with hearing impairment

Research Questions

The following research questions will guide this study.

1. What are the information needs of students with hearing impairment in Nigerian Federal Universities?
2. What are the instructional methods for meeting the information needs of students with hearing impairment in Nigerian Federal universities?
3. What are the classroom resources needed for meeting the information needs of students with hearing impairment in Nigerian Federal Universities?
4. What are the strategies required for creating positive classroom environment for meeting the information needs of students with hearing impairment?
5. What are the relevant examination environment for students with hearing impairment

Hypotheses

The following null hypotheses (Ho) will guide this study and will be tested at 0.05 level of significance.

Ho_1 There is no significant difference in the opinions of students who are hard of hearing and the deaf on the information needs of students with hearing impairment in Nigerian Federal Universities.

Ho_2 There is no significant difference in the opinion of lecturers and students with hearing impairment on types of classroom resources needed for meeting the information needs of students with hearing impairment..

Ho_3 There is no significant difference in the opinion of lecturers and students with hearing impairment on Relevant Examination Environment for students with hearing impairment

Significance of the Study

This study has both theoretical and practical significance.

Theoretically, the work should strengthen the social theory of disability by highlighting the importance of learning environment on the education of students with hearing impairment. The result will also add to existing studies on the theory. In practical terms, the following will benefit from the study: the Nigerian society, university administrators, university lecturers and students with hearing impairment.

To the Nigeria society, it is hoped that the study will reverse the negative attitude towards disabled people by highlighting the information needs of students with hearing impairment thus indicating that students with hearing impairment are like other students with information needs to be met.

To University administrators, the result of this study if implemented will hopefully bring about innovations in the design of Nigerian higher education classrooms by educating university administrators on the type of facilities needed in classrooms containing both hearing and hearing impaired students. Such facilities if included in the design of structures and implementation of learning activities will bring an end to the avoidable withdrawal of students with hearing impairment from Nigeria universities before graduation. It is hoped that the findings of this study will guide university administrators and policy makers in formulating educational policies affecting students with hearing impairment by highlighting best practices for meeting the information needs of students with hearing impairment in Nigerian Federal Universities.

To lecturers, the result of this study if implemented will hopefully enrich the methods used by lecturers in teaching in inclusive classrooms, methods that are desirable in classrooms

containing both hearing and hearing impaired students which lecturers in different institutions of higher learning can emulate. The result of this study if widely put into use, should equip lecturers with better strategies for creating positive classroom environment for students with hearing impairment.

To the students with hearing impairment, the result of this study will hopefully usher in a new era in the education of students with hearing impairment in Nigerian Universities, an era, in which the needs of students with disability will be put into consideration in the planning and implementation of educational policies. The result of the study will hopefully bring to focus the information needs of students with hearing impairment, the type of resources needed in the classrooms where they learn and environment under which examinations should be conducted for them.

Scope of the Study

The study focused on classroom environment and resources for meeting the information needs of Students with hearing impairment in Nigerian Federal Universities. It focused on all lecturers and students with hearing impairment in Nigerian Federal Universities. Moreover, the study focused on the methods and resources for meeting the information needs of students with hearing impairment. It also focused on strategies used by lecturers in creating positive classroom environment for students with hearing impairment in Nigerian Federal Universities. The study further focused on examination environment for students with hearing impairment in Nigerian Federal Universities.

CHAPTER TWO

LITERATURE REVIEW

The review of related literature for this study is organized under the following headings:

Conceptual framework, theoretical framework and empirical studies.

Conceptual Framework

Concept of hearing impairment

Concept of Classroom environment

Concept of Classroom resources provision

Theoretical Framework

Medical theory of disability (World Health Organization (WHO, 1980)
Social theory of disability (Union of the Physically Impaired against Segregation (UPIAS), 1976)

Review of Empirical studies

Communication and adjustment problems faced by students with hearing impairment

Methods of Instruction for hearing impaired students

Academic achievement of students with hearing impairment in inclusive classrooms

Summary of Literature review

Conceptual Framework

Concept of Hearing Impairment

Hearing impairment has been defined differently by different authors and professional bodies. Each definition reflects the perception of the individual or professional group associated with the definition. Scientific Committee on Emerging and newly identified Health Risks (SCENIHR) (2008) defined hearing impairment to include as a reduction in hearing acuity or sensitivity or presence of tinnitus. It relates primarily to the inability of the affected individual to hear sounds at certain levels. Shambaugh (2000) defined hearing impairment as partial or total inability to hear. Akinpelu and Olawuyi (2013) defined hearing impairment as some of the invisible disabilities which range from some hearing loss to deafness. The authors went on to say that hearing impairment is an all inclusive term comprising people with mild hearing loss, people who are unable to hear at all and people affected in both ears or in one. WHO (2008) defines hearing impairment as the complete or partial loss of the ability to hear from one or both ears.

Another definition of hearing impairment was the one advanced by the Federal Republic of Nigeria (FRN). Okeke (2001) posit that the FRN defined deafness as a loss of ñsound/hearingò sensitivity that renders a personôs hearing non-functional for day to day purposes including the reception of speech and language with or without a hearing aid. The Committee on nomenclature of the conference of Executives of American Schools for the Deaf defined the deaf as : those in whom the sense of hearing is non-functional for the ordinary purpose of life. The committee also defined the hard of hearing as those in whom the sense of hearing, although defective is functional with or without a hearing aid (Okeke, 2001).

Okeke (2001) defines the deaf as personôs whose auditory channel is sufficiently damaged, rendering the personôs sense of hearing non-functional with or without hearing aids for

the ordinary purposes of life. Porter (2002) defined hearing impairment as any reduction or blockage in the transmission of sound from the outer ear to the inner ear through the ear canal. Eberechukwu (2005) defined hearing impairment in two ways ï the deaf and hard of hearing. Those who cannot hear sound at or above a certain intensity (loudness) level are classified as deaf, others with a hearing loss are considered hard of hearing.

Beers and John (2006) divided hearing impairment into two categories: Hearing loss and deafness. The authors defined hearing loss as deterioration in hearing and deafness as profound hearing loss. Akinwale and Abimbola (2011) defined hearing impaired people as people with little or no ability to hear sound through one ear (unilateral impairment) or both ears (bilateral impairment). The author went on to say that they can be totally deaf or hard of hearing.

From the definitions, three things stand out clearly:

a. That people with hearing impairment have difficulty understanding speech:

b. That people with hearing impairment need special equipment to argument their hearing capability to function effectively in society.

c. That hearing impairment adversely affects acquisition of education.

By implication, normally in a typical Nigerian University classroom without classroom facilities, teaching materials and support services as has been observed by researchers, students with hearing impairment will find it difficult to fit in appropriately into the classroom environment.

Many factors have been adduced by authors as causes of hearing impairment. Okeke (2001) identified the following as causes of hearing impairment - Heredity, Noise, Diseases,

Accidents, Malnutrition, Developmental abnormalities, Birth Injuries, Drug abuse and Blockages. Turnbull, Turnbull, Shank and Leal (1999) and Porter (2002) identified two major types of hearing disability. They are: Conductive hearing loss and sensorineural hearing loss. Below are brief explanations of each of them according to Turnbull et al (1999)

Conductive hearing loss affects the loudness or intensity with which a person hears speech. Conductive hearing loss is caused by interference with the transmission of sound from the outer to the inner ear. The interference may be caused by some type of blockage such as foreign object, infection or malformation. The student with this type of hearing loss can profit from the use of a hearing aid because the aid magnifies sounds at all frequency levels.

Sensorineural hearing loss affects the intelligibility or clarity of the sounds the person hears. A sensorineural loss is the result of damage to the inner ear fiber structures of the auditory nerve along the pathway to the brain system (Thakur, Pawar and Gupta, 2016). Sound waves that reach the inner ear are not correctly transformed into normal impulses because of nerve damage. No matter how much the sound is amplified, the nerve damage prevents the sound from reaching the hearing area of the brain. This type of hearing loss is usually permanent as it is not amenable to correction by use of a hearing aid.

The discussion on types of impairment points out the different types of hearing impairment that exist. A method of instruction that benefits one person may not benefit the other. In other words, the lecturers need to be aware of the particular problems of his /her students in order to device an instructional method that will benefit all. Unfortunately as stated earlier, large class sizes; and lack of classroom resources and teaching materials in Nigerian Institutions of higher learning have forced lecturers to adopt styles of information delivery in which students

were passive listeners with little or no opportunity for involvement Bhatti (2010). This is to the detriment of students with hearing impairment. Moreover, such large class sizes have prevented Lecturers from having in-depth knowledge of the academic problems of their students.

The Concept of Classroom environment

Classroom environment has been defined in various ways by various authors. Jarvis (1990) defined classroom environment as the atmosphere or ethos established in the class, usually as a result of techniques and teaching style of the teacher. This can relate to teacher-student relationship and interrelationships between students. Dorman (2002) defines environment as applied to educational settings as the atmosphere, ambience, tone, or climate that pervades the particular setting. Pace cited in Dorman (2002) suggested that environments crucial aspects are its overall atmosphere or characteristics, that rewards, encourages and emphasizes the life style valued in the classroom community and is most visibly expressed and felt.

Amborse, Bridges, DiPietro and Lovett (2010) define classroom climate as the intellectual, social, emotional, and physical environments in which our students learn. The authors went on to say that classroom climate is determined by a constellation of interacting factors that include faculty-student interaction, the tone instructors set, instances of stereotyping or tokenism, the course demographics (for example, relative size of racial and other social groups enrolled in the course), student-student interaction, and the range of perspectives represented in the course content and materials.

Miller and Cunnigham (2011) observed that classroom environment encompasses a broad range of educational concepts, including the physical setting, the psychological environment created through social contexts and numerous instructional components related to teacher

characteristics and behaviors. Abelman and Taylor (2005) defined classroom environment as the perceived quality of the setting, which emerges in a somewhat fluid state from the complex transaction of many immediate environmental factors (physical, material, organizational, operational and social variables.) Garibay (2015) advised that a positive learning environment no matter its size should create an atmosphere of security, a feeling of being value and respected for the students; and enable the students achieve and demonstrate their full potential. Zulgiguar and Zamir (2015) observed that the type of classroom environment that a lecturer creates and encourages can either increase or decrease a studentôs ability to learn and feel comfortable as a member of the class.

From the definitions above, it can be adduced that classroom environment refers to a space where teaching and learning takes place. It also includes the materials, physical facilities student-teacher and student- student interaction within the space. All constitute major factor in students learning which can either mar or enhance studentôs productivity. As Ahmad, Osman and Halim (2012) succinctly put it ñ carefully crafted classroom activities with appropriate physical facilities and positive psychosocial environment stimulate intellectual activities, increases social contact and promote learning and students development as well as limit negative behaviors among students.

There are two types of classroom environment ï the classroom physical and psychosocial environment. The classroom physical environment plays an important role in learning. Glass (1992) observed that the physical characteristics of classrooms are created by architectural design and are not easily changed day by day. The author went on to say that teacherôs ability to adopt the environment for multiple strategies or to match student variables is limited by permanent features. The author further stated that when classroom permanent features fit a

programôs instructional patterns, the environment can support and reinforce teaching strategies. King & Marans (1979) observed that a mismatch of classroom physical environment can affect both student and teacher attitude, inhibit flexible application of instructional strategies or cause teachers to adjust curricula, teaching methods and social structures because they perceive no possibilities for physical alterations. Lee and Cho (2013) opined that classroom physical environment includes modern technologies such as radio, television, overhead projectors and computers. Equating science laboratories for classrooms, Ahmad, Osman and Halim (2012) advised that efforts should be made to ensure that all classrooms are well equipped with equipment and facilities that are in line with teaching and learning needs, particularly the identified physical aspects, in order to improve on the effectiveness of the teaching and learning process in the classrooms. Matai and Matai (2007) suggested that the physical environment of a classroom could be considered as a second teacher whereby it could motivate students, enhance learning and reduce disciplinary problem and undesirable behaviors.

Classroom psychosocial environment is as important as the classroom physical environment. It refers to the emotional climate that can exist in every classroom. Mattias and Ramirez, (2015) and Jessez11 (2007) observed that it includes feelings of pleasure/distress, intrigue/boredom, love/fear etc. Mattias and Ramirez, (2015) went on to say that classroom psychosocial environment is intangible, affects students learning and that the effects can last longer than the effects of classroom physical environment. The authors further stated that maintaining classroom psychosocial environment depends on maintaining a good human relations skill between instructors and students. This involves interacting productively, getting along well, calling people by names, speaking in a considerate manner, looking at things from the positive side, showing interest in other peopleôs problems etc. Lee and Cho (2013) opined

that, in the psychosocial learning environment, psychological and social factors that can improve/hinder learning include satisfaction, health, and ability to perform at the place of study. The authors went on to say that a psychological learning environment covers interpersonal cooperation and security against harassment and mental harm.

Various factors can influence classroom environment. Ambrose, Bridges, Dipietro and Lovett (2010) identified stereotype, tone of the class environment. Student-student interaction, faculty student interaction and course content as some of the factors that can affect classroom environment.

Stereotypes cause alienation and marginalization among those who are the target of unfair generalizations. The author opined that students who have experienced stereotypes, viewed or judged in certain ways often feel tensed up and have cognitive disturbances that interfere with learning. The tone of the class environment is influenced to a great extent by the Instructor. The author observed that students approach Instructors who encourage them, more than Instructors who come off as punitive. The author opined that tone can be set by Instructors through their interactions with students and through other modes of communication including syllabus. Student-student interactions affect the overall climate of the classroom. The author observes that the ways in which instructors and those in authority deal with negative interactions has impact on students learning. Faculty-student interaction also plays a role in shaping classroom environment. The author opined that students who felt that their instructor s are approachable, had concern for them and treat students as individual and with respect report a better classroom environment than students with the opposing view. Course content includes the course materials, examples and metaphors, case studies and project assignments used to illustrate

the ideas being taught. The authors concluded that a content that includes a variety of perspectives or is representative of multiple views is more conducive to a positive climate.

To maintain a positive classroom environment therefore, lecturers should manage the classrooms in such a way that everybody irrespective of disability is carried along. Lecturers should discourage stereotypes, be encouraging and approachable.

The concept of Classroom resources

Classroom resources are materials which if put into use by the instructor helps in communicating curriculum content to the students. Farrell (1993) defined classroom resources as any support material available for use by the teacher in the class and a reading material for the children. Kurdziolek (2011) described classroom resources as physical demonstration aids, studentsô contextual understandings, teacher subject expertise, and structured organization of materials, ideas and activities. The author noted also that the points of contact at which students interact with these resources are where knowledge construction can occur. Bizimana and Orodho (2014) listed chalk, blackboard, chairs, space for sitting, classroom lighting, dustbins, textbooks, maps, atlases, teachers table, electrical outlet, teachers chairs, wall charts, globes, soft boarding frame, wall pictures, diagram and drawings as classroom resources. Kurdziolek (2011) included technology among classroom resources. The author opined that technology can be used in the classroom to not only teach children to be computer literate citizens, but also help students succeed beyond traditional chalk and blackboard methods. Farrell, Devlin and James (2007) opined that the quality of learning technologies and resources of all kinds is a prominent indicator of the overall quality of a higher education learning environment.

Grubb (2008) divided classroom resources into four types. These are simple-resources that are physical objects (eg textbooks) or classroom factors (e.g. teacher experience and expertise that can be directly bought, adjusted, and measured; Compound- two or more resources that are jointly necessary for success (e.g. class size reduction and adequate teacher preparation); Complex ï Resources that are not easily bought, measured or adjusted (e.g. instructional approaches and teaching philosophies) and Abstract- resources that are difficult to discern and measure, and often embedded in a web of relationships and practices within a given school (e.g. collegial decision-making practices, internal teacher accountability and distributed leadership roles). The author posits that simple resources such as textbooks, technology, increased teacher salary, teacher training, or lower pupil to teacher ration may be necessary in some instances but not sufficient in and of themselves to increase students outcome. Kurdziolek (2011) stated that combinations of the four types of classroom resources are necessary to achieve desired goal.

Classroom resources are very important in teaching and learning. They enhance learning (Fuller, 1985). The availability of teaching and learning resources in a classroom determines to a great extent the type of teaching strategy employed by the teacher, moreover, it is the teacherôs use of teaching and learning resources in the classroom that creates meaning for the students. European Union (2014) opined that students are unique, and so are their ways of learning. As such the teaching tools used in Universities and colleges should cater for the individualized ways of learning with the student at the centre. European Union went on to say that some students will learn better and faster with the help of interactive media that incorporate images, graphics, videos and audio elements. Others will prefer static text and numbers in different measures. The European Union advices that the use of technology in the classroom can combine all of these for a personalized learning experience for each student based on each

studentôs strengths. As well as improving the effectiveness of learning, such adaptation to individual needs can also have a significant effect on the reduction of drop-out.

Information needs of students with hearing impairment

Students with hearing impairment like any other student have information needs related to their courses of study and other information needs as a result of their impairment. Unfortunately few literatures exists on the information needs of students while none to the best knowledge of the researcher exist on the information needs of students with hearing impairment. Westwood (2012) studied the information needs of students in foundational foreign language courses. The author discovered that the students need information to improve their language skill, to study for specific class, to prepare for an assigned class \presentation and for other purposes. On the type of information resources needed by the students, the author identified general language grammar books, movies on video/DVD, specific course textbooks and audio books. The author further observed that most students in foundational foreign language courses need information resources more often when pursuing internally motivated objectives than in response to an immediate externally imposed objective such as completion of home work, assignments or preparation for a class presentation.

Instructional Methods for Meeting the Information Needs of Students with Hearing Impairment

There are a number of ways in which the information needs of students with hearing impairment can be met. Stinson (1999) and Waldron (1995) observed that for hearing impaired students to participate in classroom communication, the instructor should employ any of the following as a teaching strategy.

Co-operative Learning

Co-operative learning is a strategy in which the students are broken into small teams. Each team contains students of different levels of ability. The teams use a variety of learning activities to improve their understanding of a subject. Each member of the team is responsible not only for learning what is taught but for also helping teammates learn. Cooperative teaching is assignment based. Students work through the assignment until all group members successfully understand and completes it (Waldron, 1995). Cooperative efforts result in participants striving for mutual benefit so that all group members will gain from each otherôs efforts, recognize that all group members share a common fate, know that oneôs performance is mutually caused by oneself and oneôs team members and feel proud and jointly rejoice when a group member is recognized for achievement.

Co-operative learning promotes classroom participation among hearing impaired students and ensures that hearing impaired students do not drop out of the lesson due to frustrations. Students who engage in cooperative learning learn significantly more, remember it longer and develop better critical thinking skills than their counter parts in traditional lecture classes. Johnson (2006) identifies three types of cooperative learning. They include informal cooperative learning group, formal cooperative learning group and cooperative base groups.

Co-operative learning help students with hearing impairment to develop skills necessary to work on projects too difficult for one person to accomplish. Stinson (1999) observed that students with hearing impairment participate more in small-group discussions than in all large class discussion. Cooperative learning when well structure increases frequency and complexity

of conversation between hearing impaired students and normal or hearing students, frequency of interaction and interpersonal attraction.

Lecture Method

A lecture is an oral presentation intended to present information on a particular subject to a group of students. The classroom lecture is a special form of communication in which voice, gesture, movement, facial expression and eye contact can either compliment or distract from the content (Davis, 1993). The way in which lectures are delivered to a great extent affects studentôs attentiveness and learning. The University of Cambridge disability resource Centre advices that in teaching hearing impaired students through the lecture method, the lecturer should before the lecture starts, if possible provide the hearing impaired students with lecture outlines, lecture notes, key dates, references etc in writing, list of new technical terms that might be difficult to unravel by listening only, announcement about practicalôs, field trips and examination should be provided in writing and before speaking, attract the students attention unobtrusively. The resource centre further advised that to ensure that the lecturer carries the whole students along while lecturing, the lecturer should face the students so that they can lip read easily, avoid moving around too much, speak clearly, give a clear view of mouth while speaking, use gesture and facial expression, repeat the content of the lecture before giving the answer, use visual aids like whiteboards, chalk boards and overhead projectors and permit students to use support services like note takes & sign language services.

In using lecturing method to teach hearing impaired students, it is always good to reserve the front seat for hearing impaired students. It is also good to repeat the comments and questions

of other students, especially those from the back row and acknowledge who has made the comment so that the hearing impaired student can focus on the speaker (Betsy, 2005).

Co- teaching

Co-teaching is a situation in which two or more teachers share the responsibility of teaching a class. Co-teaching involves two credentialed professional academics who are partners in the instruction of one lesson (Antia, Stinson and Guastad, 2002). Two of them have equal responsibilities of planning the instruction. They share the same physical space. Co- teaching help to reduce the student/ teacher ration as the two teachers are in the class room at the same time. Moreover it makes lectures more enjoyable and creative as it takes the intellectual capability of two adults to plan. Co-teaching brings about knowledge and skill exchange among the teachers, teaching a class.

Online Instruction

Online instruction also known as distance learning is a type of instruction that is delivered through the internet. It includes real-time synchronous and anytime, anywhere (asynchronous) interactions. Synchronous interactions involve tools such as live chat. Audio and video conferencing, data and application sharing, shared whiteboard, joint viewing of multimedia presentations and online slide shows. Asynchronous learning can be carried out even while the student is offline. Asynchronous e-learning involves coursework delivered via web, email and message boards that are then posted on online forums. In such cases, students ideally complete the course at their own pace, by using the internet merely as a support tool rather than volunteering exclusively for an e-learning software or online interactive classes (Mindflash Technologies Inc, 2012). In online instruction, students are expected to possess the computer

skills necessary to type papers, browse and search the Web, access college information, and communicate through e-mail.

Hybrid Instruction

Hybrid Instruction refers to the blending of classroom-based instruction with instruction via other media. In today's world that media is general understood to be the Web. However, hybrid has been taking place for centuries with books, videos and print material being an integral part of the instruction. Hybrid teaching allows the flexibility and efficiency of the online environment, students have access to content and assignments at all times, students can communicate with peers and the instructor, students can navigate through the course in a more self-directed style, they can find information they need on their own time and in their own way, with the social contact, motivation, modeling and support of the traditional classroom.

Peer Tutoring

Peer tutoring is an approach in which one child instructs another child in a material on which the first child is an expert and the second is a novice (Falaye and Kokolafe, 2007). Peer tutoring is one of the most widely used methods in the education of people with disabilities. In some instances, it serves as additional help or support service given to people with learning disability to catch up with the normal students. In some instances, it serves as a form of individualized instruction (Lang, 2002). Spradbrow and Power in Lang (2002) opined that peer tutoring is a form of allowance made to accommodate information loss encountered by hearing impaired students during normal class programs. Tutoring help hearing impaired students to improve their course grades, study skills and understand lectures. Mastropieri and Scrugs (2000) suggests that for peer tutoring to be effective, the teacher should clarify the specific objective of

the tutoring program, list objectives in form that can be easily measured, choose tutoring partners carefully, establish rules and procedures for the tutoring program, implement the tutoring program, monitor it carefully and be consistent in enforcing the rules and procedures and evaluate the program frequently.

Classroom resources for Meeting the Information Needs of Students with Hearing Impairment

Various classroom resources are needed effective learning of hearing impaired students. Fakomogbon (1995) observed that learning resources for students with hearing impairment are useful when the senses of sight, touch, smell and taste are incorporated while delivering instruction. Nicholas and Collier (2009) grouped resources for meeting the information needs of students with hearing impairment into three major groups; those that can promote access to visual communication, those that can promote access to text representation of speech and those that can promote amplification. Among the ones that can be used to promote visual communication are human resources like sign language interpreters, scribes, note takers, tutors and assistive technology devices like video remote interpreters (VRI), Telecommunication devices for the deaf (TDD), video tapes and flashing alert devices. Those that can promote access to text representation of speech include open or closed captioning for media displays, computer assisted real time captioning (CART) and note taking services. Those for amplification of sound include audio induction loop, radio microphone, hearing aid-compatible telephones and hearing aid compatible sound systems. Fakomogbon (2002) mentioned Captioned pictures, typewriters and printers among the materials that can be used in delivering instruction to students with hearing impairment.

National Center on accessible instructional materials, Iowa observed that students with hearing impairment often do not hear all the speech sound; and background noise can be particularly distracting, resulting in failure to understand, fatigue and tension. The National Center advised that technologies with adjustable controls and noise cancelling earphones should be used to deliver content to these students. Faeorin-Cruich (2014) observed that iCommunicator is the only speech recognition software designed and used specifically for the deaf. iCommunicator enables students with hearing impairment to understand complex words that might be difficult to sign. The author went on to say that the software is designed to help students with hearing impairment to attend oral oriented lectures, as the speech recognition software has the capability to display in text oral discussions. In Australia, Brett (2010) observed that sign language interpreters and note takers are some of the human resources used in the education of students with hearing impairment. Cawthon, Nicholas and Collier (2009) observed that in institutions like the Gallaudet University in United States of America, such students have direct communication access to instruction and extra-curricular activities through the use of American Sign Language. Green cited in Cawthon, Nicholas and Collier (2009) observed that materials used in the education of hearing impaired students are sign language interpreters, tutors and assistive learning devices. The author further observed that preferential sitting arrangement, recording of class notes and assistance with course registration are not frequently used.

The University of Cambridge disability resource centre, England suggested that technical adaptations should be done on such classrooms to make them more learning friendly. Some of the recommended technical adaptation include: Double glazing to exclude external sound, fixing absorbent ceiling to reduce reverberation, air conditioning to avoid the need to open windows, good lightening and installation of room microphones. Lewis (1993) opined that classroom

amplification systems should be provided in classrooms containing students with hearing impairment and other students as classrooms are noisy environments, and students often have difficulty hearing and understanding what the teacher says because other classroom sounds interfere. The author went on to say that classroom amplification systems help to correct this problem by amplifying the teacherôs voice. The United Nation Educational, Scientific and Cultural Organization (UNESCO) (1973) reported that classroom amplifying systems also contribute to a more effective perception of the study material and to a better pronunciation. Brett (2010) observed that hearing augmentation devices such as audio loops are installed in classrooms where students with hearing impairment learn alongside other students.

Strategies for creating Positive Classroom Environment for meeting the information needs of Students with Hearing Impairment

Teaching in an inclusive classroom can be a great challenge to educators. It requires skill and tact on the part of the instructor in managing the class. In teaching students with hearing impairment, the University of Virginia Teaching Resource Centre, USA encourages the Instructor to identify the student with hearing impairment in their different experiences, degree of hearing loss and preferred mode of communication. The University of Cambridge Disability Resource Centre, England advised that it will be necessary for the instructor to be aware of best practices in teaching in classes where students with hearing impairment study alongside hearing students. The best practices include using visual aids like boards and overhead projectors while teaching, using subtitled films and making lecture outlines or notes available to sign language interpreters in advance, so that they can become familiar with new technical vocabulary. In addition, Waldron (1995) opined that to create a positive classroom environment for meeting the information needs of students with hearing impairment, lecturers should modify the learning

environment to afford students the opportunity to become active members of the class instead of passive observers, use pictures for visualization of abstract concepts, use gestures, body language and facial expression to emphasize ideas, require all students to raise their hands before addressing the class and modify written materials through use of visuals such as diagrams, charts and graphs. Stinson and Liu (1999) observed that for students with hearing impairment to gain access to classroom instruction, course instructors must be able to provide a communicative environment for the entire class that encourages participation of students with hearing impairment, allow time for students to read lecture material before discussing it in class, controlling the pace of the discussion, creating effective small group learning situations that include students with hearing impairment, collaborating with the interpreters by having meetings with them to discuss ways of facilitating participation of students with hearing impairment, addressing inappropriate behaviors of other students and providing information about hearing impairment to other members of the class. This will help to promote communication, understanding and more positive attitudes.

Centre for supportive learning, University of Delaware advised that instructors should try as much as possible to make their classôs student centered where students are actively involved not only with the subject matter but also with their classmates and lecturers. The Center posits that instructors should achieve this by being sensitive to individual differences among students in their classes, Learning studentôs names and calling them by names, encouraging students to sit at the front of the class and close to one another, communicating (Instructors) expectations to the students on the first day of class, coming early to class and staying after class to discuss with students and answer their questions, ensuring that students are not made to feel embarrassed for asking or answering a question and starting lecturers on the first day of class. The Center for

supportive learning observed that beginning the teaching on the first day of class sends the signal to the students that the Instructor is very serious with the course.

The University of Vermont Centre on Disability and Community Inclusion, USA opined that typical barriers that limit access to classroom instruction to students with hearing impairment include lack of captions for any video or web videos, oral intensive lecture styles, group work or breakout sessions that involve quick discussions with mostly hearing peers, fast moving classes in which there is no time allowed for interpreters to catch up with materials and note-taking, which is made difficult by having to watch all at once; the interpreter, the instructor and any visuals such as the writing on the board or power point slides. The University of Vermont Centre on Disability and Community Inclusion went on to say that the greatest obstacle to successful learning for hearing impaired students is the typical lecture class which is definitely not hearing impaired friendly.

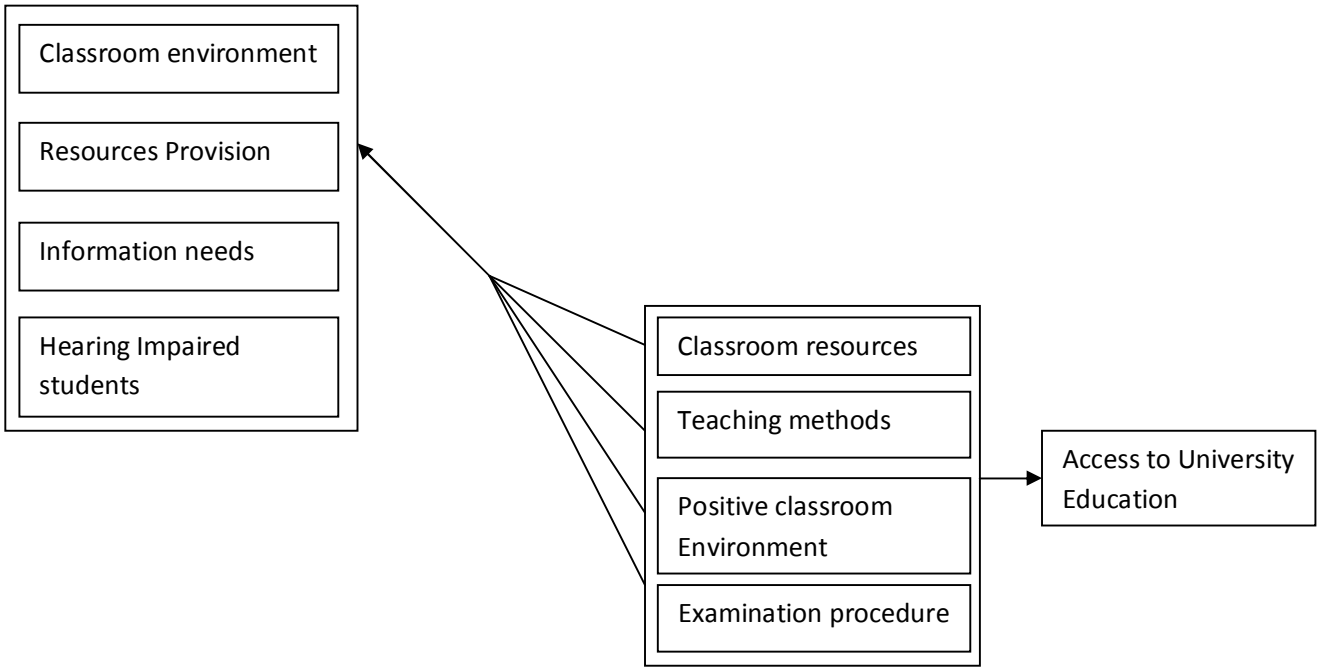
Relevant Evaluation Environment for Students with Hearing Impairment

Evaluation procedure for hearing impaired students may not generally follow the pattern adopted for normal students. Holmsglen (2014) advised that in considering evaluation procedure for students with hearing impairment, emphasis should be laid more on providing equal opportunities for the students to perform. The Holmsglen went on to say that instructors are not expected to lower standards to accommodate students with hearing impairment but rather are required to give them a reasonable opportunity to demonstrate what they have learned. The Holmsglen further advised that during assessment, instructors should, as occasion demands, permit students with hearing impairment to use a thesaurus, dictionary or a computer with a spelling and grammar functions, be flexible with assignment deadlines, particularly if students have to wait for taped materials to be transcribed, provide extra time in examinations,

particularly extra time for reading questions. Some students will prefer to have questions and instructions signed to them.

Lancaster, Mellard and Hoffman in Cawthon, Nicholas and Collier (2009) looked at the evaluation procedures reported by students with disabilities in Community and technical colleges in three states of the United States of America. In the study 10% to 15% of the students reported using extended time, a quite testing location or a note taker. The University of Cambridge disability resource Centre suggested that during evaluation, Instructors should allow extra time for hearing impaired students during examinations, adapt examination papers into plain English and assess students on their subject knowledge, not their grasp of English grammar.

Fig. 1. **Schematic diagram showing relationship between the variables of the study and literature review**



Theoretical Framework

There are two theories that are significant to this study. They are the Medical theory and the Social theories of disability. The theories are important in explaining the situation of disabled people in the world.

The Medical Theory of Disability (*World Health Organization (WHO), 1980*)

The medical theory of disability was developed in 1980 by the World Health Organization. The theory labeled hearing impairment as a ñdeficit to be correctedò. . The theory posits that disability is a natural disadvantage suffered by disabled individuals when placed in competitive social situations with able people. In principle the medical theory of disability is saying that disability is the personal problem of the person having impairment, the impairment places the individual in a disadvantaged position in the society, the ability of the person to function effectively in society depends on the ability of the doctors to cure or reduce the impairment, the person with impairment is helpless and cannot help him/herself and the inability of the person to function effectively in the society is as a result of his/her impairment.

By implication, the student with hearing impairment in the same University classroom with hearing students should not blame anyone for his/her inability to partake in classroom discussions. The Instructor or University need not make extra efforts to ensure that students with hearing impairment to participate in classroom discussion. Instead, the students with hearing impairment should cater for him/herself in class. This theory is closely related to this study because it is on this theory that all education problems (Lack of teaching /learning resources,

ineffective teaching method, negative classroom and examination environment) encountered by students with disability hinged.

The Social Theory of Disability (*Union of the Physically Impaired against Segregation (UPIAS), 1976*)

The social theory of disability originated from the Union of Physically Impaired against Segregation in disabled person(s) in 1976. The theory posits that the difficulties disabled people suffer in society are as a result of societyôs failure to provide appropriate services and adequately ensure the needs of disabled people are fully taken into account in its social organizations. Disability according to the social theory encompasses all factors that impose restrictions on people with disabilities. In principle, the social theory of disability explained that the problems of students with hearing impairment are caused by the society in which the hearing impaired students find themselves, in this case Nigerian Universities, failure of hearing impaired students to graduate out of universities in Nigeria is as a result of failure on the part of the universities to provide a good classroom environment for meeting the information needs of students with disability, students with hearing impairment are not helpless and can help themselves if appropriate conditions are provided, impairment is not a personal problem but a societal problem.

By implication, it is the responsibility of the University to provide effective teaching methods, teaching techniques, classroom facilities required by students with hearing impairment to function effectively in the classroom. The social theory of disability can be used to explain the situation of students in Nigerian Federal Universities. Though the government had it on paper that all Nigerian Universities are authorized to admit hearing

impaired students (WFD, 2008), research has shown that equipments and materials to help these students in classroom communication are lacking.

Review of Related Empirical Studies

Some empirical or field studies that relate to students with hearing impairment were reviewed in this section. They include works on communication and adjustment problems faced by students with hearing impairment, methods of instruction for hearing impaired students and academic achievement of students with hearing impairment in inclusive classrooms.

Communication and adjustment problems faced by students with hearing impairment

Foster, Long and Snell (1999) carried out a research on Inclusive Instruction and Learning for Deaf Students in Post Secondary Education Institutions in New York, USA. The researchers explored how students who are hearing impaired and their teachers experience mainstream college classes. The population of the study was made up of 93 people (76 students and 17 Instructors). Both quantitative and qualitative procedures were used to examine studentôs access to information and their sense of belonging and engagement in learning. Quantitative tools used for the study include the Academic Engagement Form (AEF) and the Classroom Communication Ease Scale (CCES). Interviews were held with instructors using qualitative methods. Instructors were asked to discuss their approach to teaching and any instructional modifications made to address needs of learners. Descriptive statistics involving mean, frequency counts and percentages were used in analyzing data gathered. Results indicate that hearing impaired students view classroom communication and engagement in a similar manner as their hearing peers. Hearing impaired students were more concerned about the pace of instruction and did not feel as much a part of the university family as did their hearing peers. Faculty generally indicated that

they made few if any modifications for hearing impaired students and saw support service faculty as responsible for the success or failure of the hearing impaired students. The physical set up of many classrooms create barriers for deaf students by reducing the degree of direct contact between student and instructor. Some teaching strategies and instructional styles make classroom learning more difficult for hearing impaired students even with note takers and interpreters. The participation of the hearing impaired students is sometimes limited by differences in the ways that instructors respond to potentially disruptive behaviors in the class. The study concluded that mainstream post secondary educational settings pose special challenges for deaf students as such, interventions must be designed that are specific, involved changes in the behavior of both students and instructors, and target and reward best practices and educational models. Additionally, the extended benefits of improved access to instruction for deaf students to all students must be emphasized. The authors recommended amongst others that Instructors should lay emphasis on the similarities between deaf and hearing students and those instructional practices that enhance learning for everyone. Though both works are related and are interested in teaching and learning in inclusive classrooms, their major difference lies in the result the present study intends to achieve and the place where the study took place. While the former aims to highlight classroom experiences of hearing impaired students, the present study is more interested in studying the methods and materials use for instruction that may lead to academic success for hearing/speech impaired students. Moreover, while the former research took place in a developed nation-USA, the present study will take place in Nigeria, a developing country.

Antia, Jones, Reed and Kreimeyer (2009) studied the Academic Status and Progress of students with hearing impairment in General Education Classrooms in Arizona and Colorado. The study participants were 197 hearing impaired students with mild to profound hearing loss

who attended general education class for 2 or more hours per day. The authors obtained demographic data, teacherôs rating of studentôs communication, students self ratings of classroom participation and preferred communication mode. Normative academic status was measured using standardized achievement tests normally administered as part of the state accountability system. Classroom academic status was measured through a teacher rating scale- the academic Competence Scale of the Social Skills Rating System (SSRS). Academic progress was examined on both normative and classroom academic data. The authors obtained scores on standardized achievement tests of mathematics, reading, and language/writing, and standardized teacherôs ratings of academic competence annually, for 5 years, together with other demographic and communication data. Descriptive statistics involving mean, standard deviation, frequency counts and percentages were used to analyze the data. Results on standardized achievement tests indicated that, over the 5-year period, 63% - 79% of studentsô scores in the average or above average range in mathematics, 48%-68% in reading, and 55%-76% in language/writing. The standardized test scores for the group were, on the average, half an SD below hearing norms. Average student progress in each subject area was consistent with or better than that made by the norm group of hearing students, and 79%-81% of students made one or more yearôs progress annually. Teachers rated 69%-81% of student as average or above average in academic competence over the 5years. The teachersô ratings also indicated that 89% of students made average or above average progress. Studentôs expressive and receptive communication, classroom participation, communication mode, and parental participation in school were significantly, but moderately, related to academic outcomes. . It was concluded that the result obtained from the study was based on a sample of students from two states in USA. Additional longitudinal studies of the progress of deaf and Hard of hearing students will add to the

knowledge of the capabilities of these students, the areas in which they need the most support from teachers of deaf and hard of hearing students and the expectations that instructors should hold for their academic success. The authors recommended that though teachers may not be able to change demographic and historical variables that contribute to academic success for these students, they can focus on the communication skills and communication supports that influence success. The authors further recommended that teachers of hearing impaired students should ensure that appropriate communication supports (such as interpreters) are in place and should work with general education teachers to change aspects of the classroom environment and activities that hinder participation in classroom communication for students with hearing impairment. This work is relevant to the present study because it studied teaching and learning in inclusive classrooms. Though they are related, the study was more concerned with the academic status and progress of students with hearing impairment compared to normal students. The work failed to study the methods and materials for teaching and learning in inclusive classrooms which are crucial for students with hearing impairment in making academic progress. It is this gap that this work intends to fill.

Dogoe-Torsu (2012) carried out a study on communication barriers as a cause for low academic performance of students with hearing impairment at Mawuko Girls Senior High School, Ghana. The population of the study was made up of 20 people being six students with hearing problems and 14 teachers who teach them. Questionnaire, interviews and documentations were used to gather information. The data collected were analyzed using frequencies and percentages. The result of the data analysis revealed that hearing problems affect communication of the individual in the general classroom. All the hearing impaired students in the study agreed that they hear part of the proceedings in the classroom but not all. When asked

whether the hearing impaired students converse fluently with their friends in the class, 67% of the respondents said not always. They gave the reason for their response as their inability to hear all parts of their friendôs conversation which embarrasses them. 33% said that the situation in the class has forced them to become reserved as their friends become offended when they asked them to repeat what they said. The study further revealed that a communication barrier is a cause of low academic performance of hearing impaired students. All the hearing impaired students in the study complained that they cannot make out differences in speech sounds. 33% of the respondents said that though they usually spend much time on reading their text books or notes, they find it difficult to retain what they had read. As a result, they prefer subjects that involve more calculations. 50% of the respondents said that in examinations rooms, they need to read the questions several times before they could understand, which made them unable to answer all questions required before time is up. 17% of the respondents complained bitterly of the frustrations they go through in the classroom which affects their studies hence, their low academic achievement. It was further revealed in the study that only 50% of the teacher respondents were aware that sensory impairment (hearing impairment) can affect the academic performance of students. It was further revealed that 71% of the teachers in the study had training in identifying sensory impaired students in the classroom. On how the students are managed in the class room, the responses of the teachers varied. 43% said that they make referral to the municipal special educational needs coordinator through the school principal, 36% said they change the seating positions of the students in the classroom in order to enable them benefit from the proceedings in the classroom while 21% said they give them special attention in the class. The author concluded that communication difficulties adversely influence school achievement, social and emotional development and interaction with others. The study

recommended that all tertiary institutions must include studies on disabilities in the course content of all areas of learning in their institutions and that teachers in general education classrooms need to be mindful of the probability of the presence of students with hidden sensory impairments in their classrooms which may affect their academic achievement. This work is relevant to the present study in that it highlighted how communication barrier can hinder learning for students with hearing impairment. But while the work was done among secondary school students in Ghana, the present work will look at methods and materials for teaching university students with hearing impairment in Nigeria.

Power and Hyde (2002) carried out a national randomly selected survey of a sample of hearing impaired students included in regular classes from kindergarten to high school in Australia. 143 itinerant teachers participated in the study. The study was conducted via a questionnaire to itinerant teachers working with such students. The questionnaire sort information on the demographic characteristics of the students and a set of characteristics of their behavior in their placement in terms of participation in aspects of class activities. These aspects were level of integration, academic participation, level of independence and social participation. Data were collected and analyzed in terms of the above demographic and participatory characteristics of the students using content analysis method. The authors compared the result with reports from the United States and Great Britain and discuss implications for hearing impaired students included in regular classes. The result showed that the students were fully integrated into the class, two-thirds of the students were on competitive level with their hearing peers and few were regarded as being completely independence in the class. Only a few of the students can participate in class without special assistant. The authors concluded that models of support and results of regular classroom placement, despite some differences are substantially

similar in the Unites States and Australia. Additionally, with appropriate support from regular class teachers and itinerant teachers of students with hearing impairment, most students with hearing impairment seems to make satisfactory adjustment to academic and social life with their hearing peers. The authors recommended amongst others that teachers and school administrators should develop programs to target better development for students in areas in which they have some difficulty and that appropriate support services should be provided for hearing impaired students to enable them make satisfactory adjustment to academic and social life with their hearing peers.

While this work is related to the presented one, in that it dealt with the education of the hearing impaired students in terms of integration, participation in class and other social function, it failed to show the method(s) used in teaching and learning in such an inclusive classroom environment. Moreover, the work was carried out among high school students. It is this gap that this study intends to fill by studying the methods and materials use in teaching students with hearing impairment in Nigerian Federal Universities.

Polat (2003) studied the factors affecting psychosocial adjustment of deaf students in Turkey. Among the factors studied are student related background and experiential characteristics, parent related variables, school related factors and teacher related variables. The population of the study was made up of 1,097 hearing impaired student enrolled in the elementary, secondary and high schools in Turkey. The population was drawn from 34 schools in 24 cities on a national geographical spread. The meadow/ Kendall Social and Emotional and Emotional Adjustment Inventory (SEAL), school age version was used for data collection. Multiple regression analysis of collected data revealed that degree of hearing loss, additional handicap, and age at onset of deafness were negatively related to psychosocial adjustment of

deaf students. However, there was a positive relationship between psychosocial variables and some of the independent variables, such as use of hearing aids, speech intelligibility, academic achievement, parental hearing status and communication methods used at school. The findings of the study did not support a pathological view of deafness, suggesting that it was not deafness per se but that some environmental factors were also influential on the psychological adjustment of hearing impaired students. The author concluded that the outcome of mainstreaming is affected by availability and effectiveness of support services. Thus further investigation should consider this aspect of mainstreaming. The author recommended that careful study of research on inclusive education should be carried out in two dimensions:

1. The students social experiences (e.g interaction between hearing and deaf students, attitudes of hearing students towards deaf students) in classes with hearing peers should be compared with their experiences in residential schools or in special day schools.

2. The extent to which psychosocial development is promoted when students are placed in classes with hearing peers.

This work is relevant to this study because it studied school and teacher related factors in promoting access to the general curriculum for hearing impaired students which is part of what the present study sets out to do. The study was carried out in Turkey, a Middle East country, the present study will be carried out in Nigeria, an African nation.

Oyewumi (2008) investigated inclusive instructional practices and learning of students with hearing impairment in post secondary schools in Oyo state, Nigeria. The study employed a descriptive survey research design. Questionnaire was used to gather information. Copies of the

questionnaire were administered to 250 participants purposively selected in post secondary schools. The 250 participants were made up of 100 teachers and 150 hearing impaired students. Frequency counts, percentages, mean and standard deviation were used in analyzing the data generated for the four research questions used for the study. The result affirmed the virtues of inclusive education and also noted that significant number of the sampled teachers did not possess teaching credentials and do not have special education training. Hence they lacked basic skills in teaching students with special needs, especially the hearing impaired, plagued with communication problems. Further, the pertinent role of interpreters was reiterated. However, the hearing impaired students were comfortable with peers and lecturers. The author concluded that every post secondary institution should establish a Disability Liaison Unit (DLU) where every special need students will register at the beginning of each session or upon entry into the institution so that adequate support and accommodation will be made for their academic activities as well as other social support services. The study recommended that teachers should be given opportunities to attend courses or workshops on inclusive education. The study further recommended that teacher training institutes and colleges should also include concept of inclusion as part of their curriculum. This study is similar to the present study. It looked at inclusive instructional practices in Nigerian post secondary schools five years ago. Post secondary schools include colleges of education, polytechnics and Universities. This work intends to look at what the situation looks like five years after, in Federal Government Universities in Nigeria.

Safder, Akhtar, Fatima and Malik (2012) carried out a qualitative study of problems faced by students with hearing impairment in inclusive education at the University level in Punjab, Lahore, Pakistan. The sample of the study consisted of four deaf students studying in

Department of Special Education, University of the Punjab, Lahore, Pakistan. A structured interview with open-ended questions was used to investigate the problems of students with hearing impairment. Collected data were analyzed through content analysis method (transcribing and coding the statements given by the deaf subjects). It was found that students with hearing impairment were facing many difficulties regarding mode of instruction used by the teachers in class room; lack of sign language interpreters, and teachersô (inability to use) sign language during instruction. It was surprising to find out that students with hearing impairment did not report any difficulty (socializing) with their hearing counterparts. The authors concluded that the problems faced by students with hearing impairment undertaking university education is caused by lack of lecturers who are skilled in using sign languages. The authors recommended that the problems of students with hearing impairment can be reduced if at least one sign language interpreter is employed in every department where there are hearing impaired students and that instructors should be encouraged to learn sign language with the help of students with hearing impairment, their colleagues and above all by attending training workshops and refresher courses on sign language. The work is relevant to the present study because it focuses on teaching and learning of hearing impaired students in inclusive classrooms which the present study set out to do too. But, though both are interested in teaching and learning in inclusive classroom, the present study is more interested in the study of classroom environment for delivering library instruction rather than the problems the students face.

Methods of Instruction for hearing impaired students.

Falaye and Komolafe (2007) studied the effectiveness of peer tutoring and self ï instructional training strategies in fostering reasoning skills among hearing impaired children in Ibadan, Nigeria. A pre-test, post-test control group experimental design using a 3x2x2 factorial

matrix was adopted. Forty ï eight hearing impaired pupils, randomly drawn from three special schools participated in the study. These were categorized using the battery operated audiometer into degrees of hearing impairment and the experimental groups with gender also used as a moderating variable in the design. Two hypotheses were postulated and tested at 0.05 level of significance. An adopted version of the Ravenôs Standard Progressive Matrice, the Reasoning Assessment Test and a Mental Ability Test were used for data collection. The analysis of covariance was used to analyze the data in the study. Both strategies effectively fostered reasoning skills. Participants exposed to peer tutoring strategies performed better on reasoning skills than those exposed to self instructional training and the control group. A significant difference existed in the reasoning skills of male and female participants exposed to treatments and the control group (x=52.5 for males and x=47.5 for female). The author concluded that though the findings of the study indicated that non-conventional teaching strategies can effectively foster reasoning skills among Nigerian children with special education needs, the findings in no way foreclose the multifarious challenges the implementation of an inclusive education programme will face in the country. The author therefore recommended that teaching strategies such as those used in the study can be used conveniently in an inclusive class setting. This work is related to the present study in that it dealt with the education of hearing impaired children in inclusive environment by comparing two teaching methods. Research has shown that there are more than two methods of teaching students with hearing impairment in an inclusive classroom. It is this gap that this work intends to fill by highlighting all other methods of teaching students with hearing impairment in an inclusive environment which can lead to successful academic programme.

Atinmo and Egunjobi (2010) carried out a comparative study of Captioned Video and Face to Face Instruction for Secondary School Students with hearing Impairment in Oyo state, Nigeria. Three out of the four secondary schools in Oyo State that offer integrated education to students with hearing impairment were randomly selected for the study using lot casting A total of 39 students made up of 21 males and 18 females participated in the study. The study adopted a quasi-experimental pre-test, post-test, control group design. This study employed two treatment groups comprising captioned video instruction group (Experimental group 1) and face to face instruction group (Experimental group 2) as well as a control group. Two research instruments-Library Use Instruction Test and Library Practical Use Checklist which were purposely developed for this study were used for data collection. The collected data was analyzed using t-test and analysis of covariance with the pretest scores as covariate. The result showed a significant difference in favor of face to face instructional approach in the learning outcomes of participants than the control group. This indicates that face to face instructional strategy could be effective as a strategy in library use instruction of students with hearing impairment. As of the students exposed to captioned video instruction and the control group, there was a significant difference in the learning outcomes of the participants in favor of captioned video instruction. This suggests that captioned video instruction on its own is effective in library use instruction of students with hearing impairment. In comparing the two strategies, the study revealed that there was no significant difference in the learning outcomes of participants exposed to face to face instructional strategy and captioned video instruction. The authors concluded that both instructional strategies are effective in giving library instructions to persons with hearing impairment. This implies that various instructional strategies designed for persons with normal hearing could be modified and gainfully used in instructing persons with hearing impairment

especially on library use. The author recommended that library instruction should be included in the school curriculum for student with hearing impairment in order for them to become independent and confident users of information source. Librarians serving persons with hearing impairment should ensure to have a rich collection of captioned video. Schools offering integration to persons with hearing impairment should be encouraged to produce captioned video for the educational instruction of their students amongst others. This work is relevant to the present study in that it dealt on methods of delivering instruction to students with hearing impairment. But while it is more interested in comparing only two methods of delivery library instruction to students with hearing impairment in secondary school, the present study is interested in appraising all instructional methods used in delivering library instruction to students with hearing impairment in Nigerian Federal Universities.

Omoniyi and Oluniyi (2012) investigated the impact of captioned video instruction on Nigerian hearing impaired pupilsô performance in English language. Simple random technique was used to draw 20 (10 males and 10 females) pupils from each of the schools to constitute experimental and control groups. The study adopted quasi-experimental pretest, post test, control group design. The experimental group was exposed to captioned video instruction while the control group was taught using the conventional teaching method for the hearing impaired. Two hypotheses were raised and field validated Primary English Performance Test (PEPT) used as data collection instrument. The study concluded that both instructional strategies were effective in giving English language instruction to hearing impaired pupils, as performance of the two groups did not indicate any significant difference and gender did not influence their performance either. The authors concluded that educational attainment of hearing impaired students depends a lot on the quality of teaching and technologies adopted in the process. Consequently, it was

recommended that teachers should be trained to design and develop captioned video, and infrastructural base for their use in the schools provided by Government. This work is related to the present work because it discussed teaching and learning of hearing impaired students. But, while this work is interested in comparing two teaching methods, the present study is more interested in studying all methods used in delivering instruction to hearing impaired students.

Saur and Popp (1984) studied the action zone theory and students with hearing impairment in mainstreamed classroom. The study examined the effect of the action zone phenomenon on the classroom participation of mainstreamed hearing impaired students in Rochester Institute of Technology, New York. The students with hearing impairment were constrained by their need for visual input to sitting on the sides of the classroom, out of the action zone. Action zone refers to areas of high interaction and participation in a classroom. The population of the study was made up of six mainstreamed students. Data for the study was collected through observation method. Three trained observers collected data on the location and nature of student - teacher interaction. Interactions were coded on a seating chart noting as to whether they were student initiated or instructor initiated. The seating location of the hearing impaired students was noted for all coding sessions. At the beginning of a class period, the observer noted the seats which were occupied in the classroom. This was done in order to obtain an accurate count of the persons sitting within and outside of the action zone. The dominant teaching style in all classes observed was the traditional lecture method, though the instructors varies their presentations with short films, overhead projectors, music, board work etc. All interactions were totaled according to seating position over all observation periods. These interactions were further aggregated according to the designated action zone of the classroom. The result showed that it is not the teaching method per se that dictates the creation of an action

zone but the way in which the method of teaching is implemented. In that case, the author concluded that the action zone is the creation of the teacher. The author recommended that instructors, whether of hearing impaired students or not should be aware of how they direct their teaching as well as what they teach and that instructors should structure the class in such a way that all students have opportunity to participate. The study is related to the present research in that it discussed teaching and learning in an inclusive classroom environment, but while this work was done overseas in New York, USA, the present study will appraise the methods of delivering instruction to hearing impaired students in Nigeria, a West African Country.

Cawthon, Nichols and Collier (2009) carried out a study on accommodation information available online for students with hearing impairment in all postsecondary institutions in Texas. A systematic review of published online policies of post secondary institutions was used to summarize accommodations and services available for instruction, assessment and campus life. Content analyses were used to analyze the data collected. In the absence of online information for some schools, the researchers through the Texas Commission on Higher Education contact list (2007) obtained accommodation documents from Campus Coordinators of disability services of each College or University in Texas. The study revealed that out of the 157 schools reviewed, just under half (78) had information about accommodations on their school website. The accommodation services listed on the websites are extended time on examination (not unlimited time), a distraction reduced environment for taking test, note taking service, tape recording (Use of tape recording in class), availability of assistive listening devices (FM System), Scribe, Sign Language Interpreter and preferred seating arrangement.

Among non-academic services provided by the institution are referrals to community resources and course registration assistance. The authors discussed the results in the context of

information that perspective students may need to make informed choices regarding post secondary education. In conclusion, the authors stated that providing clear and meaningful access points to campus resources can play an important role in ensuring that students with hearing impairment receive the accommodations necessary for success in higher education. Recommendations given by the author include that for post secondary schools to be proactive regarding students with disabilities, it may be useful to have clear link to the accommodations page from the main website for the college or university and that it may be helpful for institutions to clearly designate a disability services director within their administrative structure. This work is related to the preset study because it studied accommodation made for students with hearing impairment by their universities, which is part of what the present study intends to study. The present study will apart from studying accommodations made for hearing impaired students; go further to look at methods and materials of Instruction, Instructors teaching techniques etc. Moreover, while the study was carried out in Texas, United States of America, the present study was carried out in Nigeria, a West African country.

Academic achievement of students with hearing impairment in inclusive classrooms

Eke and Oladayo (2013) carried out an ex post facto research designed to determine the extent to which regular (normal) pupils and special needs pupils (visual and hearing impaired) in inclusive and non inclusive classrooms differ in their academic achievement. It was carried out in Port Harcourt, Rivers State of Nigeria. The population of the study consist of 206 primary 5 pupils (63 special needs pupils and 95 regular pupils from two privately owned inclusive schools, one government owned special school and one public (regular) primary school. A sample of 158 pupils made up of 63 special needs pupils (27 from inclusive schools and 36 from special school); and 95 regular (Normal) pupils (39 from the inclusive schools and 56 from the

regular (non-inclusive) public primary school was used for the study. Purposive and simple random sampling techniques via balloting were used to draw the sample. Three research questions and three null hypotheses guided the study. Data for the study were obtained from the 2010/2011 promotion examination scores records of students, as maintained in the schools under study. Mean (x), Standard deviation (SD) and t-test were used to analyze the research questions and test the null hypotheses respectively. Results showed significant difference in the academic achievement of regular and special needs students in inclusive classroom setting, in favor of the regular pupils; significant difference existed in the academic achievement of special needs pupils in inclusive and non-inclusive classrooms, in favor of those raised in inclusive classrooms; regular pupils raised in inclusive and non-inclusive classrooms differed significantly in their academic achievement, in favor of those in inclusive classrooms. The authors concluded that inclusion is a much better option for the education of students with hearing impairment. Based on the results, recommendations were made, including that regular and special needs students should be brought together in inclusive classrooms; regular and special education teachers should be employed to teach students in inclusive classrooms and workshops and trainings should be organized for academic and non-academic staff in inclusive schools. While this work showed that hearing impaired students learn more under inclusive education, the present study will go further to highlight instructional methods and materials that can be used in delivering instruction to students with hearing impairment.

Summary of Literature Review

Literature review for the study was done under three main headings ï Conceptual framework, theoretical framework and empirical studies. The literature review revealed that hearing impairment can have adverse effect on teaching and learning. The literature review also

revealed that the academic success of students with hearing impairment to a great extent depends on the teacher and the institution. On the part of the teacher is to teach in a way that facilitates access to classroom communication to the impaired students, and on the part of the institution, to provide teaching materials (inform of note takers, sign language interpreters, projectors, television sets etc), modify the classroom (technical adaptations) and evaluation procedure to suit the needs of the students with hearing impairment. The literature review further threw light on the two theories that underpin the plight of disabled people in the world, the medical theory - which sees disability as a personal problem of individuals and the social theory which sees it as the creation of the environment where the individual finds him/herself. The social theory especially is important to this study as it is on the bases of it that the concept of inclusive education emerged.

Many of the works reviewed under literature review dealt on communication and adjustment problems faced by students with hearing impairment in an inclusive classroom. Others focused on comparing the effectiveness of one instruction method to another. Though, all of them are related to this work due to the fact that they all explored teaching and learning in inclusive environment, many except six (one in Ghana and five in Nigeria) were done in overseas both developing and developed nations. Of the five that were done in Nigeria, three were interested in comparing two teaching methods, one examined the academic performance of hearing impaired students with that of normal students while one, which is supposed to be closely related to this work, was done more than five years ago in post secondary institutions in Oyo State. Post secondary institutions can mean Colleges of Education, Polytechnics or Universities. The author was not specific where the study actually took place. Moreover, the work is dated; having been done more than five years ago. None of the works studied, studied

classroom environment and resources required for meeting the information needs of students with hearing impairment in Federal Universities in Nigeria. It is on this premise that this work set out to close this gap.

CHAPTER THREE

RESEARCH METHOD

This chapter presents the procedure adopted in carrying out this study. It describes the design of the study, the area of the study, the population of the study, sample and sampling techniques, the instrument for data collection, validation of the instrument, reliability of the instrument, method of data collection and method of data analysis.

Design of the study

This study employed descriptive Survey design. Descriptive research entails the systematic collection and presentation of data to give a clear picture of a particular situation (Ali, 2006). This type of study is primarily concerned with finding out the situation at hand (Gay, Mills and Airasian, 2006). Since the aim of this study is to describe the type of classroom environment and resources required for meeting the information needs of students with hearing impairment, this design is considered appropriate and suitable for the study.

Area of the Study

The area of this study is Nigeria. Nigeria covers an area of 913,073 square meters on the shores of the gulf of Guinea, with Benin to the West, Niger to the North, Chad to the North-East and Cameroon to the East and South East (Mabogunje, 2003). Nigeria is made up of 36 states and the federal capital territory, Abuja. Each of these states has a Federal Government funded University. Nigeria has a population of about 153 million people (Uwecheu, 1996). 14% of this population is hearing impaired (Adebayo, 2015). Though the Nigerian nation possesses an incredible wealth of promising and intelligent disabled people, it has been observed that this people are incapacitated to realize their full potential (Alaukwu, 2006). This study is centered on

Federal Universities in Nigeria. This is because the Nigerian Government mandated all Federal government owned universities to admit students with hearing impairment (Ojili, 1997). Moreover Federal Universities are the most highly funded public Universities in the country.

Population of the Study

The population of the study is made up 17, 517 respondents. This consists of 17, 386 lecturers in Nigerian Federal Universities (National Bureau of Statistics (NBS) (2008) and 131 students with hearing impairment. (Nigerian National Association of Deaf Students, 2015). Among the Lecturers, there are 2676 Professors, 1, 339 Readers, 5, 349 Senior Lecturers and 8,022 other lecturers below the rank of senior lecturer (Association of Commonwealth Universities, 2008). Unfortunately, there is no record of how many of the lecturers are male or female. Among the hearing impaired students, 81 are deaf and 50 hard of hearing. 76 are males and 55 are females

Sample and Sampling Technique

194 people formed the sample for the study. This consists of 63 special educators from the Universities of Calabar (21); Ibadan (16); Jos (17) and Ilorin (9) (Departmental Records of the Universities) and 131 students with hearing impairment in Nigerian Universities. Purposive sampling technique was used to select the four universities (Calabar, Ibadan, Jos and Ilorin) whose special educators participated in the study. These Universities were selected because they were the earliest universities the Federal Government of Nigeria mandated to offer special education programs (Oladejo and Oladejo, 2011). University of Ilorin was included in the study because it was the only university in Nigeria where the Nigerian Federal Government established the Centre for supportive learning for the Deaf. Moreover, Ojili (1997) opined that these are

universities where students with hearing impairment can successfully pursue post secondary education in Nigeria alongside their hearing counterparts. The whole students with hearing impairment in Nigerian Federal Universities participated in the study because there number is small (One hundred and thirty one). Ali, (2006) advised that in situations where the population is small and all the needed criteria to be investigated exist in the small population, there is no need for sampling. Among the lecturers 27 were senior academics (Lecturers from the ranks of senior lecturers to Professors) while 36 were junior academics (Lecturers from the ranks of Assistant Lecturers to Lecturers 1). Among the studentôs respondents, 37 of the students are hard of hearing while 65 are deaf. 7 of the students acquired the impairment at birth while the rest (56) acquired it after birth.

Instrument for Data Collection

Two types of research instruments were used for this study. They are ñClassroom Environment and Resources for students with Hearing Impairment Questionnaire ((CESHIQ)ô 1 & 2. The Questionnaires were constructed by the researcher for the study based on literature review. CESHIQ form 1was for lecturers while CESHIQ form 2 was for students. The Lecturers questionnaire was made up of two parts ï A &B. Part A was used to gather information on the demographic information of the lecturers. Part B has four clusters. Cluster 1 sought information on research question two (What are the instructional methods for meeting the information needs of students with hearing in Nigerian Federal Universities?). It has eight items with response options of Strongly Agree (SA) 4 points, Agree (A) 3 points, Disagree (D) 2 points and Strongly Disagree (SD) 1 point.. Cluster 2 sought information on research question three (What are the Classroom resources needed for meeting the information needs of students with hearing impairment in Nigerian Federal Universities?). It has twenty-eight items with response options of

Very Highly Needed (VHN) 4 points, Highly Needed (HN) 3 points. Needed (N) 2 points and Not Needed (NN) 1 point. Cluster 3 sought information on research question four (What are the strategies required for creating positive classroom environment for meeting the information needs of students with hearing impairment in Nigerian Federal Universities). It has eighteen items with response options of Strongly Agree (SA) 4 points, Agree (A) 3 points, Disagree (D) 2 points and Strongly Disagree (SD) 1 point. Cluster 4 sought information on research question five (What are the relevant examination environments for students with hearing impairment). It has ten items with response options of Very Highly Relevant (VHR) 4 points, Highly Relevant (HR) 3 points, Relevant (R) 2 points, and Not Relevant (NT) 1 point.

Like the lecturers questionnaire, the studentôs questionnaire is made up of parts A &B. Part A was used to gather demographic data on the students. Part B has three clusters. Cluster one sought information on research question one (What are the information needs of students with hearing impairment in Nigerian Federal Universities?). It has eight items with response options of Strongly Agree (SA) 4 points, Agree (A) 3 points, Disagree (D) 2 points and Strongly Disagree (SD) 1. Cluster two sought information on research question three (What are the Classroom resources needed for meeting the information needs of students with hearing impairment in Nigerian Federal Universities?). It has twenty-eight items with response options of Very Highly Needed (VHN) 4 points, Highly Needed (HN) 3 points. Needed (N) 2 points and Not Needed (NN) 1 point .. Cluster three sought information on research question five (What are the relevant examination environment for students with hearing impairment in Nigerian Federal Universities?). It has ten items with response options of Very Highly Relevant (VHR) 4 points, Highly Relevant (HR) 3 points, Relevant (R) 2 points, and Not Relevant (NR) 1 point.

The highest weighting indices in all the clusters (of the two questionnaires) were 4, followed

by 3, 2 and 1. Within the two questionnaires, there were questions that were specific to a particular group of respondents; hence the question appeared in that groupôs questionnaire only. There were also questions that needed responses from the two groups of respondents; as such the same question appeared in both questionnaires.

1. Focus group discussions ï were used to gather more information from students with hearing impairment with the aid of sign language interpreters. The focus group discussions were used to gather information on research questions 1, 3, and 5. The focus group discussions were guided by a focus group discussion guide prepared by the researcher. The focus group discussion guide was made up of three sections (A, B and C). Section A was used to gather demographic information of the participants. Section B was the introduction section. It contained information on people that conducted the focus group discussion, the purpose of the focus group and the rules that guided the discussion. Section C of the Focus group discussion guide contained the focus group discussion questions. The questions were grouped according to the research questions information was being solicited for. Thus, there were questions on research questions 1, 3, and 5. On the whole, there were twelve questions on the focus group discussion guide.

Validation of the Instruments

The questionnaires were face validated by three experts from University of Nigeria Nsukka. Two of the experts were from the Department of Library and Information Science and one from Measurement and Evaluation. To guide the validates, the researcher provided information on the title of the thesis, the purpose of the study, research questions and hypothesesô that guided the study. Specific request was made on them to critically examine the items of the instruments in terms of clarity of language, relevance of each item in providing

information that will help to answer the research question and test the hypotheses. The validates recommended that the researcher should provide photocopies of some of the materials which she used for literature review. These (materials used for literature review) were provided. The validates considered some of the items in Section A (Demographic Information) of the questionnaire as irrelevant and requested that they should be removed. The validates also recommended that the instrument should be separated into Students and Lecturers questionnaires. All the validates other observations, corrections and suggestions were properly taken care of and reflected in the final draft of the questionnaires before taking them for trial testing.

On the Focus group discussion guide, the Validates recommended that the instrument should be re-constructed to include information on the institutional address of the researcher, demographic information of the respondents and the rules guiding the discussion. The Validates also recommended that the Focus group discussion questions should contain both exploratory (questions that dealt with the issue under discussion) and exit questions (questions to help ensure that nothing was missed in the discussion). All these recommendations were taken care of in the final construction of the Focus group discussion guide.

Reliability of the Instrument

As for the reliability of the instruments, Classroom environment and Hearing Impaired Students Questionnaireò(CEHISQ)1 (Lecturers questionnaire) was trial- tested on twenty lecturers of University of Uyo, Akwa Ibom State while Classroom Environment and Hearing Impaired Students Questionnaireò(CEHISQ)11 (Students questionnaire) was trial tested on 20 students with hearing impairment drawn from five state universities in South South geopolitical

zone of Nigeria. These are: Edo State University (6), Delta State University (3), Rivers State University of Science and Technology (5), Cross River State University of Science and Technology (4) and Akwa Ibom State University (2). Upon analysis of the responses to the questionnaire, Cronbach Alpha method was used to determine the internal consistency of the items of the instruments. The instruments show an overall correlation of 0.88 for questionnaire 1 and 0.86 for questionnaire 11. These are near perfect correlation. Furthermore, the following are correlations for groups of items testing different categories of constructs. Questionnaire 1.; Cluster 1 = 0.85; Cluster 2 = 0.88; Cluster 3 = 0.80 and Cluster 4 = 0.84. Questionnaire 11. Cluster 1= 0.89; Cluster 2 = 0.86; Cluster 3 = 0.87. In the light of these encouraging results, the instruments were used for this study.

Method of data collection.

The data gathering instrument Classroom Environment and Resources for students with Hearing Impairment Questionnaire ((CESHIQ)ô 1 (Lecturers questionnaire) was administered with the aid of eight research assistants. Two research assistants were recruited from each of the four Universities that participated in the study. The assistants were well briefed on how to administer the instrument. 63 copies of the lecturers questionnaires were administer and the same number (63) retrieved.

The students questionnaire ñClassroom Environment and Resources for students with Hearing Impairment Questionnaire (CESHIQ)ô 111 (Students questionnaire) was administered to the students through the President of Deaf Students Association of each university with the aid of a Sign Language Interpreter. 131 copies of the studentôs questionnaires were administered and 102 retrieved. Five sets of focus group discussions were conducted for the study. One of the

focus group discussions was held at the Universities of Calabar, Ibadan and Ilorin and two at the University of Jos. The Focus Group Discussions were conducted by Sign Language Interpreters assisted by the researcher. The Sign Language Interpreters sign the discussion questions to the students, and orally interpret the responses to the researcher who was also acting as the recorder.

Method of Data Analysis

Descriptive statistics involving mean and standard deviations were used in analyzing the data gathered from the questionnaires. Mean scores between the ranges of 1.00 ï 2.49 will be considered as what the respondents disagreed (D) on while mean scores between 2.50 and 4.00 will be considered what the respondents agreed (A) on. This procedure was used in analyzing research questions 1, 2, and 4 while real limit of numbers with mean scores between the ranges of 1.00 -1.99 were considered highly not accepted (HNT), 2 -2.49 not accepted (NT), 2.50 -3.00 accepted (A) and 3.01-4.00 highly accepted (HA). This system was used to analyze research questions 3 and 5. T-test was used to test the four hypothesis postulated for the study at 0.05 probability level. Information from the focus group discussion will be transcribed verbatim, coded, tallied and relevant themes identified.

CHAPTER FOUR

RESULTS

This chapter presents the results of the data collected and analyzed for the research questions and hypotheses. The results are presented in line with the research questions and hypotheses that guided the study.

Research Question 1: What are the information needs of students with hearing impairment in Nigeria Federal Universities?

Table 1: Mean and Standard Deviation of Respondents on Information Needs of Students with Hearing Impairment.

	Information needs of students with hearing impairment	**Hard of hearing (N = 37)**			**Deaf (N = 65)**		
S/N		$\bar{x}$	**SD**	**Dec.**	$\bar{x}$	**SD**	**Dec.**
1	Improve Language skills	3.41	0.49	A	3.71	0.45	A
2	Complete class assignment	3.08	0.64	A	3.28	0.69	A
3	Prepare for assigned class presentation	3.00	0.47	A	3.22	0.59	A
4	Prepare for lectures	3.59	0.49	A	3.55	0.53	A
5	Improve personal competencies	3.51	0.55	A	3.31	0.72	A
6	Improve general knowledge	3.54	0.50	A	3.51	0.64	A
7	Prepare for examination	3.19	0.61	A	3.40	0.52	A
8	Acquire research writing skill	3.19	0.56	A	3.45	0.56	A
	Cluster Mean	**3.31**	**0.26**	**A**	**3.43**	**0.30**	**A**

Note: 1.00-2.49 = D, 2.50 - 4.00 = A

Result presented in Table 1 showed the mean and standard deviations of respondents on information needs of students with hearing impairment in Nigeria Federal Universities. Result showed that items 1-8 for the hard of hearing students recorded mean ratings of 3.41, 3.08, 3.00, 3.59, 3.51, 3.54, 3.19 and 3.19 with standard deviations of 0.49, 0.64, 0.47, 0.49, 0.55, 0.50, 0.61

and 0.56 respectively while the deaf students had mean ratings of 3.71, 3.28, 3.22, 3.55, 3.31, 3.51, 3.40 and 3.45 with standard deviations of 0.45, 0.69, 0.59, 0.53, 0.72, 0.64, 0.52 and 0.56 for the same items . The result showed that all the listed items scored well above the 2.50 criterion for accepting an item. This implies that all are the information needs of students with hearing impairment. It should be noted that that the standard deviation of all the items are below 1. This indicates that there is not much divergent of opinions among the respondent and between the two groups. This position was maintained by focus group discussants (FGDs) who held the view that, they need information on the course outline, course note, required textbooks for the course, school rules and regulations, hostel rules and regulations, Course to be offered each semester and the lecturers that will handle them. The Focus group discussion also revealed that the students need information on how to obtain library ID cards and how to borrow materials from the library and how the books in the library are arranged.

Research Question 2: What are the instructional methods for meeting the information needs of students with hearing impairment in Nigerian Federal Universities?

Table 2:Mean and Standard Deviation of Respondents on Instructional Methods for meeting the information needs of Students with Hearing Impairment in Nigerian Universities.

S/N	Instructional Methods for meeting the Information needs of students with hearing impairment.	Universities	N	x̄	SD	Dec.	Total			
							N	x̄	SD	Dec.
1	Peer tutoring	CALABAR	21	3.67	0.47	A	63	3.55	0.60	A
		JOS	17	3.60	0.64	A				
		ILORIN	9	3.72	0.45	A				
		IBADAN	16	3.31	0.67	A				

2	Co-operative teaching	CALABAR	21	3.38	0.81	A	63	3.41	0.69	A
		JOS	17	3.47	0.70	A				
		ILORIN	9	3.33	0.80	A				
		IBADAN	16	3.44	0.49	A				
3	Collaborative teaching (Co-teaching)	CALABAR	21	3.49	0.57	A	63	3.32	0.65	A
		JOS	17	3.31	0.69	A				
		ILORIN	9	3.44	0.66	A				
		IBADAN	16	3.14	0.60	A				
4	Self Instructional method	CALABAR	21	2.29	0.65	D	63	2.69	0.75	A
		JOS	17	2.93	0.74	A				
		ILORIN	9	2.15	0.55	D				
		IBADAN	16	3.11	0.57	A				
5	Captioned Video Instruction	CALABAR	21	3.77	0.56	A	63	3.65	0.70	A
		JOS	17	3.14	0.86	A				
		ILORIN	9	3.63	0.71	A				
		IBADAN	16	3.38	0.48	A				
6	Lecture method	CALABAR	21	2.30	0.63	D	63	2.22	0.90	D
		JOS	17	3.05	0.93	A				
		ILORIN	9	2.11	0.66	D				
		IBADAN	16	2.84	0.92	A				
7	On-line Instruction	CALABAR	21	2.60	0.71	A	63	2.79	0.74	A
		JOS	17	3.04	0.86	A				
		ILORIN	9	2.50	0.72	A				
		IBADAN	16	2.93	0.55	A				
8	Hybrid Instruction	CALABAR	21	2.60	0.74	A	63	2.92	0.74	A
		JOS	17	3.17	0.83	A				

	ILORIN	9	2.67	0.73	A				
	IBADAN	16	3.08	0.54	A				
Cluster mean	CALABAR	21	**3.01**	**0.36**	**A**				
	JOS	17	**3.21**	**0.42**	**A**	63	**3.07**	**0.37**	**A**
	ILORIN	9	**2.94**	**0.31**	**A**				
	IBADAN	16	**3.15**	**0.33**	**A**				

Note: 1.00-2.49 = D, 2.50 - 4.00 = A

Results in Table 2 show the mean ratings and standard deviation of respondents on instructional methods for meeting the information needs of students with hearing impairment in Nigerian Federal Universities. Results showed that items 1 -5, 7 and 8 had total mean ratings of 3.55, 3.41, 3.32, 2.69, 3.45, 2.79 and 2.92 with standard deviations of 0.60, 0.69, 0.65, 0.75, 0.70, 0.74 and 0.74 respectively. Since the mean ratings are above 2.50 criterion for accepting an item, this means the respondents agreed that the following are instructional methods for meeting the information needs of students with hearing impairment, these include; peer tutoring, co-operative teaching, collaborative teaching (co-teaching), self-instructional method, captioned video instruction, on-line instruction and hybrid instruction. Lecture method (item 6) was not accepted by the students as an effective teaching method for meeting the information needs of students with hearing impairment because it had a mean rating of 2.20 which is below the 2.50 criterion for accepting an item.

Research Question 3: What are the Classroom resources needed for meeting the information needs of students with hearing impairment in Nigeria Federal Universities?

Table 3: Mean and Standard Deviation of Respondents on Classroom Resources Required for meeting the information needs of Students with Hearing Impairment.

S/N	Classroom resources required for meeting the information needs of students with hearing impairment. Item Statement	Lecturers (N = 63) $\bar{x}$	SD	Dec.	Students (N = 102) $\bar{x}$	SD	Dec.
1	Sign language interpreters	3.75	0.49	VHN	3.56	0.81	VHN
2	Note takers	3.13	0.74	HN	3.52	0.95	VHN
3	Academic Adviser	3.38	0.68	HN	3.35	0.71	HN
4	Tutors	3.26	0.60	HN	3.43	0.80	HN
5	Course registration assistant	3.08	0.79	HN	2.83	0.93	HN
	Classroom-Non-human resources						
6	Over head projector	3.76	0.46	VHN	3.03	0.83	HN
7	Telecommunication device for the deaf (TDD)	3.75	0.51	VHN	3.19	0.82	HN
8	Video Remote Interpreters (VRI)	3.49	0.70	HN	3.01	1.09	HN
9	Radio microphone	2.63	1.06	HN	2.63	0.99	HN
10	Overhead phones	2.58	0.98	HN	2.77	0.96	HN
11	Flashing alert devices	3.27	0.74	HN	3.16	0.89	HN
12	Computer assisted real time captioning (CART)	3.44	0.75	HN	3.07	1.02	HN
13	Hearing aid compatible sound systems	3.54	0.69	VHN	2.81	1.01	HN
14	Television	3.34	0.71	HN	3.07	0.81	HN
15	Computer	3.20	0.78	HN	3.22	0.80	HN
16	Speech recognition software	2.88	1.04	HN	3.03	0.88	HN
17	Pictures	3.28	0.73	HN	3.25	0.85	HN
18	Videos	3.28	0.69	HN	3.43	0.66	HN
19	Films	3.16	0.74	HN	3.37	0.70	HN
20	Sound amplifiers	2.75	0.99	HN	3.09	0.96	HN
21	Double glazed windows	3.13	0.83	HN	3.25	0.74	HN
22	Air conditioners	3.19	0.78	HN	3.50	0.55	VHN
23	Lights.	3.26	0.79	HN	3.52	0.76	HN
24	Room microphones	2.69	0.99	HN	2.92	0.86	HN
25	Absorbent ceilings	2.97	0.87	HN	2.93	0.93	HN
26	Audio loops	2.52	0.90	HN	3.15	0.83	HN
	Cluster Mean	**3.18**	**0.36**	**HN**	**2.52**	**0.34**	**HN**

Note: 3.50 ï 4.00 = VHN, 2.50 ï 3.49 = HN, 1.50 ï 2.49 = N and 1.00 ï 1.49 NN

Result presented in Table 3 show the mean and standard deviations of respondents on classroom resources required for meeting the information needs of students with hearing impairment in Nigeria Federal Universities. The lecturers are of the opinion that items 1, 6, 7 and

13 with mean ratings of 3.75, 3.76, 3.75 and 3.54 with standard deviation of 0.49, 0.46, 0.51 and 0.69 respectively are very highly needed (VHN). These items include; Sign language interpreters, over-head projector, telecommunication device for the deaf (TDD) and Hearing aid compatible sound systems. This is because their mean ratings are within the range of 3.50 ï 4.00 for very highly needed. The students agreed that Sign Language Interpreters, Note takers and Air conditioners (items 1, 2 and 22) are very highly needed with a mean of 3.56, 3.52, 3.50 and a standard deviation of 0.81, 0.95 and 0.55. Result also showed that both the lecturers and the students agreed that the following items are highly needed (HN), these items include; note takers, academic adviser, tutors, course registration assistant, Video remote interpreters (VRI), Radio microphone, Overhead phones, Flashing alert devices, computer assisted real time captioning (CART), television, computer, speech recognition software, pictures, videos etc. This is because their mean ratings are within the range of 2.50 ï 3.49 for highly needed. The low standard deviation rating for all the items (standard deviation less than 1) show that there is not much divergent of opinion among the respondents.

Responses from the Focus Group Discussion show that human resources required for meeting the information needs of students with hearing impairment in classroom where hearing and non-hearing students learn alongside each other are course lecturers, sign language interpreter and audiologist (for fixing hearing aids). Non-human resources needed in the classroom are public address system, interpreters chair, studentsô chairs, good lights, chalkboard, fans/air conditioners, projector, textbooks, video relay systems, text to speech and speech to text software and white interactive boards.

Research Question 4: What are the strategies required for creating positive classroom environment for meeting the information needs of students with hearing impairment?

Table 4: Mean and Standard Deviation of Respondents on the Strategies Required for Creating Positive Classroom Environment for meeting the information needs of students with Hearing Impairment

S/N	Strategies required for creating positive classroom environment.	Universities	N	x̄	SD	Dec.	Total N	Total x̄	Total SD	Total Dec.
1	Providing lecture outlines before the lecture starts	CALABAR	21	3.49	0.50	A	63	3.58	0.49	A
		JOS	17	3.78	0.41	A				
		ILORIN	9	3.39	0.48	A				
		IBADAN	16	3.63	0.48	A				
2	Providing lecture notes before the lecture begins	CALABAR	21	3.25	0.49	A	63	3.38	0.57	A
		JOS	17	3.40	0.68	A				
		ILORIN	9	3.23	0.42	A				
		IBADAN	16	3.54	0.58	A				
3	Attracting the students eyes before speaking	CALABAR	21	3.23	0.42	A	63	3.25	0.62	A
		JOS	17	3.31	0.86	A				
		ILORIN	9	3.12	0.43	A				
		IBADAN	16	3.29	0.60	A				
4	Writing important information on the board while teaching	CALABAR	21	3.55	0.62	A	63	3.51	0.63	A
		JOS	17	3.48	0.74	A				
		ILORIN	9	3.63	0.60	A				
		IBADAN	16	3.42	0.57	A				
5	Facing the students when speaking	CALABAR	21	3.39	0.49	A	63	3.40	0.55	A
		JOS	17	3.52	0.50	A				
		ILORIN	9	3.30	0.62	A				
		IBADAN	16	3.40	0.56	A				

6	Avoiding moving around while speaking	CALABAR	21	3.17	0.70	A	63	3.11	0.79	A
		JOS	17	3.25	0.77	A				
		ILORIN	9	3.19	0.79	A				
		IBADAN	16	2.91	0.82	A				
7	Speaking clearly	CALABAR	21	3.31	0.59	A	63	3.37	0.62	A
		JOS	17	3.35	0.77	A				
		ILORIN	9	3.35	0.61	A				
		IBADAN	16	3.44	0.49	A				
8	Giving a clear view of the mouth while speaking	CALABAR	21	3.34	0.55	A	63	3.35	0.72	A
		JOS	17	3.37	0.83	A				
		ILORIN	9	3.47	0.54	A				
		IBADAN	16	3.26	0.81	A				
9	Avoiding speaking while writing on the board	CALABAR	21	3.70	0.46	A	63	3.29	0.74	A
		JOS	17	3.24	0.71	A				
		ILORIN	9	3.67	0.56	A				
		IBADAN	16	2.83	0.74	A				
10	Repeating questions orally many times before given the answer	CALABAR	21	3.30	0.53	A	63	3.11	0.70	A
		JOS	17	2.97	0.75	A				
		ILORIN	9	3.23	0.60	A				
		IBADAN	16	3.01	0.76	A				
11	Asking students to raise their hands before speaking	CALABAR	21	3.45	0.50	A	63	3.16	0.73	A
		JOS	17	3.04	0.76	A				
		ILORIN	9	3.33	0.52	A				
		IBADAN	16	2.97	0.86	A				
12	Addressing	CALABAR	21	3.56	0.62	A	63	3.24	0.81	A

	inappropriate behavior of other students against students with hearing impairment	JOS	17	3.12	0.85	A				
		ILORIN	9	3.57	0.66	A				
		IBADAN	16	2.92	0.81	A				
13	Reserving front seats for students with hearing impairment	CALABAR	21	2.84	0.55	A	63	3.12	0.71	A
		JOS	17	3.34	0.73	A				
		ILORIN	9	2.92	0.68	A				
		IBADAN	16	3.27	0.71	A				
14	Advising students to seat in a semi-circular position	CALABAR	21	2.55	0.84	A	63	2.83	0.78	A
		JOS	17	3.04	0.71	A				
		ILORIN	9	2.68	0.76	A				
		IBADAN	16	2.94	0.74	A				
15	Standing in a position where the instructor is visible to everybody	CALABAR	21	3.46	0.57	A	63	3.24	0.66	A
		JOS	17	3.22	0.83	A				
		ILORIN	9	3.34	0.62	A				
		IBADAN	16	3.06	0.53	A				
16	Coming early to lecturers	CALABAR	21	3.32	0.52	A	63	3.37	0.62	A
		JOS	17	3.66	0.63	A				
		ILORIN	9	3.34	0.59	A				
		IBADAN	16	3.20	0.62	A				
17	Staying after lecturers to discuss with students	CALABAR	21	2.68	0.81	A	63	2.86	0.79	A
		JOS	17	3.27	0.79	A				
		ILORIN	9	2.62	0.70	A				
		IBADAN	16	2.84	0.74	A				
18	Ensuring that students are not embarrassed for asking or answering	CALABAR	21	3.41	0.63	A	63	3.35	0.67	A
		JOS	17	3.49	0.61	A				

questions.	ILORIN	9	3.32	0.61	A				
	IBADAN	16	3.24	0.76	A				
Cluster mean	CALABAR	21	**3.27**	**0.33**	A				
	JOS	17	**3.32**	**0.33**	A	63	**3.25**	**0.33**	**A**
	ILORIN	9	**3.26**	**0.29**	A				
	IBADAN	16	**3.17**	**0.36**	A				

Results in Table 4 show the mean ratings and standard deviation of respondents on strategies for creating positive classroom environment for students with hearing impairment. Results showed that items 1 - 18 had mean ratings of 3.58, 3.38, 3.25, 3.51, 3.40, 3.11, 3.37, 3.35, 3.29, 3.11, 3.16, 3.24, 3.12, 2.83, 3.24, 3.37, 2.86 and 3.35with standard deviations of 0.49, 0.57, 0.62, 0.63, 0.55, 0.79, 0.62, 0.72, 0.74, 0.70, 0.73, 0.81, 0.71, 0.78, 0.66, 0.62, 0.79 and 0.67 respectively. Since all the mean ratings are above 2.50 criterion for accepting an item, the respondents agreed that the following are strategies for creating positive classroom environment for students with hearing impairment, these include; Providing lecture outlines before the lecture starts, providing lecture notes before the lecture begins, attracting the students eyes before speaking, writing important information on the board while teaching, facing the students when speaking, avoiding moving around while speaking, speaking clearly, giving a clear view of the mouth while speaking, avoiding speaking while writing on the board, repeating questions orally many times before given the answer, asking students to raise their hands before speaking, staying after lecturers to discuss with students and ensuring that students are not embarrassed for asking or answering questions among others. The cluster mean of 3.25 with a standard deviation of 0.33 showed that all the items in table 4 are strategies for creating positive classroom environment for students with hearing impairment in Nigeria Federal Universities.

Research Question 5: What is the relevant evaluation environment for students with hearing impairment?

Table 5: Mean and Standard Deviation of Respondents on the Relevant Evaluation environment for Students with Hearing Impairment.

		Lecturers (N = 63)			Students (N = 102)		
S/N	**Item Statement**	$\bar{x}$	**SD**	**Dec.**	$\bar{x}$	**SD**	**Dec.**
1	Provision of conducive examination location	3.55	0.56	VHR	3.54	0.91	VHR
2	Provision of extended time on examination	3.11	0.82	HR	3.12	0.91	HR
3	Provision of Interpreters to interpret the examination papers	3.17	0.78	HR	2.65	1.11	HR
4	Production of examination papers in plain English	3.18	0.70	HR	3.26	0.87	HR
5	Studentôs should be accessed based on studentôs knowledge of subject content not on mastery of English language.	3.06	0.85	HR	3.52	0.78	VHR
6	Provision of preferential seating arrangement during examination	2.43	1.17	R	3.03	1.27	HR
7	Imperfect spellings should be ignored for students	1.33	1.10	NR	1.40	0.83	NR
8	Students should be permitted to use dictionaries during examinations	1.49	1.05	NR	1.36	0.60	NR
9	Students should be permitted to use thesaurus during examinations	1.46	0.93	NR	1.45	0.83	NR
10	Students should be permitted to use computers during examinations	1.38	1.02	NR	1.10	1.02	NR
	Cluster Mean	**2.42**	**0.56**	**R**	**2.44**	**0.43**	**R**

Note: 3.50-4.00 = VHR, 2.50-3.49 = HR, 1.50 ï 2.49 = R and 1.00 ï 1.49 = NR.

Result presented in Table 5 show the mean and standard deviations of respondents on relevant evaluation procedures for students with hearing impairment in Nigeria Federal Universities. The lecturers and students are of the opinion that provision of conducive examination environment with mean ratings of 3.55 and 3.54 respectively is very highly required. The students also considered it very highly relevant that assessment on examinations

should be based on studentôs knowledge of subject content not on mastery of English language with a mean score of 3.52. However, both the lecturers and students agreed that; provision of extended time on examination, provision of interpreters to interpret the examination papers and production of examination papers in plain English are highly required. Also, both respondents agreed that items 7-10 (imperfect spellings should be ignored for students, students should be permitted to use dictionaries during examinations, Students should be permitted to use thesaurus during examinations and Students should be permitted to use computers during examinations) are not relevant. This view was up held by the focus group discussants. During the discussion one of the studentôs retorted through signingò *What will I be doing with a dictionary in an examination hall?, Am I a moron?* and frowned her face. Another one said ñ *I can beat any hearing student in a spelling competition".*

Focus Group Discussion revealed that the students were of the opinion that during examination, more time should be allocated in Computer Based Test (CBT) because the time allocated for it is always short. There is also need for the assistance of computer operators and Sign language interpreters as many of the students with hearing impairment are computer illiterate and cannot operate the computer. They also stated that during examination, students with hearing impairment should be given more time On student retortedñ *what will we be doing with a dictionary and thesauri in an examination?. All we want is examination to be done through manual system. We do not need Computer Based Test (CBT) because of time and many of us are not computer literate. Let them permit us to use calculators and rough sheets for subjects that need calculations. A student of geography said " I will be very happy if graphs and mathematical sets should be provided for me during examinations* .The focus group discussion also revealed that hearing impaired students should be allowed to seat together and

closer than hearing students. One of the students said ñ*we should be allowed to use calculators for any course that needs calculation and we should be required to respond to fewer questions than hearing students".*

Hypothesis 1: There is no significant difference in the opinion of hard of hearing and deaf students on the information needs of students with hearing impairment in Nigeria Federal Universities.

Table 6: t-test Analysis of the Difference in the Opinion of Hard of Hearing and Deaf Students on the Information Needs of Students with Hearing Impairment.

S/N	Item Statement	Status		SD	t-cal	df	Sig.	Dec.
1	Improve Language skills	HOH	3.41	0.49	-3.10	100	0.00	S
		Deaf	3.71	0.45				
2	Complete class assignment	HOH	3.08	0.64	-1.40	100	0.16	NS
		Deaf	3.28	0.69				
3	Prepare for assigned class presentation	HOH	3.00	0.47	-1.87	100	0.06	NS
		Deaf	3.22	0.59				
4	Prepare for lectures	HOH	3.59	0.49	0.38	100	0.70	NS
		Deaf	3.55	0.53				
5	Improve personal competencies	HOH	3.51	0.55	1.48	100	0.14	NS
		Deaf	3.31	0.72				
6	Improve general knowledge	HOH	3.54	0.50	0.26	100	0.78	NS
		Deaf	3.51	0.64				
7	Prepare for examination	HOH	3.19	0.61	-1.83	100	0.07	NS
		Deaf	3.40	0.52				
8	Acquire research writing skill	HOH	3.19	0.56	-2.21	100	0.10	NS
		Deaf	3.45	0.56				
	Cluster t	**HOH**	**3.31**	**0.26**	**-1.89**	**100**	**0.06**	**NS**
		Deaf	**3.42**	**0.30**				

Note: HOH = Hard of Hearing, Ũ= 0.05

Result in Table 6 is a t-test analysis of the mean difference between the opinion of hard of hearing and deaf students on the information needs of students with hearing impairment in Nigeria Federal Universities. Results showed that for item 1, there was a significant difference in the mean ratings of hard of hearing and deaf students on the information needs of students with

hearing impairment. This is because the significant value is less than 0.05 level of significance. The result further showed that for items 2-8, there were no significant differences in the mean ratings of hard of hearing and deaf students on the information needs of students with hearing impairment. The cluster t-value of -1.89with a degree of freedom of 100 and a probability value of 0.06 showed that there was no significant difference ($p>0.05$) in the mean response of hard of hearing and deaf students on the information needs of students with hearing impairment. Thus the null hypothesis of no significant difference in the mean ratings of hard of hearing and deaf students on the information needs of students with hearing impairment was not rejected. This implies that both the hard of hearing and deaf students had similar view on the information needs of students with hearing impairment in Nigeria Federal Universities.

Hypothesis 2: There is no significant difference in the opinion of Lecturers and Students on types of classroom resources needed for effective learning of students with hearing impairment.

Table 7: t-test Analysis of the Difference in the Opinion of Lecturers and Students on Types of Classroom Resources Needed for Effective Learning of Students with Hearing Impairment.

S/N	Item Statement	Status	𝑋̄	SD	t-cal	df	Sig.	Dec.
9	Sign language interpreters	Lecturers	3.75	0.49	2.44	640	0.10	NS
		Students	3.36	0.81				
10	Note takers	Lecturers	3.13	0.74	0.16	640	0.87	NS
		Students	3.12	0.95				
11	Academic Adviser	Lecturers	3.38	0.68	0.36	640	0.71	NS
		Students	3.35	0.71				
12	Tutors	Lecturers	3.26	0.60	-2.55	640	0.01	S
		Students	3.43	0.80				
13	Course registration assistant	Lecturers	3.08	0.79	2.80	640	0.00	S
		Students	2.83	0.93				
	Classroom-Non-human resources							
14	Over head projector	Lecturers	3.76	0.46	12.48	640	0.00	S
		Students	3.03	0.83				
15	Telecommunication device for the deaf (TDD)	Lecturers	3.75	0.51	9.10	640	0.00	S
		Students	3.19	0.82				

16	Video Remote Interpreters (VRI)	Lecturers Students	3.49 3.01	0.70 1.09	5.73	640	0.00	S
17	Radio microphone	Lecturers Students	2.63 2.63	1.06 0.99	0.05	640	0.95	NS
18	Overhead phones	Lecturers Students	2.58 2.77	0.98 0.96	-1.82	640	0.06	NS
19	Flashing alert devices	Lecturers Students	3.27 3.16	0.74 0.89	1.38	640	0.16	NS
20	Computer assisted real time captioning (CART)	Lecturers Students	3.44 3.07	0.75 1.02	4.22	640	0.00	S
21	Hearing aid compatible sound systems	Lecturers Students	3.54 2.81	0.69 1.01	8.95	640	0.00	S
22	Television	Lecturers Students	3.34 3.07	0.71 0.81	3.50	640	0.00	S
23	Computer	Lecturers Students	3.20 3.22	0.78 0.80	-0.20	640	0.83	NS
24	Speech recognition software	Lecturers Students	2.88 3.03	1.04 0.88	-1.37	640	0.16	NS
25	Pictures	Lecturers Students	3.28 3.25	0.73 0.85	0.34	640	0.72	NS
26	Videos	Lecturers Students	3.28 3.43	0.69 0.66	-2.01	640	0.04	S
27	Films	Lecturers Students	3.16 3.37	0.74 0.70	-2.66	640	0.00	S
28	Sound amplifiers	Lecturers Students	2.75 3.09	0.99 0.96	-3.14	640	0.00	S
29	Double glazed windows	Lecturers Students	3.13 3.25	0.83 0.74	-1.40	640	0.16	NS
30	Air conditioners	Lecturers Students	3.19 3.50	0.78 0.55	-3.78	640	0.00	S
31	Lights.	Lecturers Students	3.26 3.42	0.79 0.76	-1.91	640	0.05	S
32	Room microphones	Lecturers Students	2.69 2.92	0.99 0.86	-2.20	640	0.02	S
33	Absorbent ceilings	Lecturers Students	2.97 2.93	0.87 0.93	0.37	640	0.71	NS
34	Audio loops	Lecturers Students	2.52 3.15	0.90 0.83	-6.46	640	0.00	S
	Cluster t	**Lecturers Students**	**3.18 3.13**	**0.36 0.34**	**1.32**	**640**	**0.18**	**NS**

Ŭ= 0.05

Result in Table 7 showed the t-test analysis of the mean difference in the opinion of Lecturers and Students on types of classroom resources needed for meeting the information needs of students with hearing impairment in Nigeria Federal Universities. Results showed that for items12-16,20-22,26-28,30-32 and 34, there were significant differences in the opinion of Lecturers and Students on types of classroom resources needed for effective learning of students with hearing impairment. This is because their significant values are less than 0.05 level of significance. However, result further showed that for items 9, 10, 11, 17-19, 23-25, 29 and 33, there were no significant differences in the opinion of Lecturers and Students on types of classroom resources needed for effective learning of students with hearing impairment. The cluster t-value of 1.32 with a degree of freedom of 640 and a probability value of 0.18 showed that there was no significant difference (p>0.05) in the opinion of Lecturers and Students on types of classroom resources needed for effective learning of students with hearing impairment. Thus the null hypothesis of no significant difference in the opinion of Lecturers and Students on types of classroom resources needed for effective learning of students with hearing impairment was not rejected. This implies that both the lecturers and students had similar opinion on types of classroom resources needed for effective learning of students with hearing impairment.

Hypothesis 3: There is no significant difference in the opinion of lecturers and students on relevant evaluation environment for students with hearing impairment in Nigerian Federal Universities.

Table 8: t-test Analysis of the Difference in the Opinion of Lecturers and Students on Relevant Evaluation environment for Students with Hearing Impairment.

S/N	Item Statement	Status		SD	t-cal	df	Sig.	Dec.
1	Provision of conducive examination location	Lecturers	3.55	0.56	4.64	640	0.00	S
		Students	3.23	0.91				

2	Provision of extended time on examination	Lecturers Students	3.11 3.11	0.81 0.91	-0.05	640	0.95	NS
3	Provision of Interpreters to interpret the examination papers	Lecturers Students	3.16 2.64	0.78 1.11	5.72	640	0.00	S
4	Production of examination papers in plain English	Lecturers Students	3.18 3.26	0.70 0.87	-1.05	640	0.29	NS
5	Studentôs should be accessed based on studentôs knowledge of subject content not on mastery of English language.	Lecturers Students	3.06 3.51	0.85 0.78	-5.04	640	0.00	S
6	Provision of preferential seating arrangement during examination	Lecturers Students	2.42 3.02	1.17 1.27	-4.66	640	0.00	S
7	Imperfect spellings should be ignored for students	Lecturers Students	1.33 1.40	1.10 0.83	1.70	640	0.09	NS
8	Students should be permitted to use dictionaries during examinations	Lecturers Students	1.49 1.35	1.05 0.60	1.28	640	0.20	NS
9	Students should be permitted to use thesaurus during examinations	Lecturers Students	1.45 1.45	0.93 0.83	-0.94	640	0.34	NS
10	Students should be permitted to use computers during examinations	Lecturers Students	1.38 1.10	1.02 1.01	-1.98	640	0.04	S
	Cluster t	**Lecturers** **Students**	**2.42** **2.44**	**0.56** **0.43**	**-0.09**	**640**	**0.92**	**NS**

Ŭ= 0.05

Result in Table 8 showed the t-test analysis of the mean difference in the opinion of lecturers and students on relevant evaluation environment for students with hearing impairment in Nigerian Federal Universities. Results showed that there was significant difference on items 1, 3, 5, 6 and 10 because their significant values are less than 0.05 level of significance. However, there was no significant difference on items 2, 4, 7, 8 and 9 because their significant values are greater than 0.05 level of significance. The cluster t-value of -0.09 with a degree of freedom of 640 and a probability value of 0.92 showed that there was no significant difference (p>0.05) in

the opinion of lecturers and students on relevant evaluation environment for students with hearing impairment in Nigerian Federal Universities. Thus, the null hypothesis of no significant difference in the opinion of lecturers and students on relevant evaluation environment for students with hearing impairment in Nigerian Federal Universities was accepted. Inference drawn therefore is that both the lecturers and students had similar views on relevant evaluation environment for students with hearing impairment in Nigerian Federal Universities.

Summary of major Findings

Chapter four essentially presented the results of the study derived from the analyses of the data collected. The summary of the results obtained shows that:

1. Students with hearing impairment need information to improve language skills, complete class assignment, prepare for lectures, prepare for assigned class presentation, improve personal competencies, improve general knowledge, prepare for examination. The students also need information on course outline, required textbooks, school rules and regulation and library rules and regulations.

2. The instructional methods for meeting the information needs of students with hearing impairment include peer tutoring, co-operative teaching, collaborative teaching, self instructional method, captioned video instruction, on-line instruction and hybrid instruction.
3. Human resources highly required for meeting the information needs of students with hearing impairment are Sign language interpreters and Note takers while non-human resources very highly needed are air-conditioners, over head projectors, telecommunication device for the deaf (TDD) and hearing aid compatible sound systems.

4. Strategies required for creating positive classroom environment for meeting the information needs of students with hearing impairment include providing lecture outlines before the lecture starts, and writing important information on the board while teaching amongst others.
5. There is a significant difference in the information needs of students who are hard of hearing and those who are completely deaf.
6. There is no significant difference in the opinion of lecturers and students on the types of classroom resources needed for meeting the information needs of students with hearing impairment.
7. There is no significant difference in the opinion of lecturers and students on relevant examination environment for students with hearing impairment.

CHAPTER FIVE

DISCUSSION OF FINDINGS, IMPLICATIONS, RECOMMENDATIONS, STUDY AND CONCLUSION

In this chapter, the following subheadings are discussed; findings from the study, implication of the study, summary of the study, conclusion and recommendations, suggestions for further research, limitations of the study and conclusion.

Discussion of findings

The findings are discussed here based on the objectives of the study which are embedded on the five research questions that guided the study,

Information needs of students with hearing impairment

Findings from the study show that students with hearing impairment have information needs like every other student or individual. The students need information to improve language skills. Complete class assignment, prepare for assigned class presentation, prepare for lecturers, improve personal competencies, improve general knowledge, prepare for examinations and acquire research writing skills. In addition to information needed for their studies, the students need information that will enable them live an independent life on campus. These include information on school rules and regulations, hostel rules and regulations, information on how to obtain library card, borrow books, how books in the library are arranged. These information needs are like the information need of every other student. Without meeting the information needs of the students for their studies, it will be difficult for the students to have access to

curriculum content, participate in class activities and graduate successfully out of school. This finding is consistent with Westwood (2012)

which posit that students need information to improve language skill, to prepare for assigned class presentation and for other purposes. Meeting the information needs of students is very improve language skill, to prepare for assigned class presentation and for other purposes. Meeting the information needs of students is very important in the lives of students as it creates in them a scene of belonging. The findings also show that there is no difference in the information needs of students who are deaf and those who are hard of hearing.

Instructional methods required for meeting the information needs of students with hearing impairment.

Finding from the study revealed that captioned video instruction, peer tutoring, co-operative teaching, and collaborative teaching, Hybrid instruction and Online instruction are instructional methods required for meeting the information needs of students with hearing impairment in a classroom where both hearing and hearing impaired students study alongside each other. Among the mentioned effective methods of instruction for meeting the information needs of students with hearing impairment captioned video instruction and peer tutoring have the highest mean scores (3.65 and 3.55) and are therefore better ways of teaching in a class containing both hearing and hearing impaired students. The finding is consistent with that of Omoniyi &Oluniyi (2012); and Atinmo & Egunjobi who noted that captioned video instruction is effective in delivering instruction to students with hearing impairment. Furthermore, this finding is consistence with the finding of Falaye & Komolafe which opined that peer tutoring is more effective in delivering instruction to students with hearing impairment than self

instructional or traditional lecture method. The study also substantiated an already known fact that Lecture method is not an effective method for delivering instruction to students with hearing impairment. This finding is consistent with that of Foster, Long and Snell (1999) in which it was observed that some teaching strategies and instructional styles make classroom learning more difficult for students with hearing impairment even with the aid of note takers and interpreters. Methods like the Lecture method turn the students into passive listeners and note takers without any initiative to contribute. Eleweke (2000) observed that ineffective teaching method was one of the major factors that frustrate students with hearing impairment out of colleges and universities in Nigeria. Unfortunately, Lecture method is a widely used method of instruction in Nigerian Universities. Its wide use may not be unconnected with lack of skill and resources for teaching in classes where both hearing and hearing impaired students study alongside each other.

Classroom resources for meeting the information needs of students with hearing impairment

Findings from the study on human resources needed for meeting the information needs of students with hearing impairment show that both lecturers and students considered sign language interpreters highly needed for effective learning of students with hearing impairment in classrooms where both hearing and hearing impaired students study along each other . Note takers were considered very highly needed by the students. This finding is consistent with the finding of Bret (2010) in which it was observed that sign Language interpreters and note takers are some of the human materials used in the education of students with hearing impairment. The importance attached to Sign Language Interpreters by both Lecturers and students may not be unconnected with the lecture method of delivering instruction adopted in Nigerian Universities which made both the lectures and students dependent on sign language interpreters. On the side of the students, they depend on the sign language interpreters to

understand the lectures and on the side of the Lecturers, they depend on the sign language interpreters to communicate the lecture content to the students. The sign language interpreters therefore acts a go-between between the lecturers and the students and is therefore rated very highly needed by each group.

Among the non-human resources, the lecturers considered overhead projectors, telecommunication device for the deaf (DTT) and Hearing Aid Compatible Sound System as resources very highly needed in classrooms where both hearing and hearing impaired students study alongside each other while the students considered them highly needed. The responses of the lecturers may be as a result of delays in classroom activities caused by Sign Language interpreters. As Foster, Long and Snell (1999) observed, interpreters finish signing what the lecturers said seconds after the lecturers must have finished speaking. The Lecturers may therefore see the use of overhead projectors, telecommunication device for the deaf (TDD) and Hearing aid compatible sound systems as a viable alternative to Sign Language Interpreters and as such rated it very highly needed. The students considered air conditioners very highly needed as it will lead to locking of windows during classes. Locking of windows during classes will help to minimize external sounds from interfering with classroom activities as Nigerian University windows do not have double glazed windows or absorbent ceilings to ward of external noise. This finding is consistent with the observation of the National Centre on accessible instructional materials, USA which stated that students with hearing impairment often do not hear all the speech sound as a result of background noise which distracts resulting in failure to understand, fatigue and tension. It is in line with this that the University of Cambridge Disability Resource Centre suggested that technical adaptations should be done on classrooms where both hearing and hearing impaired students learn alongside each other to make such classrooms learning

friendly. The recommended technical adaptations include double glazing windows to exclude external sound, fixing of absorbent ceilings to reduce reverberation, air conditioning to avoid the need to open windows etc.

Strategies required for creating positive classroom environment for meeting the information needs of students with hearing impairment

Data gathered from the questionnaire on strategies for creating positive classroom environment for meeting the information needs of students with hearing impairment shows that the lectures are aware of all the items mentioned in the questionnaire. Unfortunately, observation by Foster, Long and Snell (1999) show that lecturers do not consider the plight of the students with hearing impairment while teaching as they (the lecturers) break visual contact between the students and their speech while writing on the board, reading from papers held too close to their faces or pacing back and forth. Furthermore, Foster, Long and Snell noted that in laboratories instructors speak while manipulating physical objects or performing tasks on a projected screen leaving the students to chose between watching the sign language interpreter or the instructor/screen. This finding is quite important as it showed that information gathered from questionnaires should not be trusted completely. This calls for need to use other data gathering instruments to verify the information gathered from questionnaires. This finding also revealed that at times respondents fill questionnaires based on personal knowledge of what it ought to be, not on what is actually being practiced. This might explain the discrepancy between the data gathered from the questionnaire and the observation by Foster, Long and Snell. This observation shows that the lecturers do not consider the interest of the students with hearing impairment in their classes. This finding is consistent with that of Foster, Long and Snell (1999) in which it was

discovered that Lecturers feel that it was not their responsibility to modify instructions to suit students with hearing impairment.

Relevant examination environment for students with hearing impairment

Responses to questions on relevant evaluation environment for students with hearing impairment show that both students and Lecturers considered provision of conducive examination location very highly needed. Conducive examination location is good for every student not just students with hearing impairment. Both students and lecturers also considered provision of extended time on examination, provision of interpreters to interpret examination papers and production of examination paper in plain English as highly relevant in the education of students with hearing impairment. This finding is consistent with Holmsglen (2014) who advised that during assessment, instructors should as occasion demands provide extra time in examinations, particularly extra time for reading questions as some students will prefer to have questions signed to them. The finding is also consistent with the finding of Gogoe-Torsu (2012) who observed that during examinations, students with hearing impairment read questions many times before they can understand it as such need more time to complete examination questions. However, the finding that both the students and Lecturers disagree with the items that stated that students should be allowed to use dictionaries, thesaurus or computers during examinations contradicts the advice of Holmsglen (2014) that students should be permitted to use dictionaries, thesaurus and computer during examinations. Focus group discussions with the students show that they do not need dictionaries, thesaurus or computers during examinations. The ways many of the students reacted to the idea show that they hold it to scorn. The students do not need

incorrect spellings to be ignored for them. They feel they can spell correctly like other students. This finding is consistent with the finding of Antia, Jones, Reed and Kreimeyer (2009) in which it was observed that hearing impaired students performances in reading, language/writing show that 55-76% of the students score above average range. The finding is also consistent with the finding of Power & Hyde (2002) in which it was discovered that when compare with their hearing peers, students with hearing impairment were on competitive edge as it regards level of integration in class, academic participation, level of independence and social participation.

The finding that students should be allowed to sit closer at examinations and permitted to answer fewer questions is likely to lower standard for the students. Sitting closer together will give room for cheating during examinations which in the long run will not be favorable to the students in terms of mastering learning contents.

Implications of the study

1. The study has revealed that students with hearing impairment have information needs related to their studies and life on campus, as such the library should create programs and services to take care of these needs otherwise the gap in access to information between hearing and hearing impaired students in Nigerian universities will continue to widen.

2. One of the findings of the study revealed that lecture method of instruction is not an effective way of teaching students with hearing impairment as such librarians should be cautious of its use in information literacy classes with hearing impaired students. A mixture of oral and visual presentation is preferable to avoid the frustrations these

students encounter in orally based classes otherwise these students will never acquire information literacy skill and will never be self reliant information seekers.

3. The findings also reveal that sign language interpreters are very highly needed in the education of students with hearing impairment. As such sign language interpreters should be made part of Library staff. Lack of such staff in the library might have negative impact on the students and will ultimately affect the society in the future.
4. The study further revealed that lights and air-conditioners are very highly needed in classrooms containing hearing and hearing impaired students. This is to avoid the need to open windows and to ward off external noise. Such facilities are also needed in the library to make the library conducive for learning for hearing impaired students, failure of which will drive the students away from the library.
5. Findings from the study showed as well that most hearing impaired students are not computer literate. This implies that these students are shot off from the ICT innovation that is currently transforming the world for better. This, in the near future will not augur well for the students and for the Nigerian nation.

Contributions of this study to knowledge.

1. There is need for Librarians to acquire at least basic skills in sign language interpretation. This will enable them to communicate with students with hearing impairment in the library.
2. It is important that every student should have knowledge of sign language interpreting. This is to foster interaction between hearing and non- hearing students.

This can be achieved by making sign language interpreting part of General Studies courses studied in Nigerian universities.

3. Libraries should acquire assistive learning resources like telecommunication device for the deaf, over head projectors, radio microphone etc for use in user education and library instruction classes.
4. The lecture method of teaching is not an effective method of teaching in a classroom where students with differing hearing abilities study alongside each other.

Recommendations.

Based on the findings of the study, the researcher will like to make the following recommendations.

1. Students with hearing impairment have information needs like every other student as such libraries should create programs and services to meet their information needs.
2. Sign Language interpretation is an important skill which Lecturers and Librarians should endeavor to acquire. This is to enable them (Lecturers and librarians) communicate effectively with students with hearing impairment and to have the capability to attend to their information problems.
3. There is need to change the mode of instruction in Nigerian Universities to a more interactive one that will enable all students especially students with hearing impairment to participate in classroom discussions.
4. Good lighting and air conditioners are needed in libraries to make them conducive for learning to students with hearing impairment.

5. There is need for libraries to acquire essential resources like over head projectors, Telecommunication device for the deaf, hearing aid compatible sound systems e.t.c for use in libraries during library instruction classes and seminars. These resources can also be loaned to faculties for use in classrooms containing both hearing and hearing impaired students.
6. Since students with hearing impairment need more time to read and comprehend compared to their hearing peers, libraries should extend loan periods for them.
7. There is need for orientation program for Lecturers on hearing impairment and strategies for creating positive learning environment for students with hearing impairment
8. Use of Library and study skills taught as part of general studies course in Nigerian Universities should be expanded to include a module on computer literacy. This is to enable students with hearing impairment to acquire basic computer skills needed to operate library based computer systems.
9. Library rules and regulations should be printed boldly and displayed on notice boards at the entrance to every library.
10. Libraries should have good signage directing users to different sections of the library.

Limitations of the study

Though this work has been completed, it was done not without some limitations.

The studentôs reluctance to participate in the focus group discussions may have affected the result of this study. Many of the students refused to participate in the study on the grounds

that the outcome may jeopardize their chances of graduation from the University. It took the intervention of their lecturers to convince them that the discussion is for academic purposes only. This limitation was curtailed by the intervention of the lecturers. The result of this study can therefore be generalized.

Lack of direct communication between the researcher and students with hearing impairment may have affected the result of this study. Lack of direct communication between the researcher and students with hearing impairment force the researcher to depend on Sign language interpreters for communication. This may have affected the result of the study. However, not much harm was done to the result of the study as the researcher was able to secure the assistance of Sign language interpreters who were able to communicate effectively with the students. This action curtailed chances of not using the result of the study for generalization.

Lack of interest on the part of lecturers in filling questionnaires may have affected the result of this work too. Some lecturers kept giving excuses why they were unable to fill the questionnaires given to them. It took much persuasion and repetitive visits to convince them to comply. The persuasion and repetitive visits helped to ensure that sufficient data was available for the researcher to work on and curtailed chances of errors that may lead to the result of the study not being used for generalization.

Suggestions for further study

This work does not lay claim to a comprehensive study of classroom environment and resources for meeting the information needs of students with hearing impairment. Based on this the following suggestions are made for further research:

There is a need for a comparative study of different classroom resources needed in the education of students with hearing impairment in inclusive classrooms to determine the effect of each one on the studentôs performance.

There is also need for an observational study of Lecturers use of classroom resources in the education of students with hearing impairment in classrooms containing both hearing and hearing impaired students.

Conclusion

Based on the findings from the study, the researcher concludes that students with hearing impairment need information to improve language skill, complete class assignment, prepare for lecture, improve personal competencies, improve general knowledge and prepare for examinations. Captioned video instruction, peer tutoring, co-operative teaching, collaborative teaching, online instruction and hybrid instruction are effective instruction methods for meeting the academic information needs of students with hearing impairment. Sign Language Interpreters and Note takers are human resources highly needed in classrooms where students with hearing impairment study alongside hearing students while non-human resources needed are overhead projectors, telecommunication device for the deaf and hearing aid compatible sound systems. Providing lecture outline before the lecture starts and writing important information on the board while teaching amongst others are effective strategies for creating positive classroom environment for students with hearing impairment. Provision of extended time on examination, provision of interpreters to interpret the examination papers and production of examination papers in plain English are among the relevant examination environment highly required for meeting the information needs of students with hearing impairment. There is a significant difference in the information needs of students who are hard of hearing and those who are

completely deaf. There is no significant difference in the opinion of lecturers and students on the types of classroom resources needed for meeting the information needs of students with hearing impairment and on relevant examination environment for students with hearing impairment.

Classroom environment and appropriate resources are important in the education of students with hearing impairment. Enabling environment and appropriate resources need to be provided to accommodate the learning problems of all learners especially students with hearing impairment. With appropriate resources, students with hearing impairment in Nigerian Federal Universities can pursue their academic programmes peacefully and joyfully.

REFERENCES

Abelman, H.S & Taylor, L (2005) Classroom Climate. In S.W. Lee, P.A.Lowe & E. Robinson (eds.). *Encyclopedia of School Psychology*. Thousand Oaks, CA: Sage. 89-93. DOI: http://dx.doi.org/10.4135/9781412952491.n43

Adebayo, F. (2015). Nigerian Growing Army of Deaf Children. *Punch Newspaper* Feb. 5. http://www.news247.com.ng/news/nigerias-growing-army-of-deaf-children-1

Ahmad, C.N.C; Osman,K & Halim L. (2012) Relationship between physical and psychosocial aspects is science laboratory learning environment. *Procedia- Social-Behavioral Science* 46, 1500-1505.

Ajiboye, J.O.,& Tella, A. (2007). University undergraduate students' information seeking behavior: Implications for quality in higher education in Africa. The Turkish Online Journal of Education Technology 6(I): 40-52

Akinpelu, O.F and Olawuyi, B.O (2013) *Managing Handicapped Students in a Regular University Setting.* A paper presented at the workshop on Teaching for Newly recruited University Lecturers of University of Ilorin, Nigeria. www.unilorin.edu.ng/publications/.../Managing%20Handicapped%20Students.pdf

Akinwale, O.M & Abimbola, O.S (2011) Educating Students with Disabilities in Nigeria: Some Challenges & Policy Implications. *European Journal of Humanities & Social Sciences.* 3: 1.

Alaukwu, N.P (2011). *Conquering disability.* Nsukka. Deepspring press. 65-66.

Ali, A (2006) *Conducting Research in Education and the Social Sciences*. Enugu. Tashwa Networks.

Ajaiye, M (2007) Deafness in Nigeria. *Online Voices.* September 2007 Newsletter. www.saywhatclub.com/newsletter/dec07/nigeria.html

American Speech Language Association (2016). *Sensorineural Hearing Loss* http://www.asha.org/public/hearing/Sensorineural-Hearing-Loss/

Ambrose, S.A; Bridges, M.W; DiPietro, M. and Lovett, M.C (2010) *How learning works: Seven Research-based principles for smart teaching.* San Francisco, CA; Jossey Bass

Antia, S.D; Jones, P.B; Reed, S; and Kreimeyer, K.H; (2009) Academic Status and Progress of Deaf and Hard of Hearing Students in General Education Classrooms. *Journal of Deaf Studies and Deaf Education 14: 3, 294-311*

Antia, S.D., Steinson, M.C, & Gaustad, M.G (2002) Developing membership in the Education of Deaf and Hard of Hearing Students in inclusive settings. *Journal of Deaf Studies and Deaf Education* 7 (3), 215-229.

Atinmo, M.I & Egunjobi, R.A (2010) A comparative study of Captioned Video and Face to Face Instruction in Library Instruction for Secondary School Students with Hearing Impairment. *Library Philosophy and Practice*. Retrieved on June 1, 2016 from http://digitalcommons.unl.edu/libphilprac/440

Banik, A.A; Banik, A.D & Banik, A. (2015). Awareness of barrier free Environment for children with hearing impairment. *International Journal of Scientific and Research Publications*. 5:11, 43 ï 49. Retrieved on June 1, 2016 from http://www.ijsrp.org/research-paper-1115/ijsrp-p4709.pdf

Barner, K. & Sharon (2012) SFX, Information Needs, the Academic Library and its user. Library *Philosophy and Practice.* Retrieved on September 15, 2016 from *http://digitalcommons.unl.edu/libphilprac/754/*

Bhatti, R. (2010). An evaluation of User Education Programmes in the University Libraries of Pakistan. *Library Philosophy & Practice.* Retrieved on June 3, 2012 from http:// digitalcommons.unl.edu/libphilprac/316

Beers, M.H & Jones, T.V (ed) (2006) *The Merck Manual of Health & Aging*. New York. Ballantine books. 534.

Betsy, J.C. (2005) *Accommodations to Improve Instruction and Assessment of Students Who are Deaf or Hard of Hearing: Policy Report* .UK, Pearson Education. 1-16

Bizimana, B. & Orodho, J.A (2014). Teaching and Learning Resources Available and Teachersô Effective Classroom Management and Content Delivery in Secondary Schools in Huye District, Rwanda. *Journal of Education and Practice*. 5:9, 2014

Briggle, S (2005). Language & Literacy Development in Children who are Deaf or Hearing Impaired. Retrievedon March 2, 2011 from *LDOnline*. www.ldonline.org/article/377947?theme+print

Brett, M. (2010). Managing Disability in Higher Education, Illustrated by Support Strategies for Deaf andd Hard of Hearing Students. *Open Rehabilitation Journal* 3, 4-8.

Cawthon, S.W (2001) Teaching Strategies in Inclusive Classrooms with Deaf Students. *Journal of deaf studies and deaf education.* 6:3, 212-225. Retrieved on June 16, 2012 from http://jdsde.oxfprdjournals.org/content/6/3/212

Cawthon, S.W; Nichols, S.K & Collier, M (2009). Facilitating Access: What Information Do Texas Postsecondary Institutions Provide on Accommodations and Services for students Who are Deaf or Hard of Hearing?. *American Annals of the Deaf*. 153:5, 450-460

Davis, B.G (1993). Tools for Teaching. San Francisco, CA: Jossey Bass

De Vita, G. (2000). Inclusive approaches to effective communication and active participation in the multicultural classroom: An International business management context. *Active Learning in Higher Education.* 1:2, 168-180. Doi:10.1177/1469787400001002006

Dogoe-Torsu, R.K (2012). Retrieved on June 12, 2014 from http://uew.edu.gh

Dorman, J. (2002) Classroom Environment Research: Progress and Possibilities. Queensland *Journal of Educational Research*. 18:1, 112-140.

Eberechukwu, B.O (2005) *Special Education: An Introductory* Text. Awka. Marpat Educational Research & Publishers. 69-103.

Eke, P.U & Oladayo, O.T (2013) Academic Achievement of regular and special needs students in inclusive and non-inclusive classroom settings. *European Scientific Journal*. 9:8, 140-150

Eleweke, C.J (2002). A Review of Issues in Deaf Education under Nigeriaôs 6-3-3-4- Education System. *Journal of Deaf Studies and Deaf Education* 7: 1.74-82

European Union (2014). *Report of the Europaen Commission on new modes of Learning and Teaching in Higher Education*. Luxembourg. European union.

Falaye, A.O and Komolafe, M. D. (2007) Effectiveness of Peer-Tutoring and Self Instructional Training Strategies in Fostering Reasoning Skills Among Hearing Impaired Children in Ibadan, Nigeria: Implications for Inclusiveness. *The African Symposium: An Online Journal of African Educational Research Network* 7:2,61-69

Fakomogbon, M.A (2002) Instructional Media, Technology and Services for Special Learners. *Nigerian Journal of Educational Media and Technology 10: 1.*

Fakomogbon, M.A (1995) A survey of resources and services for teaching handicapped students in Ilorin public Schools. *Nigerian Journal of Sociology Education*. 3:1, 82-89.

Faeorin-Cruich, A (2014) *Teaching & Learning Materials for the Deaf.* Retrieved on Monday, June 6 2014 from:http:// www.ehow.com/list_6546096_list-learning-materials-deaf-students.html.

Farrel, J.P. (1993). *International Lessons for School Effectiveness: the view from the Developing World*. IN Farrel J.P. and Oliveira, J.B. (Eds.) Teachers in Developing Countries: Improving Effectiveness and Managing Costs. Washingtom: World Bank

Farrel, K; Devlin, M & James, R. (2007) *Nine Principles guiding Teaching and Learning*. University of Melbourne, USA.

Foster, S; Long, G & Snell, K. (1999) Inclusive Instruction and Learning for Deaf Students in Post secondary Education. *Journal of Deaf Studies and Deaf Education* 4:3, 225 ï 235

Fuller, B. (1985) *Raising school quality in developing countries. What investments boost learning?* World Bank, Education training materials series. files.eric.ed.gov/fulltext/ED296920.pdf retrieved November 11, 2014.

Garibay, J.C (2015). *Creating a positive classroom environment*. UCLA Diversity and Faculty Development. Retrieved on December 28, 2016 from https://equity.ucla.edu/wp-content/uploads/2016/06/CreatingaPositiveClassroomClimateWeb-2.pdf

Gergiulo, R.M & Metcalf, D. (2013) Teaching in todays inclusive classrooms. A Universal Design for Learning Approach. 2nd ed. USA, Wadseorth. 112-113.

Glass, G.V (1992) *Classroom Physical Environment*. In Encyclopedia of Educational Research/Marvin C. Alkin (ed in chief) 6th rd. USA. American Educational Research Association.

Grub, W.N (2008). Multiple Resources, Multiple outcomes; testing the improves school finance with NELS88. *American Educational Research Journal* 45:1, 104-144

Hallahan, D.P; Kauffman, J.M & Pullen, P.C (2009). Exceptional Learners: An Introduction to Special Education. Eleventh edition. Pearson. New York. 336-375.

Hannah, R (2013). The effects of classroom environment on stududents learning. Western Michigan University. Scholarworks at WMU. http://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=3380&context=honors_theses

Holmsglen (2016). *Inforrmation on Deafness and Hearing Impairment*. http://www.holmesglen.edu.au/services/student_services/disability_support_service/staff_resources/information_on_deafness_and_hearing_impairment

Jessez 11 (2007) *Classroom psychosocial environment.* Retrieved on July 21 from: http://edu305finalportfolio.wikifoundry.com/page/psychosocial+environment

Johnson, D.W (2006) *Active Learning. Cooperation in the college classroom*. Edina, MN. Interaction Book Company. Retrieved on November 11, 2014 from serc.carleton.edu/resources/1619.html

King, J & Marans, R. (1979) *The Physical Environment and the Learning Process: A survey of recent research* (a report for UNESCO division of Educational Policy and Planning). Ann Arbor: University of Michigan. Architectural Research Laboratory and Institute for Social Research.

Kodiya, A.M; Afolabi, A.O & Ahmad, B.M (2012) The burden of hearing loss in Kaduna State Nigera: a 4 year study of the National Ear Care Centre. *Ear Nose Throat Journal*. 91 (4); 156-63.

Kurdziolek, M.A (2011). *Classroom Resources and Impact on Learning*. A Dissertation Submitted to the Faculty of the Virginia Polytechnic Institute and State University in

partial fulfillment of the requirements for the degree of Doctor of Philosophy in Computer Science

Lang, H.G (2002) Higher Education for Deaf Students: Research Priorities in the New Millenuim. *Journal of Deaf Studies and Deaf Education* 7 (4), 268-280

Lee, S & Cho, k. (2013) *Relationship between Physical Environment and Psychosocial Environment. Literature review.* www.aace.org/cont/site/submission//...paper_3053-_39667.rtf.

Lewis, R.B (1993) *Special Education Technology: Classroom Applications*.California. Brooks/Cole Publishing Company.475-478.

Mabogunje, A.L (2003) Nigeria, Physical & Social Geography. In Regional Survey of the World: Africa South of the Sahara. 32nd ed. London. Europa Publication. 772.

Matai, P.H.L.D.S & Matai, S (2007) *Cooperative education: the physical environment.* Paper presented at International Conference on Engineering Education (ICEE) . Coimbr, Portugal, 3-7 Sept. www.iiis.org/CDs2009/CD2009SCI/ag2009/PapersPdf/A0641Q.pdf

Mattias, M.M & Ramirez,K (2012) *Managing the Psychosocial Environment in the Classroom*. Onlineeducation.info/EDEL429/Psychosocial Environment.ppt. Retrieved on Aug. 14, 2014

McLaughlini, J. (2005*) Positive Classroom Environment*. http://Sitemaker.umich.edu/mclaughlin-portfolio/creating-a-positive-classroom-environment. Retrieved July 23, 2014

Mastropieri, M.A & Scruggs, T.E (2000) The Inclusive Classroom: Strategies for Effective Instruction. New Jersy.Merrill.

Miller, A. & Cunningham, K (2011) *Classroom environment.* Http://www.education.com/reference/article/classroom-enviironment. Retrieved Aug. 2, 2014.

Mindflash Technologies Inc. (2012) Asynchronous e-learning Vs Synchronous e-learning. https://www.mindflash.com/blog/asynchronous-e-learning-vs-synchronous-e-learning/

National Bureau of Statistics (2008). *Annual Abstract of Statistic.* Abuja. National Bureau of Statistics.

National Center on Accessible Instructional Materials, Iowa. http://aim.cast.org/learn/disabilityspecific/sensory deaf html.

National Population Commission (1998) *1991 Population Census of the Federal Republic of Nigeria. Analytical Report at the National level.* Abuja. National Population Commission.196-222.

Organisation for Economic Cooperation and Development (OECD), (2009) Creating effective teaching and learning environments. First results form TALIS https://www.oecd.org/edu/school/43023606.pdf

..Ojili (1997) *Perspectives on the Education of the Deaf in Nigeria.* In *the deaf Way* Ojili (1997) Retrieved August 6, 2015 from www.deafchildworldwide.info/document.rm?id=2875

Oladejo, M.A and Oladejo, S.A ((2011). Educating Students with Disabilities in Nigeria: Some Challenges and Policy Implications. *European Journal of Humanities and Social Sciences* 3:1, 128-139.

Okeh, R.I & Osiobe C. (2014). Access, Equity & Quality University Education for the Disadvantaged Groups in Nigeria. Myths & Agenda for Action. *Journal of Education & Practice* 5:35, 184-190

Okeke, B.A. (2001) *Essentials of Special Education*. Nsukka, Afro-Obis Publications

Omoniyi , T &Oluniyi, E.A (2012) Impact of captioned video Instruction on Nigerian Hearing Impaired pupilsôperformance in English Language. *African Symposium*: An online journal of the African Educational Research Network . 12: 2, 3-10

Onu, V.C (2008) *Special Education Services*. Nsukka. Multi-Educational Services Trust. 16, 75.

Olarongbe, S.A; Adepoju, O.S; Ademolake, H.B & Pedro, T.A (2013). An Assessment of Information Needs and characteristics of users aat Oyo State Public Library, Nigeria. Library Philosophy and Practice. Retrieved on September 9, 2016 from http://digitalcommons.unl.edu/libphilprac/978/

Oyewumi, A. (2008) An investigation on inclusive Instructional Practice and Learning of Students with Hearing Impairment in Post secondary Schools in Oyo State, Nigeria. *African Journal of Cross Cultural Psych. and Sport Facilitation*. 10:158-169. Retrieved on June 2014 from www.pepnet.org/sites/.../Reseach%20Brief_Online%20learning%20v4.pd...

Porter, L. (2002). *Educating Young Children with Special Needs*. Crows Nest, Australia, Allen & Unwin, 140-153.

Polat, F. (2003) Factors Affecting Psychosocial Adjustment of Deaf Students. *Journal of Deaf Studies and Deaf Education.* 8(3) 325-339.

Power, D & Hyde, M (2002). The Characteristics and Extent of Participation of Deaf and Hard of Hearing Students in Regular Classes in Australia. *Journal of Deaf Studies & Deaf Education* 7:4, 302-311.

Prasad, H. N (2000); Information Needs & Users. FORINF@ No. 8, April- June, 5-11

Safder, M, Akhtar, M, Fatima, G. & Malik, M (2012) Problems Faced by Students with Hearing Impairment in Inclusive Education at the University Level. *Journal of Research and Reflections in Education. Vol.6, No.2, pp129 -136*

Saur, R.E & Popp, M.P (1984) Action Zone theory and the hearing impaires students in the mainstreamed classroom. *Journal of Classroom Interaction*, 19 (2) 21-25.

Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) (2008). Potential Health Risks of exposure to noise from personal music players and mobile phones including a music playing function. Brussels. European Commission. 22

Shambaugh, G.E. (2000) *Deafness.* In Micropedia- The new Encyclopedia Britannica.15ed. 3, 983.

Shemesh, R. (2010). Hearing Impairment, Deafness, Assessment and Management. In: JH Stone, M Blouin editors. International Encyclopedia of Rehabilitation. Retrieved on September 6, 2016 from http://cirrie.buffalo.edu/encyclopedia/en/article/272/

Smith, D.D & Naomi, C.T. ((2007) *Introduction to Special Education. Making a difference* 7th ed. New Jersey, Pearson Education Inc. 115 -148

Stinson, M.S & Antia, S.D (1999) Considerations in Educating Deaf and Hard of Hearing Students in Inclusive Settings. *Journal of Deaf Studies and Deaf Education* 4 (3) 163-175.

Stinson, M.I & Liu, Y. (1999) Participation of Deaf and Hard of Hearing Students in Classes with Hearing Students. *Journal of Deaf Studies and Deaf Education* 4 (3) 191-202

Turnbull, A; Turnbull, R; Shank, M & Leal D. (1999) *Exceptional Lives, special education in today's schools.* 2nd edition.Ohio. Prentice Hall. 580-655.

Tahir, M. & Khalid, M (2008). Information Needs and Information Seeking Behavior of Arts and Humanities Teachers: A survey of the University of the Punjap, Lahore, Pakistan. *Library Philosophy and Practice*. www.webpages.uidaho.edu/~mbolin/tahir-mahmood-shafique.htm

Thakur, B; Pawar, A. M &Gupta, P (2016). Pediatric Dentist: The Difference maker for children suffering from speech and Language delay. *Indian Journal of Mednodent and Allied Sciences* 4:2, 90-96. Retrieved on December 18, 2016 from file:///C:/Users/user/Downloads/289-1057-1-PB.pdf

United Nations Education Scientific and Cultural Organization (1973). *The present situation and trends of research in the field of special education. Paris*, UNESCO 116.

University of Cambridge Disability Resource Centre, England. *Teaching Deaf/Hearing Impaired Students.* Cambridge. Disability Resources Centre. www.disability.admin.cam.ac.uk/

University of Delaware, USA (2008) Resources for Faculty helping students. Retrieved on October 11, 2012 from www.udel.edu/DSS/resources-helping.html

University of Ilorin, Nigeria (2012). *Brief on Center for Supportive Services*. Retrieved ON June 6, 2012 from www.unilorin.edu.ng/.../centre-for-supportive-services/441-brief-on-cent

University of Vermont, USA (2013) *Universal Design for learning.* www.uvm.edu/~cdci/universaldesign/?Page=teachingaccommodations/deaf.php&SM=teaching-accommodations/submenu.

University of Virginia Teaching Resource Center, USA. *Tips for Accommodating Deaf and Hard of Hearing Students in your classroom* . Retrieved on July 7, 2012 from http://tre.virginia.edu/studenthealth/inc.html

Uwechue R. (ed.) (1996) *Africa Today*. London. African Books Limited. 1157-1219.

Wadesango, N; Gudyanga, ; Hove, E; & Gudyanga, A (2014). Hearing Impairment Disability Saliennce in Students: measures and correlates with social acceptance in regular schools. *Mediterraneen Journal of Social Sciences*. 5 (9), 415-422.

Waldron, K.A (1995) *Introduction to a special education: the inclusive classroom*. Albany, NY, Delmar Publishers.

Westwood, G. (2012) Investigating the Information needs of University students in Foundational Language courses. *Studies in self access journal.* 3(2), 149-162.

World Federation of the Deaf (WFD) (2008) *Global Survey Report*. Retrieved on May 5, 2012 from http://www.wfdeaf.org/

World Health Organization (2008). *Grades of hearing impairment*: Retrieved on May 5, 2012 from http://www.who.int/pbd/deafness/hearing_impairment_grades/en/index.html

Zulfiguar, T & Zamir, S (2015) Role of Classroom Culture in Academic Learning of Students at University Level. *Journal of Literature, Languages and Linguistics*. 13, 125-142. www.iiste.org/Journals/index.php/JLLL/article/viewFile/24824/25427

Appendix 1. Lecturers Questionnaire

Department of Library and Information Science
Faculty of Education
University of Nigeria, Nsukka

Jan 12, 2016

Dear Sir/Madam

REQUEST TO COMPLETE QUESTIONNAIRE

I am a PhD student in the department of Library and Information Science, University of Nigeria, Nsukka. I am undertaking a study on Classroom environment and resources provision for meeting the information needs of Students with Hearing Impairment in Nigerian Federal Universities. I write to request your assistance in responding to the items in the questionnaire titled **Classroom Environment and Students with Hearing Impairment Questionnaire (CESHIQ) 1**

Please note that the exercise is purely for academic purposes and will be treated with utmost confidentiality.

Thanks in advance for anticipated cooperation.

Osadebe, Ngozi E.

Classroom Environment and Students with Hearing Impairment Questionnaire (CESHIQ)

Section A. Personal Information

Please tick {ã} against the response that captures your opinion in the following sections.

Name of Institution: ----------

Sex : Male ( ) Female ( ) . **Academic Status**: Graduate Assistant/Assistant Lecturer); Lecturer 11 ( ); Lecturer 1 ( ); Senior Lecturer ( ); Professor ( ).

Section B. Questionnaire

Note: Key;

Strongly Agree (SA) 4; Agree (A) 3; Disagree (D) 2; Strongly Disagree (SD) 1. (For Clusters 1 & 3)

Very Highly Needed (VHN) 4; Highly Needed (HN) 3; Needed (N) 2; Not Needed (NN)1. (For cluster 2).

Very Highly Relevant (VHR) 4; Highly Relevant (HR) 3; Relevant (R) 2; Not Relevant (NR) 1. (For cluster 4)

Cluster 1. Instructional methods required for meeting the information needs of students with hearing impairment

S/n	**Instructional methods.**	SA	A	D	SD
1	Peer tutoring				
2	Co-operative teaching				
3	Collaborative teaching (Co-teaching)				
4	Self Instructional method				
5	Captioned Video Instruction				
6	Lecture method				
7	On-line Instruction				
8	Hybrid Instruction				

Cluster 2. Classroom resources required for meeting the information needs of students with hearing impairment.

s/n	**Classroom - Human resources**	**VHN**	**HN**	**N**	**NN**
9	Sign language interpreters				
10	Note takers				
11	Academic Adviser				
12	Tutors				
13	Course registration assistant				
	Classroom-Non-human resources	**VHN**	**HN**	**N**	**NN**
14	Over head projector				
15	Telecommunication device for the deaf (TDD)				
16	Video Remote Interpreters (VRI)				
17	Radio microphone				
18	Overhead phones				
19	Flashing alert devices				
20	Computer assisted real time captioning (CART)				
21	Hearing aid compatible sound systems				
22	Television				
23	Computer				
24	Speech recognition software				
25	Pictures				
26	Videos				
27	Films				
28	Sound amplifiers				
29	Double glazed windows				
30	Air conditioners				
31	Lights.				
32	Room microphones				

33	Absorbent ceilings				
34	Audio loops				

Cluster 3. Strategies required for creating positive classroom environment for meeting the information needs of students with hearing impairment

	Strategies for creating positive classroom environment	SA	A	D	SD
35	Providing lecture outlines before the lecture starts				
36	Providing lecture notes before the lecture begins				
37	Attracting the students eyes before speaking				
38	Writing important information on the board while teaching				
39	Facing the students when speaking				
40	Avoiding moving around while speaking				
41	Speaking clearly				
42	Giving a clear view of the mouth while speaking				
43	Avoiding speaking while writing on the board				
44	Repeating questions orally many times before given the answer				
45	Asking students to raise their hands before speaking				
46	Addressing inappropriate behavior of other students against students with hearing impairment				
47	Reserving front seats for students with hearing impairment				
48	Advising students to seat in a semi-circular position				
49	Standing in a position where the instructor is visible to everybody				
50	Coming early to lecturers				
51	Staying after lecturers to discuss with students				
52	Ensuring that students are not embarrassed for asking or answering questions.				

Cluster 4. Relevant Evaluation Environment for meeting the information needs of students with hearing impairment

s/n	**Relevant Evaluation Procedures include:**	VHR	HR	R	NR
53	Provision of conducive examination location				
54	Provision of extended time on examination				
55	Provision of Interpreters to interpret the examination papers				
56	Production of examination papers in plain English				
57	Studentôs should be accessed based on studentôs knowledge of subject content not on mastery of English language.				
58	Provision of preferential seating arrangement during examination				
59	Imperfect spellings should be ignored for students				
60	Students should be permitted to use dictionaries during examinations				
61	Students should be permitted to use thesaurus during examinations				
62	Students should be permitted to use computers during examinations				

Appendix 2: Student's Questionnaire

Department of Library and Information Science
Faculty of Education
University of Nigeria, Nsukka

Jan 12, 2016

Dear Sir/Madam

REQUEST TO COMPLETE QUESTIONNAIRE

I am a PhD student in the department of Library and Information Science, University of Nigeria, Nsukka. I am undertaking a study on ñClassroom environment and resources provision for meeting the information needs of Students with Hearing Impairment in Nigerian Federal Universitiesò. I write to request your assistance in responding to the items in the questionnaire titled **Classroom Environment and Students with Hearing Impairment Questionnaire (CESHIQ) 11**

Please note that the exercise is purely for academic purposes and will be treated with utmost confidentiality.

Thanks in advance for anticipated cooperation.

Osadebe, Ngozi E.

Classroom Environment and Students with Hearing Impairment Questionnaire (CESHIQ) 11

Section A. Personal Information

Please tick {ã} against the response that captures your opinion in the following sections.

Name of University: _____

Year of Study: First Year ( ), Second Year ( ); Third year ( ); Fourth year ( ); Fifth year ( )

Gender: Male ( ); Female ( ). **Type of hearing impairment**: Hard of hearing ( ); Deaf ( )

Time of on-set of impairment: At birth ( ); After birth ( )

Section B. Questionnaire.

Note:
Strongly Agree (SA) 4; Agree (A) 3; Disagree (D) 2; Strongly Disagree (SD) 1. (for Cluster 1,).
Very Highly Needed (VHN) 4; Highly Needed (HN) 3; Needed (N) 2; Not Needed (NN)1. (for cluster 2).
Very Highly Relevant (VHR) 4; Highly Relevant (HR) 3; Relevant (R) 2; Not Relevant (NR) 1. (For cluster 3)

Cluster 1. Information needs of students with hearing impairment.

S/n	**Students with hearing impairment need information to:**	**SA**	**A**	**D**	**SD**
1	Improve Language skills				
2	Complete class assignment				
3	Prepare for assigned class presentation				
4	Prepare for lectures				
5	Improve personal competencies				
6	Improve general knowledge				
7	Prepare for examination				
8	Acquire research writing skill				

Cluster 2. Classroom resources required for meeting the information needs of students with hearing impairment.

s/n	**Classroom - Human resources**	**VHN**	**HN**	**N**	**NN**
9	Sign language interpreters				
10	Note takers				
11	Academic Adviser				
12	Tutors				
13	Course registration assistant				
	Classroom-Non-human resources	**VHN**	**HN**	**N**	**NN**
14	Over head projector				
15	Telecommunication device for the deaf (TDD)				
16	Video Remote Interpreters (VRI)				
17	Radio microphone				
18	Overhead phones				
19	Flashing alert devices				
20	Computer assisted real time captioning (CART)				
21	Hearing aid compatible sound systems				
22	Television				
23	Computer				
24	Speech recognition software				
25	Pictures				
26	Videos				

27	Films				
28	Sound amplifiers				
29	Double glazed windows				
30	Air conditioners				
31	Lights.				
32	Room microphones				
33	Absorbent ceilings				
34	Audio loops				

Cluster 3. Relevant Evaluation Environment for students with hearing impairment

s/n	**Relevant Evaluation Procedures include:**	VHR	HR	R	NR
35	Provision of conducive examination location				
36	Provision of extended time on examination				
37	Provision of Interpreters to interpret the examination papers				
38	Production of examination papers in plain English				
39	Studentôs should be accessed based on studentôs knowledge of subject content not on mastery of English language.				
40	Provision of preferential seating arrangement during examination				
41	Imperfect spellings should be ignored for students				
42	Students should be permitted to use dictionaries during examinations				
43	Students should be permitted to use thesaurus during examinations				
44	Students should be permitted to use computers during examinations				

Appendix 3: FOCUS GROUP DISCUSSION GUIDE

Section A. Demographic Information.

Instruction: Tick (√) in the appropriate column

Name of University: _____

Year of Study: First Year ( ), Second Year ( ); Third year ( ); Fourth year ( ); Fifth year ( )

Gender: Male ( ); Female ( )

Age: 18-20years ( ); 21-23years ( ); 24-26years ( ); 27-29years ( ); 30 and above ( )

Type of hearing impairment: Hard of hearing ( ); Deaf ( )

Time of on-set of impairment: At birth ( ); After birth ( )

Section B. Focus Group Introduction

Welcome: Thanks for agreeing to be part of the focus group. We appreciate your willingness to participate**.**

Introductions: Three people will guide this discussion. They are the Moderator, Assistant moderator and Sign Language Interpreter,

The Moderator will introduce the topics for discussion. Guide the discussion to ensure that it does not derail and prompt participants to speak.

The Assistant moderator will record the discussions with the aid of a tape recorder. The Assistant Moderator will also assist the Moderator is guiding the discussions.

The Sign Language Interpreter will sign the topics for discussion for the participants in case there are participant whose mode of communication is sign language. The Sign Language Interpreter will also clerk the responses of participants whose mode of communication is sign language.

Purpose of the Focus Group

We have been asked by Mrs Ngozi Osadebe to conduct the focus group(s). The reason we are having the focus group(s) is to find out the information you need to successfully carry on with your academic program, the classroom resources available in the classrooms where you study, determine the type of classroom environment in which you study as well as procedures under which you take your examinations. We need your input and want to share your honest and open thoughts with us.

Ground rules

Express your opinions freely

1. There are no right or wrong answers
2. Confidentiality will be ensured
3. Verbal discussions will be tape recorded while sign language expressions will be clerked.

Appendix 4. Section C. Focus Group Discussion Questions.

Research Question 1. What are the information needs of students with hearing impairment in Nigerian Federal Universities?

1. What information do you need to participate in classroom discussions?
2. What information do you need to live an independent life in the university?
3. What information do you need to interact successfully with fellow students
4. What information do you need to access the university library?
5. Is there anything else you will like to say about your information needs as a student?

Research Question 2. What are the classroom resources required for meeting the information needs of students with hearing impairment in Nigerian Federal Universities?

6. Mention teaching and learning resources you require in your classroom?
7. What are the human resources you need to participate in classroom discussions?
8. What are the non-human materials you require in your classrooms?
9. Are there additional information will you like to give on classroom resources you will need in your classrooms.

Research Question 5. What are the Relevant Evaluation Environment for students with hearing impairment?

10. Describe the type of environment where you will like to take your examinations?
11. What are the special considerations you will like to be extended to you during examinations?
12. Give suggestions on how you will like examinations to be carried out.

Appendix 5. Consent Form

Focus group discussion for Classroom environment and resource provision for meeting the information needs of students with hearing impairment in Nigerian Federal Universities

Consent to Participate in Focus Group discussion

You are invited to participate in a focus group discussion being sponsored by a PhD student of University of Nigeria, Nsukka. The purpose of the exercise is to have a discussion on classroom environment and resource provision for meeting the information needs of students with hearing impairment in Nigerian Federal Universities. The information learned in the focus groups will hopefully be used to implement policies that will help in providing learning resources and creating conducive classroom environment for students with hearing impairment. It will also help to throw light on the information required by students with hearing impairment for successful completion of their studies.

You can choose whether or not to participate in the focus group and stop at any time. Verbal expression will be tape recorded while sign language expressions will be clerked. Every expression will be anonymous and no names will be mentioned in the report. There is no right or

wrong answers to the focus group questions. I will like to have many different viewpoints and would like to hear from everyone. I hope you can be honest even when your responses may not be in agreement with the rest of the group. In respect for each other, I ask that only one individual expressed his or her opinion at a time in the group and that responses made by all participants be kept confidential.

Thanks for your patience in reading through this form

Ngozi Osadebe (Mrs)

I understand this information and agree to participate fully under the conditions stated above:

Signed:_____

Date:_____

Appendix 6

Validates Comments

S/n	Observation of the Validates	Modification Suggested	Remark
1	The title of the work is not in the instrument	The title of the work should appear before the instrument	This was done as suggested
2	Wrong response format	Let the response format align with the items	This was done as suggested
3	The data gathering instrument for lecturers and students have different weighing factors	Revisit cluster A for the purpose of addressing research question 1	This was done as suggested
4	Hypotheses not testable	Modify the hypotheses to make them	This was done as

		testable	suggested
5	Questions for Lecturers and students should not be in the same instrument	Develop two separate instruments. One for lecturers and the other for students	This was done as suggested