



REFLECTIONS ON BARRIERS FACED BY HEARING IMPAIRED LEARNERS AND ITS EFFECT ON THE TEACHING AND LEARNING PROCESS

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Abstract

Students with hearing impairment face diverse challenges in regular schools as well as inclusive schools which greatly affects their access and full participation in academic programs thereby having an effect on the teaching and learning process. A descriptive survey study on the barriers faced by hearing impaired learners and its effects on the teaching and learning process in the following schools were examined; G. B. H. S Mendong, Academic School of Excellence Bastos, and WECARE school all of Yaoundé. The study examined the institutional and infrastructural, social barriers, teaching methods, and academic performance faced by the hearing-impaired students and its effects on the teaching and learning process. The study was guided by a conceptual framework which explained the relationship between infrastructural and institutional, social barriers, teaching method and academic performance and how it affect the hearing-impaired learners in the teaching and learning process. Learning outcomes achieved when the barriers were present and when the barriers had been eliminated. Two theories were used to show the relevance of eliminating barriers to hearing impairment. That is the attachment theory of John Bowlby and the social cognition theory of mind by Brenda Schick (2002). The sample population of the study included 40 learners with hearing impairments from all the schools and 10 teachers. Research instruments used to select the respondents were mainly questionnaires one administered to learners and the other given to teachers. Purposive sampling was also used because the researcher wanted to select only all the learners with hearing impairments from the three schools as well as teachers concerned with the teaching of these children. For the purpose of this study two sets of questionnaires were prepared



for the learners and for the teachers. The questionnaires were piloted in a school not in the selected sample. Collected data was analysed using the statistical package for social sciences (SPSS) version 2.0 and reported in form of frequency tables and percentages. Correlation analysis was carried out to test the hypotheses. The findings reveal that significant barriers for hearing impaired students exist and they included the mode of instruction used by teachers; level of education of the sign language interpreter, inadequate classroom space and furniture, absence of overhead projectors during lessons, inadequate signage especially in workshops and laboratories, noisy classroom environment and challenges during integrating with peers leading to loneliness and isolation. The study recommends that the various legislations enacted be enforced in all learning institutions. The support staff be given mandatory basic training on accommodation strategies for impairments learners as a whole. Necessary hearing aids materials should be provided to facilitate the teaching learning process. Thus, making learners with impairment to control and excel in education.

Key words:

Barriers, Hearing Impaired Learners, Teaching And Learning Process.

Résumé

Les élèves malentendants sont confrontés à diverses difficultés, tant dans les écoles ordinaires que dans les écoles inclusives, ce qui affecte considérablement leur accès et leur pleine participation aux programmes scolaires, ce qui a des répercussions sur le processus d'enseignement et d'apprentissage. Une étude descriptive par sondage a été menée sur les obstacles rencontrés par les élèves malentendants et leurs effets sur le processus d'enseignement et d'apprentissage dans les écoles suivantes : G. B. H. S. Mendong, l'École d'excellence académique de Bastos et l'école WECARE, toutes situées à Yaoundé. L'étude a examiné les obstacles institutionnels, infrastructurels et sociaux, les méthodes d'enseignement et les résultats scolaires rencontrés par les élèves malentendants, ainsi que leurs effets sur le processus d'enseignement et d'apprentissage. L'étude s'appuyait sur un cadre conceptuel expliquant la relation entre les obstacles infrastructurels, institutionnels et sociaux, les méthodes d'enseignement et les résultats scolaires, ainsi que leur impact sur les apprenants malentendants dans le processus d'enseignement et d'apprentissage. Les résultats d'apprentissage ont été obtenus lorsque les obstacles étaient présents et lorsqu'ils ont été éliminés. Deux théories ont été utilisées pour démontrer la pertinence de l'élimination des obstacles à la déficience auditive. Il s'agit de la théorie de l'attachement de John Bowlby et de la théorie de la cognition sociale de l'esprit de Brenda Schick (2002). L'échantillon de l'étude comprenait 40 élèves malentendants de toutes les écoles et 10 enseignants. Les instruments de recherche utilisés pour sélectionner les répondants étaient principalement des questionnaires, l'un administré aux élèves, l'autre aux enseignants. Un échantillonnage raisonné a également été utilisé, car le chercheur souhaitait sélectionner uniquement les élèves malentendants des trois écoles, ainsi que les enseignants concernés par l'enseignement de ces enfants. Pour les besoins de cette étude, deux séries de questionnaires ont été préparées pour les élèves et les enseignants. Les questionnaires ont

été testés dans une école ne faisant pas partie de l'échantillon sélectionné. Les données collectées ont été analysées à l'aide du logiciel SPSS (Statistical Package for Social Sciences) version 2.0 et présentées sous forme de tableaux de fréquences et de pourcentages. Une analyse de corrélation a été réalisée pour tester les hypothèses. Les résultats révèlent l'existence d'obstacles importants pour les élèves malentendants, notamment le mode d'enseignement utilisé par les enseignants, le niveau de formation de l'interprète en langue des signes, l'espace et le mobilier inadéquats des salles de classe, l'absence de rétroprojecteurs pendant les cours, une signalisation inadéquate, notamment dans les ateliers et les laboratoires, un environnement de classe bruyant et des difficultés d'intégration avec les pairs, entraînant solitude et isolement. L'étude recommande l'application des différentes législations en vigueur dans tous les établissements d'enseignement. Le personnel de soutien doit recevoir une formation de base obligatoire sur les stratégies d'adaptation pour les apprenants handicapés dans leur ensemble. Le matériel d'aide auditive nécessaire doit être fourni pour faciliter le processus d'enseignement et d'apprentissage. Ainsi, les apprenants malentendants peuvent maîtriser leur apprentissage et y exceller.

Mots-clés:

Obstacles, Apprenants malentendants, Processus d'enseignement et d'apprentissage.

Introduction

Cameroon is a signatory to many different conventions regarding inclusion such as the Geneva Convention of Switzerland in 1949, the Universal Declaration of Human Rights of a Child in 1948. This was a convention that was held which intended to be used as a human instrument with an explicit social development dimension. It adopts a broad categorization of persons with all types of disability to enjoy all human Rights and Fundamental Freedoms. The U.N Convention on the declaration of Human Rights to Persons living with disabilities according to the United Nations convention on the Rights of Persons with disabilities (UNCRPD) include those persons who have long term physical, mental, intellectual or sensory impairment which in interaction with various barriers may hinder their full or and effective participation in the society on an equal basis with the others! The hearing-impaired learners are not in conformity with the societal norms thus the society stigmatized them (Alper & Ryndak,1992). This could be seen in classroom situations where they are being spoken to in loud tones. The disabled persons especially those with hearing impairments are treated as “in valid “or inferior and in need of very special concern and protection in the classroom setting.

The Right to Education is a fundamental right for every one and important development has taken place which is aimed at addressing the educational needs of Persons with disabilities. In this research the following gap has been noticed that students with hearing impairment have some challenges in school and this affects the teaching and learning process. Children with disabilities tend to be stigmatized and are very vulnerable because they are not in

conformity with parental expectations thus many parents reject these children; they are not in conformity with the societal norms thus the society stigmatizes them (Alper & Ryndak, 1992).

Disability includes blindness, low vision, and leprosy, hearing impairment, loco motor disability, mental retardation and mental illness. Due to discrimination, they do not go to public places and do not feel free to get those rights which a non-disabled person gets. They are deprived of education and employment (Long et al., 1991). Persons with disabilities in Cameroon continue to face barriers that prevent them from enjoying their full civil, political, economic, social, cultural and developmental rights. This is largely due to lack of awareness, ignorance and prejudice in our society (Alper & Ryndak, 1992). It is also because some legislation fails to protect the rights of persons with disabilities.

Barriers Faced by Hearing Impaired Learners

Mainstreaming and universal access for persons with disabilities are the ultimate goals of the disability movement. This means the removal of all cultural, physical, social and other barriers that prevent persons with disabilities from equally accessing opportunities and participating fully in all aspects of life in Cameroon. Persons with disabilities lack access to employment opportunities and even if they are able to get employment, they face problems such as reasonable accommodation at work, accessible public transportation to get them to work and back.

According to (Stinson et al, 1996) disability can occur at three different levels as follows;

- An impairment in the body function or structure, such as a cataract which prevents the passage of light and sensing form, shape and size of visual stimulus; - A limitation in activity, such as the ability to read or move around.
- A restriction from participation, such as exclusion from school.

Some children were born with a disabling health condition or impairment while others may experience disability as a result of illness, injury or poor nutrition. Children with disabilities include those with health condition such as cerebral palsy, spinal bifida, muscular dystrophy, traumatic spinal cord injury, Down syndrome and children with hearing, visual, physical, communication and intellectual impairment. For example, a child with cerebral palsy may have mobility, communication and intellectual impairment. The complex interaction between a health condition and impairment, environmental and personal factors mean that each child's experience of disability is different.

However, today's society understanding of disability is improving as we recognize "disability" as what occurs when a person's functional needs are not addressed in his or her physical and social environment. By not considering disability as a personal deficit or short coming and instead thinking of it as a social responsibility in which all people can be supported to live independent and full lives, it becomes easier to recognize and address challenges that all people including those with disabilities experience.

In the African continent, it is estimated that only between 1 and 2 percent of disabled people have access to basic services including care, rehabilitation and education secretariat for the rehabilitation of disabled persons (2001). The secretariat of the African Decade of Persons with disabilities SADPD, (2012) reports that early efforts aimed at providing Education for children with disabilities in Africa have mainly been through special schools. These institutions can only cater for a fraction of disabled children and have the disadvantage of isolating them from their families and society. It also does not equip them with the knowledge and skills required to pursue education to higher levels or access productive employment SADPD, (2012).

However, In the Cameroonian context, before the creation of the ministry of social affairs in 1975 by the Cameroon government, formal education for children with disabilities was mostly done in special institutions which were mostly privately owned and with fewer children attending regular schools. These first centers were created in 1972 called Ecole Specialise pour les infants Deficient Auditif -ESEDA. (Special school for children with hearing impairments) and L'externat medico pedagogue-La COLOMBE (special school for the mentally handicapped children). These centres were run and managed by religious groups and parents of children with disabilities. Another centre was created in 1975 called PROMHANDICAM. It was a centre for the vocational training of children with disabilities of both semesters for their eventually socio-economic integration into the society.

It is worth mentioning that before 1975 the Cameroon Government did little or nothing to help children with disabilities as concern education. The children's welfare was catered by a unit in the Ministry of Public Health. Disability was seen as a disease which was sometimes incurable. The responsibility for special education is shared between the Ministry of Education and the Ministry of Social Affairs. With the creation of the Ministry of Social Affairs in 1975, a Department of National Solidarity was created to oversee the well-being of persons with disabilities. This department in collaboration with the ministry of National Education has put in some effort to the education of children with disabilities. The Ministry of Social Affairs in order to train young handicapped Cameroonians with visual impairment in the art and craft, created the rehabilitation institute for the blind in Buea called Bulu Blind Centre (Minas, 1990). This was the first institutions under the control of this ministry. Many more centers have been created. Most of the essence centres are owned by private individuals such as churches, Non- Governmental Organizations and they are mostly found in the urban centers with few of them in rural areas.

From the initiative and adoption of the United Nations framework for Action in which Cameroon took part and the standard rules on the equalization of opportunity especially for people with disabilities, there has been a slight possible change towards the education of children with disabilities in Cameroon. As an accord to this, the Cameroon National Assembly deliberated and adopted Law November 83/013 of July 21st 1983 relative to the protection of persons with disabilities. The law was supported by Decree November 90/1516 of 26 November 1990 text of application to support the modalities and protection

of persons with disability (Biya, 1990). It can be said that the 1983 law of disability laid the foundation stone for a stronger government policy towards the education of children and young adults with disabilities in Cameroon. With the help of the special schools and some regular schools having children with disabilities, there has been great development in enhancing positive attitudes, and also training disabled adults to become self-reliant for the socio-economic integration in to the community. It is also worth mentioning that, there is the lack of government encouragement towards the establishment of training centers for special education teachers which can lead to an improvement in the level of education of children with disabilities.

In addition, law NO 2010/002 of 13th April, 2010 on the protection and promotion of handicap people stipulates that, it is not enough to register these persons but provide them with facilities or adequate materials, follow up and services from qualified personnel's. It also stipulates in its article 25 that 'the state shall decentralize territorial councils, civil society and eventual international organization, shall put in place 'integrator' education structures and training establishments according to the type of handicap like to enable physically challenged persons to attend their classes very well and have quality education. In its article 26, it states that decentralized territorial councils and civil society assures the initial and continuous training of specialized personnel in the follow up of handicap persons. All of these constitute an indication that the government of Cameroon has recognized the relevance of educational aims for children and with the need to make education accessible to all as a basic human right.

Hearing impairment (HI) is considered a hidden disability because it is not visible unlike other types of disabilities such as visual impairment or physical impairment which are clearly identifiable. HI or deafness according to (idea, 2004) is a condition where an individual is impaired in processing linguistic information through hearing. The severity of a hearing impairment is measured by the amount of sound that can be heard using one's better ear and this is measured using decibels (dB). It is categorized into four, that is, mild hearing impairment where the minimum sound that can be heard is between 25 and 40 dB, moderate hearing impairment where the minimum sound that can be heard is between 40 and 70 dB, severe hearing impairment where the minimum sound that can be heard is between 70 and 95 dB and profound hearing impairment where the minimum sound heard is 95 dB and over (WHO, 2012).

Hearing loss can be caused by a number of factors including; heredity (genetics), aging, loud sound exposure, diseases and infections, trauma (accidents), or ototoxic drugs (drugs and chemicals that are poisonous to auditory structures (Van & Dobie, 2004). According to WHO (2012), there are 120 million people worldwide with hearing impairment, and 78 million of those affected are in developing countries. In Sub Saharan Africa more than 1.2 million children aged between 5 and 14 years suffer from moderate to severe hearing loss in both ears and is considered to be mainly due to ear infections, lack of hygiene and lack of treatment. The numbers of children with HI keep increasing and thus the need to create

educational opportunities for them by making schools and institutions accessible to them (Adoyo, 2015).

Education as a human right has been and continues to be one of the things that most nations strive to provide for their citizens. The objective of the special education programme is to assist persons with disabilities to develop towards enhancing their independence and enable them to become well-adjusted individuals in the society. It's with full throttle that the government of Cameroon insured the integration of children with disabilities into regular formal schools in order to enhance their participation in formal education, early identification and assessment of children with disabilities and sensitization of parents and communities about the needs of children with disabilities to enroll in special education programmes. (Law No 90/1516 of 26th of November and 1990 text of application)

Further, the Cameroon government is also guided by the Persons with Disabilities Law No 89/013 of July 21st 1983 which is in sycamore with various international conventions and declarations such as UNCRC (1948), World Conference on EFA (1990), World Conference on Special Needs Education (1994), Dakar Forum for Action (2000), and UNCRPD (UN, 2006). Thanks to the institution of the Ministry of Social welfares in 1975 (Degree N0 78/467 of 28th June, 1975) children with disabilities were perceived ill and were therefore submitted to the medical model of disability as they were catered for by the Ministry of Public health and later did very little or nothing at all to ensure the accommodation of children with disabilities in mainstreams or special schools. The government again in 2010 adopted law 2010/002 of the 13th of April which clearly provides for an inclusive Education which means all children are educated in regular classrooms learning side by side which individual learner's need being taken care of. Despite all of this, the reality in the field is different. Statistics established in 2008 shows that 435 children are living on the streets of Yaoundé and Douala and many other parts of Cameroon do not go to school. IBE, (2008) reported that only about 10 percent of children living with disabilities do go to school. Most of them receive education in special education centres which are far away from their homes such as the Centre Nationale de Rehabilitation de personnel handicapers (CNRPH). Furthermore, the inclusiveness, the curriculum, infrastructure, teacher's professional knowledge and peer attitudes amongst others are to be adjusted in order to satisfy all learners and improve performance especially of impaired learners.

The Cameroon government has however, helped these learners and includes them in the regular system. This is justified by the many decrees permitting public schools in our country to carry out inclusive education thereby empowering and impacting learners with hearing impairments to effectively participate in development decision making and the democratic process. But the level of implementation is very slow as there are only few schools practicing inclusive education.

However, the ability to hear and the consequent interference with normal communication have effects on interpersonal relationships and adjustments as well as academic

performance. Their performance raises several questions in the mind of the researcher, such as: The methods teachers use in assessing learning and teaching of hearing-impaired learners enrolled in secondary schools in Cameroon. Also, to find out the different barriers faced by hearing impaired learners. This study will attempt to provide answers to the questions raised in order to find out better ways to support the hearing-impaired learners in the teaching and learning process.

In a social context, HI students often do not feel as much a part of the "school family" as their hearing peers (Foster et al., 1999). Inadequate levels of access to interpreting services and a lack of awareness of deaf students' needs among academic staff (Komesaroff, 2005) also pose a challenge. Some students may not seek support services simply because they are unaware of the difficulties they could face in postsecondary education institutions where teaching and learning conditions are very different from those in secondary schools (McLean, 1999).

Nonetheless, Ndurumo (1986) asserts that special education cannot be divorced from regular education and it is important in preparing children with hearing impairment for the competitive world of work and survival. Furthermore, according to NDZI. E.B. (2021) in her research project states that with Inclusiveness, the curriculum, infrastructure, teacher's professional knowledge and peer attitude amongst others are to be adjusted in order to satisfy all learners and improve on their performances especially for hearing impaired learners.

Hearing Impairment

Where an individual has a hearing loss that hinders him from hearing or following simple spoken instruction & explanation could be considered as hearing impairment. 'Hearing impairment' is the generic term used to describe any level of hearing loss, ranging from mild to profound (Paul & Quigley, 1990:56). 'Hearing impairment' is the preferred term used throughout this study as it fits in with the social model of disability, namely that the effects of impairment result in the phenomenon of disability. Furthermore, according to Barnes (1991),

"Impairment is the functional limit at on within the individual caused by physical, mental or sensory impairment" and "disability is the loss or limitation of opportunities to take part in the normal life of the community on an equal level with others due to physical and social barriers." This distinction is important and is a critical argument in this study. In addition, use was made of 'person-first' language in this study, i.e. students with hearing impairment or students with hearing impairments. He is deprived of normal listening; he doesn't learn to understand his own language. These hearing-impaired children usually have less comprehensive of spoken language than is generally attributed to them and difficulties in following simple instructions. It makes them lack verbal comprehension because of listening which hasn't built up his memory of word in the normal way.

Educational Accommodations for the hearing Impaired.

According to access STEM (2014) the accommodations for hearing impaired students can be classified as visual or oral. Visual accommodation relies on the person sense of sight while Oral accommodation relies on the person's hearing ability. Visual accommodation includes sign language interpreters, lip reading and captioning. Oral accommodations include amplification devices such as FM system.

Some students with hearing problems may hear only specific frequencies or sound within a certain volume range. He may rely more upon hearing aids and lip reading. Being deaf or hard of hearing affect students in several ways. They may have difficulty following lectures in large halls especially if the acoustics causes echoes or if the speaker talks quietly, rapidly or unclearly. Students with hearing impairment find it difficult to simultaneously watch demonstrations and also follow verbal description particularly if they are watching a sign language interpreter, a captioning screen or speaker's lips. Mazoue (2011) elaborate further by saying that some of Hard Off hearing or deaf students who have acquired the ability to lip read may be able to manage without a sign language, interpreter but needs to watch the instructors' lips at all times. This can be difficult towards them or if the lightening is bad. She goes ahead to say that "deaf students generally need some extra form of support system such as sign language interpreters, not takers, counsellors and extra tutorials. Most teachers don't know sign and are expected to sign to in such cases. his will intend to handicap such learners.

It is important to remember that a student who is using an interpreter, who is lip reading or reading a real-time captioning cannot simultaneously look down on writer materials or take note. projected text is helpful to these students as well as handouts that can be read before or after the class. Most teachers do not know how to use these materials and those who can use them can't afford them. Looking at sign language interpreters, Russell, (2010) is of the opinion that sign language interpreters play a major role in the mediation of class room instructions. In a case study he carried, he observed that there is a need for qualified interpreters to manage the process with accuracy. He confirmed that the lack of inadequate qualified interpreters affected the quality of the instructions delivered to the deaf. This the case in many of our schools today.

For students who are hard of hearing, hearing aids are more useful. Students who use hearing will benefit from amplification such as assistive listening devices (ALDs) like hearing and compactible telephones, personal neck loops and audio induction loop assistive listening devices. Some students used FM amplification systems which requires the instructor to put on a small microphone to transmit amplified sounds to the student.

Inclusive Education

According to UNESCO (2005), inclusive education refers to the diversity of needs of all learners through increased curriculum content, approaches, structures and strategies with

a common vision which covers all children of the appropriate age range and a conviction that it is the responsibility of the regular system to educate all children. It is a process of reforming schools and attitudes, which ensures that every child receives quality and appropriate education within the regular schools. In this way, inclusion is more complex than mere physical placement of children with special needs in the regular classroom.

Inclusion means fully including students with diverse abilities (both gifted and disabled) in all aspects of schooling that other students are able to access and enjoy. It involves regular institutions and classrooms genuinely adapting to and changing to meet the needs of all students (Loreman and Deppler, 2001). This trend has been supported by the United Nations policies which affirm the rights of children; UNCRC (UN, 1989), the United Nations Standard Rules for the Equalization of Opportunities for Persons with Disabilities (UN, 1993) and the Salamanca Statement (UNESCO, 1994). Educational policies in developing countries have also responded to the social justice agenda in different ways.

In the efforts to meet obligations towards the international and national policies for inclusion, persons with disabilities are now appointed in decision making organs and their voices are heard. Due to learners' diversities in regular classrooms, the Ministry of Education through the Cameroon Institute of Curriculum Development and the Cameroon National Examination Council has been able to differentiate between the curriculum and the national examinations respectively to take care of the needs of every individual learner with disability (Adoyo and Odeny, 2015).

Students with disabilities who are included in regular institutions tend to become adults who spend more time in leisure activities outside home, with others who are non-disabled and spend more time in community work than their counterparts in segregated institutions (Alper and Ryndak, 1992). one benefit of inclusive education for HI students is to have a constant input of spoken language through interaction with hearing peers to acquire the language of a hearing society. The HI student will have access to a richer and wider curriculum to prepare for a competing world of work.

Institutional based barriers

Although the goal of inclusive education is to promote the academic and social integration of students, regardless of hearing status, hearing impaired students in public institutions often face social isolation and difficulties in academic participation.

Classroom participation and a sense of academic integration are acknowledged as important for the academic success of all post primary students (Tinto, 1993), but are often lacking for hearing impaired students.

Mode of instruction

In a study of the history of Deaf education, Marschark and Spencer, (2010) found out that valuable techniques for instruction such as providing meta cognitive skills to enhance reading or using writing as a process to assist learning the curriculum were methods that

were promoted by teachers of Deaf children a century ago but are not applied extensively in classrooms today. Participation by hearing impaired students in higher education classrooms may relate to the approach employed to communicate course content. Inclusion was found to have failed in part because teachers were unable to meet the demands of modifying and delivering an appropriate mode of teaching students with hearing impairment (Fox and Ysseldyke, 1997).

Teachers may speak extremely fast, move through material very rapidly, and maybe insensitive to the needs of hearing-impaired students trying to follow the lesson through an interpreter (Foster and Elliott, 1986). A teacher needs an understanding of the deaf culture in order to modify the delivery of lessons appropriately and maintain natural speech patterns. The basic knowledge of hearing loss will make an instructor more comfortable working with a hearing-impaired student; they will be able to make appropriate adaptations and accommodations in teaching strategies, activities and curriculum to meet the needs of students.

Classroom participation refers to the student's ability to participate in classroom activities and discussion. It is important for students to participate as it has been found to be a good predictor of the examination marks. Students who have difficulty communicating in the classroom may choose not to participate in classroom activities which may in turn affect their learning and their academic success. This requires that the hearing impaired student have access to all teachers / student communication and also that discussions and other activities are structured in a manner that allows the student to participate (Stinson and Antia, 1999). Some of the barriers to classroom participation include the rapid rate of instruction and discussion, rapid turn taking, rapid change of topics, the high number of speakers involved in the discussion, and the use of space (physical arrangements in the classroom) (Stinson et al., 1996).

While teaching in classrooms, teachers must keep their faces visible especially for hearing impaired students. A preferable sitting place for them would be in the front. However, left or right side of the room can be selected according to the better ear of the student (Lockwood 2001). Teachers need to learn the effective ways of communicating with hearing impaired students as well as have guidance about the classroom acoustics and hearing devices used by the deaf students (Lander, 2006).

A hearing impaired student misses out if a teacher gives instruction while writing on the board, therefore an over-head projector can be a good alternate solution as the instructor can face the class all the time he is talking while still providing visual support (Waayei'-Engles, 1996). A study by Hyde and Power, (2003) revealed that most teachers are reluctant to invest time in training and professional development in how best to accommodate deaf students, citing the small percentage of these students in their classes.

The concept of sign language

Sign languages are languages that use visual manual modality to convey meaning. They can either be expressed through manual articulations in combination with non-manual elements.

There are different sign languages all over the world, just as there are different spoken languages. ASL and British Sign Language are different, mutually unintelligible languages. Because the American and British Deaf communities were not in contact with each other, the two languages developed independently.

French Sign Language, Danish Sign Language, Taiwan Sign Language, Australian Sign Language, Thai Sign Language, Finnish Sign Language, Brazilian Sign Language, and many others have developed in communities of Deaf people, just as spoken languages have developed in communities of hearing people. Each displays the kinds of structural differences from the country's spoken language that show it to be a language in its own right. The discovery that sign languages are languages their own right has led to the blossoming of literary culture in sign. With a new sense of pride in their language and culture, and rooted in Deaf people's strong story-telling tradition, a new generation of Deaf writers, playwrights, and poets has begun to explore the ways sign languages can be used to create works of art. They have produced literary works in sign languages—stories, plays, and poetry—performed and disseminated on videotape.

What has been discovered over the past half century is that sign language is language. This is not just a discovery about sign language; it is a discovery about language itself. It reveals human language to be more flexible than had been imagined, able to exist in either auditory or visual form. It shows that the human drive for language is so strong that when deafness makes speech inaccessible, it finds another channel, creating language in sign. Sign language has taught us that human language can use either channel speech or sign. It is a living testament to the fact that language is what we all need to be human. David M. Perlmutter (1991)

Sign Language Interpreters

One of the most salient characteristics of learning by hearing impaired students in mainstream classrooms is the students' dependence on a third party to provide access to information. Information is received by the student through interpreting and/or real-time captioning during class sessions, or through notes (note taking or printouts) outside of class (Stinson et al., 1999). Despite the importance of sign language interpreting for many hearing-impaired students, there is surprisingly little research concerning its effectiveness in the classroom. There is therefore a dire need to evaluate the relationship of interpreting to learning (Marschark et al., 2005).

Content knowledge by teachers however, appears to be highly valued by hearing impaired students but perceptions of the importance of the interpreters' familiarity with content

material have also not been investigated (Lang et al., 2002). Familiarity with the content may lead to more appropriate sign selections and fewer misinterpretations of a teacher's teaching emphases (Seal, 1998). Students who use interpreters may find that the lag time between the spoken and signed message prevents them from answering questions (Stinson et al., 1996). Interpreters in classes may inadvertently isolate the hearing-impaired student from classmates by being too helpful and answering questions on their behalf, thereby preventing them from active participation in class discussions (Giangreco et al., 1997). As mainstream academic placement has become the primary means of educating hearing impaired students, a serious shortage of qualified sign language interpreters has developed and those who are available are either unqualified or under qualified (Jones et al., 1997). The problem facing the interpreting profession in Cameroon and Africa as a whole is that institutions offering formal training are almost non-existent. Furthermore, examining, accrediting bodies and associations of certified interpreters are non-existent. Schick et al. (1999) in a study in public schools in the U.S found that less than half of the interpreters they evaluated performed at a level considered minimally acceptable for educational interpreting. They concluded that many hearing-impaired students are denied access to classroom communication because of the poor skills of their interpreters.

Resources, Infrastructural and institutional Barriers

The need for additional funds to be provided to institutions for the purpose of educating students with hearing impairments has long been recognized by researchers (O'Shea and O'Shea, 1998). The ways in which our institutions are organized and classrooms structured are often not conducive to effective learning for the majority of students (Kennedy and Fisher, 2001). The classroom environment is a very crucial aspect for a hearing-impaired student. If there is noise within or outside the classroom, it will impact on their ability to use residual hearing through hearing aids and the student will not be able to understand and interact in the classroom effectively (Sundeen, 2007). Teaching and learning in an acoustic friendly environment will be very effective to speed up the learning of a hearing-impaired students and promote his or her participation in the classroom. In addition, the sitting location and lighting is also very important for interaction in a regular classroom. Some students with hearing impairment may need a good visibility and facial cues for lip-reading. Lip reading involves observing a person's face and mouth to understand what words are being said (Asif, 2008).

Ainscow (1995) suggests the ideal physical environment for students with hearing impairment. The classrooms should be away from noise and controlled for acoustics that affect hearing aids. There is need to add carpets, window treatments, or acoustical wall/ceiling coverings to absorb sound and reduce noise from furniture scrapping on hard surfaces by attaching rubber shoes to the legs of students' desks and chairs. There should also be Dimly lit classrooms to enable the students to lip read and to read the signing. Provisions for written or captioned school announcements should also be available. (Stinson and Whitmire, 2000).

Students who face difficulties in hearing utilize a variety of assistive technologies that provide them with improved accessibility in numerous environments. Most devices either provide amplified sound like the hearing aids or alternate ways to access information through vision and/or vibration (Northern and Downs, 2002). Technology such as computers, sound field amplification systems, and interactive white boards can have positive impacts for hearing impaired students. A successful inclusion occurs when an individual is given all of the supports needed, whether it is physical (assistive technology like hearing-aids) or human (a trained assistant); and when the level of the disability matches appropriately the environment into which the individual is placed (Wati, 2009).

Social Integration with Peers

The biggest problem and root cause of the increase in isolation and anxiety is communication difficulties fostered by the mainstreamed setting. A study of mainstreamed students showed that rather than being actively disliked, hearing-impaired students were neglected by the hearing students in terms of socialization (Martin and BatChava, 2003). The experiences of the hearing-impaired graduates of inclusive institutions seem to indicate that during their attendance in these schools they encountered feeling of marginalization and isolation because they could not communicate easily with their classmates (Angelides and Aravi, 2007).

Social Integration with teachers and administrative Staff

In a school setting, administrators and departmental members play key roles in creating a supportive environment for students with disabilities. Many intend to interact with students with hearing impairment but tend to create these barriers unintentionally (Wilson and Getzel, 2001).

Students with III are evaluated more negatively by teachers and hearing peers on dimensions such as intelligence, achievement, and personality through a phenomenon known as the hearing aid effect. Hearing aid effect is described as a negative psychosocial association with hearing aid wearers (Blood et al., 1978).

Polat (2011) points out that resources and improved infrastructure are not the only adjustments for inclusion and that dealing with attitudinal barriers among school educators and in the wider community is a key aspect of making inclusive education take place. The meaningful participation of students with disabilities in an institution and the community is influenced by the cultural attitudes and values of its citizens. If a society expresses disregard and prejudice towards people with disabilities, then discriminatory practices will continue to be propagated. Furthermore, research reveals that hearing impaired students withdraw from posts primary schools because they have difficulty choosing a series that matches their interests and abilities (Scherer & Walter, 1988)

Brelje (1999) identified the lack of quality primary educational opportunities as a major reason why many countries have few hearing-impaired students in higher education

institutions. Regardless of the country, the academic, social/personal and family characteristics of the hearing-impaired students that present obstacles to their success in secondary schools have their roots in both inadequate early intervention (in infancy and childhood) and lack of preparation for higher education schooling (Marschark, Lang, & Albertini, 2002).

Teacher's Professional Knowledge on teaching Students in the teaching learning process.

For many students with disabilities the key to success in the classroom lies having appropriate adaptations accommodations and modifications used to instruct and the other classroom activities Listen, (2010). A student with impairment studying in main stream educational institution of higher learning experiences learning obstacles. The unavailability of accessible content, lack of enough sensitive and train staff and lack of awareness about developments in enabling technologies render education difficult to students of secondary school and above to access for students' impairment. The educational goals for students with impairments are essentially the same as for all students. These are social competence effective communication, employability personal independence. In order to achieve functional levels if inclusion of hearing-impaired students in main stream classes, it is imperative that certain modifications and adaptations be made to existing educational resources and learning environment to enable these learners maximize their participation in the learning activities Kise Module ID (2004).

The fact that students with hearing impairment often struggle in the main stream classes, it is good to provide them with various instructions and a modified curriculum teachers and support staff can provide a playing field that is both equitable and accessible Babara, (2012). Some adaptations are as simple as moving a distractible student to the front of the class or away from the window. Other modifications may involve changing the way that the material is presented or the way that the student's response to show their ability of learning adaptation, accommodations and modifications need to be individualized based on their needs and personal learning styles and interest Listen (2010).

Teaching Method of Hearing Impaired and effects to Teaching and Learning process

Regardless of teaching method, students with hearing impairment experience difficulties acquiring the language of the hearing society. Educators pay very close attention to the age of onset of the hearing impairment and the degree of hearing loss because each is closely associated with the severity of language delay. The earlier the hearing loss occurs and the more severe the hearing loss, the more severe the language delay. For many years, professionals believed that deficiencies in language among individuals with hearing impairment were related to deficiencies in intellectual ability; this is not the case.

Unfortunately, results of research indicate that students with hearing impairment are behind their hearing peers in terms of academic achievement. Reading is the academic area

most affected, wherein students with hearing impairment experience only one-third the reading growth of their hearing peers. They also lag behind their peers in mathematics. According to 1999 figures from the National Center for Health Statistics, "approximately 1.3 percent of all school-age students, ages six to twenty-one, who received special education services during the 1996–1997 school year were served under the disability category of hearing impairment" (Schirmer, p. 20). It is important to note, however, that estimates of the number of children with hearing impairment can differ markedly depending, for example, on definitions used, populations under investigation, and accuracy of testing.

Students with hearing impairment receive services in a variety of settings, from the general education classroom to residential schools. Parents and many professionals have not embraced the current controversial trend toward policies of inclusion (i.e., placing students with disabilities in general education classrooms for most or all of the school day). They caution that the general education classrooms are not necessarily the most appropriate placement for students with hearing impairment. However, some students with hearing impairment experience academic and social success in general education settings. This indicates that the preservation of the continuum of placements, whereby placement decisions can be made on individual bases, is in the best interest of students with hearing impairment.

The conceptual framework below (Figure 1) explains how institutional based barriers, social barriers and resources and infrastructural barriers affect learning outcomes of a student with hearing impairment. The institutional based barriers are in form of teachers without an understanding of hearing impairment. When learners are not encouraged to participate, interpreters who do not understand course content, ill-motivated lessons and learners without learning incentives. Social barriers would be in the form of discrimination and isolation from peers, lack of participation in integrated social forums, negative attitude from departmental and administration staff and lack of guidance on course choice. Resources and Infrastructural barriers would be in the form of inadequate resources available for these learners, poorly lit classroom and noisy classroom environment. All the above barriers will lead to a low or poor learning outcome for the student.

High learning outcomes can however, be achieved when teachers have an understanding of what hearing impairment is and encourage the HI learner to actively participate. It is equally motivational when the sign language interpreter is conversant with the course content and has a good grasp of sign language. A motivated teacher carries out supervision of his teaching by finding out if the mode of delivery of lessons, examples, teaching, use of visual aids, etc. is satisfactory to the HI student and supervision of learning of the student by constantly asking the HI student questions to evaluate level of understanding and also by giving incentives. In addition, adequate and available resources and infrastructure creates an environment that is conducive for the HI student to learn. An environment that is socially accepting in terms of peers who consider the hearing-impaired student as one of them and

departmental and administration staff that treats the student without bias or discrimination will lead to a student with high learning outcomes.

Theoretical Framework

This experience led Bowlby to consider the importance of the child's relationship with their mother in terms of their social, emotional and cognitive development. Specifically, it shaped his belief about the link between early infant separations with the mother and later maladjustment, and led Bowlby to formulate his attachment theory. John Bowlby, working alongside James Robertson (1952) observed that children experienced intense distress when separated from their mothers. Even when such children were fed by other caregivers, this did not diminish the child's anxiety. These findings contradicted the dominant behavioural theory of attachment (Dollard and Miller, 1950) which was shown to underestimate the child's bond with their mother. The behavioural theory of attachment stated that the child becomes attached to the mother because she fed the infant.

Bowlby defined attachment as a 'lasting psychological connectedness between human beings. Bowlby (1958) proposed that attachment can be understood within an evolutionary context in that the caregiver provides safety and security for the infant. Attachment is adaptive as it enhances the infant's chance of survival. This is illustrated in the work of Lorenz (1935) and Harlow (1958). According to Bowlby infants have a universal need to seek close proximity with their caregiver when under stress or threatened (Prior & Glaser, 2006). Most researchers believe that attachment develops through a series of stages. .

The attachment theory of John Bowlby has some bearings with the study which motivated the researcher to use it in her work. It has its bearing on attachment between the child and caregiver and in like manner the study stresses on the need of positive relationship between impaired children with their teachers and administrator. The theory is linked to this work also because it explains how parent-/child relationship emerges and influence subsequent development in the later life and equally the work on hearing impairment explains how the weak bond that exist between the child and parents because of stigmatization and disappointment lead to the problem of interaction with peers back in school. Attachment turns to be formed with those who respond more accurately to baby signals than others and in the same way impaired students turn to feel secure only with their impaired peers. Therefore, there is a great relationship between John Bowlby's theory that led to the use as conceptual framework.

Factors that interact with education and academic performance of hearing-impaired learners

According to Namaswa (1989) there are factors which interact with direct education intrinsic and extrinsic factors to bring about positive learning towards quality education to the Hearing-impaired provision of individual motivation to study hard as a source of performing much better. It is in this case that Namaswa, (1989) advocates using proper teaching aids which based on the use of signal and symbols special for the hearing-impaired

means distribution of a package of materials which can be used to initiate effective learning. This was conducted in Kenya Nairobi and the findings were lack of facilities, insufficient of classes and few teacher competences in sign language. It was recommended that the Government of Kenya needed to provide required facilities. This study is different from our study because it did not address the other barriers that affect the academic performance of the hearing-impaired learners such as the institutional, infrastructural and social factors.

Anwar Fazil Chishti carried out a study in city university, Peshawar Pakistan on the factors affecting the academic performance of students with special needs. This study if the academic performance of special children found that majority (58.34%) of them has bad academic results for the basic reasons determining academic performance, special-children depression (DC) teacher contribution (TC), parent contribution (PC), school facilitation contribution (SFC) and contribution of poverty (CP) were tried as explanatory variables. Results indicated that almost all explanatory variables were found statistically significant at a < 0.01 . As far as the signs of explanatory variables were concern. Variables TC, PC, & SFC had positive signs, suggesting that these variables were contributing positively towards academic performance (API) while the signs of variables (DC) & (CP) were negative, suggesting that these variables were adversely contributing. Based on the findings of the study, it was recommended that special counsellors be made available in each of the institution of special students who are specifically assigned the duty of lowering special students' anxiety and depression. It was also recommended that special care be giving to appoint administrative and teaching staff who give particular care to teaching and also provide due respect to the special students. Parents of the handicapped students should be aware to educate their children without discrimination of male and female abnormal or normal. A good learning environment at school should be provided to special students, and teachers should be aware to teach according to the needs of special student's psychology.

The above empirical studies have a lot of similarities with this study. The differences that exist is that, the study was carried in a university while the present study was carried out in a secondary school and 2 primary schools. Different factors were investigated upon as determinants of academic performance of students with special needs but the present study investigated the barriers faced by hearing impaired learners and its effects on the teaching learning process. Similar recommendations were made from this study.

The Problem

Cameroon is a signatory to many different conventions regarding inclusive education such as the UN convention on the rights of persons living with disabilities and universal declaration of human rights of the child in 1948. That notwithstanding, there still exists a lot of inadequacy at the level of implementation of this practice proper in the teaching and learning process. This is evident in the many different cases of hearing-impaired learners who are still neglected or lack follow up in our schools today. They are faced with certain barriers which affect their successful integration in the school system. These barriers and their distinct presentations vary somewhat by age, language and where people live (Urbans

VS Rural]), and can interfere with receiving, testing and devices in a timely manner. They also can limit auditory, speech and language therapies and interfere with acceptance of hearing loss and devices. Rehabilitation should focus on eliminating or reducing the adverse impact of these barriers on patients and their families. Some of which can be done through professional training and multidisciplinary activities, counselling and community outreach. Common barriers include cost, location, availability of trained professionals, language and cultural differences, secondary disabilities, and mental health issues.

A clear scenario was noticed while the researcher was teaching class five pupils in a private primary school at Simbock Yaounde.

In an English Language lesson of ‘sounds and word building’ I noticed that a few pupils were straining to hear me, and did not answer questions or participated fully in the lesson. This called for a point of worry as I tried to find out the reason why and realized that they had hearing problems. I tried to change their sitting positions and bring them ahead and also offered some remedial classes and follow up. Though this helped the pupils a little but it was a continuous and rigorous process which I don’t think many teachers will want to go through. This was one of the reasons that prompted me to find out more about this category of disability. Another case was seen while I was teaching a lesson on ‘sounds of animals’ under expression by gestures in the Nursery section. I realized that some kids could not repeat the same sound after me and it was a call for concern. This affects the kids who perform poorly because they often face difficulties understanding the lesson and catching up with their peers.

The main objective of this study is to find out the barriers faced by hearing impaired learners and its effects on the teaching and learning process. The specific objectives were to; To find out the resources, infrastructural, institutional barriers faced by hearing impaired learners and its influence on the teaching and learning process, to evaluate the social barriers faced by hearing impaired learners and its influence on the teaching and learning process, to find out the teaching methods used by teachers in assessing and evaluating hearing impaired learners in the teaching and learning process and to find out the academic performance of hearing-impaired learners and its effects in the teaching and learning process. The general research question of this study is to find out to what extent barriers faced by hearing impaired learners affects the teaching and learning process? The General research Hypothesis was; There is a significant relationship between barriers faced by hearing impaired learners and the teaching and learning process, also stated in the alternative form as there is no significant relationship between barriers faced by hearing impaired learners and the teaching and learning process.

Method And Materials

This study made use of the descriptive research design with the quantitative data collection method. This is because it enables the researcher to describe the subject matter being researched and tries to answer the questions ‘what’, ‘why’ and ‘how’ which are collected from a representative sample of the population. A cross section of the various participants

was of varying ages and the information was collected at the same point at various facets of study. The responses of the questionnaires permitted the researcher to establish a link between the dependent and the independent variables. Also, a pilot study was done where by informal discussions were held with some learners and educational authorities in a school not included in the sample. (WECARE school Damas-Yaounde).

This study was carried out in the centre region of Cameroon with Yaounde as its headquarters. Yaounde also doubles as the Political capital of Cameroon. It is situated on a hilly, forested plateau between the Nyong and Sanaga Rivers in the south-central parts of the country. Area of the study can be defined as the place where a study is carried out and the reason for choosing that particular geographical area. The study was carried out in G.B.H.S. Mendong, the Academic school of excellence in Bastos in Yaounde two sub-divisions and WECARE school found in Yaoundé six sub-division. Yaoundé six is found in the Mfoundi Division of the center Region of Cameroon. These schools were chosen because they practice inclusive education and there was the presence of the physically challenged learners and learners with hearing impairment. Government Bilingual high school Mendong is located in Yaounde six of the centre region. From the entrée Simbock, you take the road that is leading to the Gendarmerie station. From there you turn right and move about 80meters and turn left, you move down straight for about 50 meters you will find the school. It is painted with cream white and ox blood colours. The school has a population of about 7000 students, 50 students with disabilities, (20 with hearing impairment), 400 teachers and 200 classrooms. The school building consists of 2 storey buildings and Normal buildings.

Academic school of excellence is a primary school found in Bastos in Yaounde two sub-division, The schools have a population of 18teachers and 420 students in all. The school has 45 students with disabilities. Precisely 10 with hearing impairment. Learning in the Schools is inclusive in that students with the various disabilities are combined with their hearing peers. Due to this, the school has employed the services of sign language interpreters for the hearing impaired and guides for the visually impaired students.

WECARE School is a bilingual school located at Depot de bois Damas Yaounde. It is situated behind the wood depot at Damas at about 50 meters from the road. It has about 4 buildings made up of storey painted with beautiful colours of grey, white, gold and green. It has staff strength of 25 teachers and an enrolment of about 1500 students.

The target population for this study constitutes all the students with hearing impairments in the 3 schools used. The target population are the students and pupils of Academic school of excellence in Bastos in Yaounde two subdivision, G.B.H.S. Mendong and WECARE school found in Yaoundé six sub-division; That is 40 students. These institutions are ideal for the study because the government of Cameroon has legalized the admission of persons with disability into public schools and the researcher wanted to see how effective the policy of inclusive Education is applied. The researcher did not work with the accessible population

because the numbers of hearing -impaired students were few and she decided to involve all of them in the sample population. A total enrolment of students (8920), teachers (443) and including the target population and the eventual number of hearing-impaired learners amounting to 40 students as a sample purposively selected on the basis of their hearing impairment. Key informants were purposively selected from the three schools; they were 10 in number that is staff whose office has the mandate to cater for the welfare of student with disabilities and teachers teaching children with hearing impairment in Yaoundé.

The sampling technique used for this study is the purposive random sampling technique. The purposive sampling involves the conscious selection by the researcher of certain subjects, element, events or incident. The students selected were based on their hearing impairment while the teachers and educational administrators selected were those who taught and handled children with hearing impairment.

To ensure validity of instruments, the instruments were developed under close guidance of the supervisor. After the questions were designed, they were pre-tested to respondents not in the sample., the instruments were modified accordingly by considering the relevance, coverage and consistency. To ensure face validity of the instruments, the researcher constructed the questionnaires, took them to her supervisor who went through and did some corrections. Thus, the instrument was considered good for administration

As concerning the reliability of the instrument, it is the degree to which an instrument consistently measures what it was intended to measure. The researcher chose this instrument in order to make sure that the questions were understood and clarifications done on questions not well assimilated. To ensure validity of instrument, the instrument was developed under close guidance of the supervisor. After the questions were designed, they were pre-tested to respondents not in the sample. The questions were passed through a series of individuals who were considered as judges, because there was an agreement among the judges in terms of their responses provided an instrument that was said to be reliable and valid.

Administration of the instruments and Data Collection

The student researcher collected an authorization from the department of education of HIPTEX. She went to the principal and head teacher of the chosen schools. She went to their offices, introduced herself and presented her letter of authorization.

She was given directives on what to do. Taken to the room where she would assemble her respondents with the help of some teachers and students. The respondents were sampled according to the purposive sampling and they were assisted and the questions explained in details in the room set aside for that purpose. The questionnaire formed based on a likert scale was distributed to them.

The researcher went to the school and presented the permission form to the school principal and head teacher who granted her the go ahead to administer her questionnaire.

The discussion process was facilitated by a sign language interpreter whose duty was to convey information from the researcher to the respondents and back since she could not sign nor understand sign language. The researcher began by familiarizing with the respondents on their academic and social, experiences in the schools. This was conducted to bring in the expert opinions on the study objectives, provide clarity on issues raised by the hearing-impaired student as well as offer recommendations. Understanding the different levels of deafness was important to the study as it highlighted the challenges each level experienced in terms of modifications and accommodations required. The levels are mild, moderate and profound. Age is commonly used to distinguish pre-lingual and post-lingual deafness as it is considered the age when children acquire speech. Individuals with the profound level majority of the time acquired it pre-lingual with those at the moderate and mild levels acquiring deafness post-lingual. The findings indicated that 60% of the HI students had profound level of deafness, 30% had moderate level of deafness and 10% had mild deafness. Those who acquired deafness pre-lingual were 60% of the participants.

Table 1:

Level of Deafness of the Respondent

Level of deafness	Nature of acquiring deafness	% Of HI students
Mild Level	Post-lingual	10%
Moderate Level	Pre- or post-lingual	30%
Profound Level	Pre-lingual	60%

This shows that the students who had profound levels experienced challenges majorly with the lecture mode of instruction, the sign language interpreters and had a difficult time socially integrating with their hearing peers. Those with moderate and mild levels experienced challenges with working with interpreters, the infrastructure especially class environment which was noisy because they used hearing aids as well as poor lighting which made lipreading difficult as was shown in one of the interviews. This is evidenced as expressed by the in-depth interview participants.

"I have profound deafness (since birth) and have attended deaf- only schools, but at the college I have had to learn to cope with the environment which is different. I was used to my teacher using sign language which is not the case at college must have an interpreter" (SSI #1 with a 17-year-old HI student). Students who become deaf after they had acquired language experience reduced problems in academic performance.

The percentage count method was used to analysis data collected. Similar answers for the same questions were noted and grouped to give a percentage of the total response. Questionnaires were also administered to 10 children and six experts selected on the basis of their experience in serving hearing impaired students. The key informants responded to the questions on the questionnaire and provided information on barriers experienced in accessing resources and infrastructure for students with Hearing Impairment (HI), barriers

that affect social integration of hearing-impaired students with staff, and barriers that affect the mode of instruction and provided suggestions to improve service delivery to students with HI and Academic Performance. The data collected from the questionnaires was coded for analysis and ensure that information collected was significant to the study as well as allow for adjustment of the interview guides to obtain more information from the students. The transcripts were coded to ensure confidentiality of the information provided. Thematic analysis was done in line with the study objectives. The themes emanated from the research questions and were pre-set before data collection began.

Other themes emerged while the study was being conducted. The themes were thereafter sub divided into thematic groups to enable analysis of the themes in connection with the study research questions. The themes involved institutional barriers such as mode of instruction and sign language interpreters, resources and infrastructure and social integration barriers. Verbatim was used in data presentation where direct quotations from the informants were used to amplify the voices of the informants. The researcher ensured ethical considerations were put in place before embarking on fieldwork by obtaining research authorization from HIPTEX and presenting it to the authority of the schools where the samples were taken. They then gave their permission for the research instruments to be administered. The following was considered in this study: voluntary participation of respondents in the research is important. Moreover, participants have rights to withdraw from the study at any stage if they wish to do so. Respondents to participate on the basis of informed consent, that is the researcher providing sufficient information and assurance about taking part to allow individuals to understand the implications of participation to reach a fully informed, considered and freely given decision about whether or not to do so, without the exercise of any pressure of cohesion. During fieldwork, the researcher explained to the respondents that their participation was to be voluntary, she avoided the use of offensive, discriminatory or other unacceptable language and that they were free to withdraw whenever they deemed fit. Participants were assured that their privacy was protected by strict standards where coding was used and were also assured that any information they shared was confidential.

Table 2:
Correlation Matrix

			Resources, infrastructural and institutional	Social Barriers	Teaching methods	Academic performance/ teaching and learning process
Spearman's rho	Resources, infrastructural and institutional barriers	Correlation coefficient	1.000			0.459**
		Sig.(2tailed)	0.000			
	Social Barriers	Correlation coefficient	0.347	1.000		0.191
		Sig.(2tailed)	0.007			0.145
	Teaching methods	Correlation coefficient	0.308	0.411	1.000	0.354**
		Sig.(2tailed)	0.017	0.001		0.006
	Academic performance	Correlation coefficient				1.000
		Sig.(2tailed)	0.000			0.453

** Correlation is significant at the 0.01 level (2-tailed)

Correlation is significant at the 0.05 level (2-tailed)

The correlation analysis of the data presented in table 4.14 above reveals that all the correlation coefficients at the diagonal are unitary (1) as expected. This implies that there exists a perfect positive correlation between each variable and itself.

Discussions

The researcher did a pilot study based on the various objectives and recorded the following interviews from students and the administrative:

- This was a challenge for me because I only follow what the technician does without hearing out the instructions because I do not have an interpreter. On enough occasions I have grazed my hand" (SSD #15 with a 20-year-old HI student)."In my class rooms, I hardly see the interpreter clearly because the room is dimly lit, am forced to seat by the door and keep it open which distracts the whole class due to noise influence from outside." (SSD #16 with a 22-year-old HI student).
- It is evident from the findings that lighting affected how a HI student interacted in class. Dim lighting was reported to cause difficulty when following an interpreter during a lesson. These findings are consistent with the views of Kaderavek and Pakulski (2002) that appropriate lighting is also necessary for those students who supplement audition with speech reading. For users of hearing aids, it was important that the class

environment had minimal noise to avoid interruptions with the transmitter, however from the findings, of the participants who use the hearing device, 40 % had stopped using them due to too much external noise influence which was equally amplified by the aid making the situation worse. The finding supported the views of Sundeen (2007) that noise interferes in the use of residual hearing, distorts the speech sounds and limits the understanding of deaf students in classrooms. Generally, a noisy learning environment affects a student's ability to focus; the same is true for a HI student, especially those using hearing aids, as evidenced from the findings. For students with hearing loss, the level of back-ground noise in a classroom, the signal to-noise ratio, and reverberation time can be crucial factors in their ability to understand spoken language (Crandell & Smaldino, 2000)

- Seating position was also pointed out and they said that a front seating position allows them to easily lip-read, focus on the interpreter and reduced the number of visual distractions of students walking in and out of class. (ADCET, 2015) concurs with this finding that students with a hearing loss should seat themselves toward the front of the Class where they will have an unobstructed line of vision.
- This is particularly important if the student is using an interpreter, lip-reading, relying on visual clues or using a hearing aid which has a limited range. "Some classes have high podium and being hard-of- hearing, I sometimes depend on lip-reading, this becomes difficult because of the distance between the teacher and me." (SSD # 17 with a 21-year-old HI student).
- The findings show that the students would have an easier time if the teacher used instructional tools such as overhead projectors and diagrams. This would enable them follow the teachers slides and the interpreter simultaneously, it would also make it easier for the students who were not accompanied to class by an interpreter. In instances of laboratory use, the findings indicated that HI students heavily relied on looking at what the technician was doing without having the procedure explained or signals to indicate a significant sound or on /off status of equipment.

In summary, understanding the importance of the environment can minimize the effects of a learning difficulty and enhance performance and self-esteem. In response to the provision of resources and infrastructure, a key informant from the Special Needs Education Center explained that "For hearing impaired students to be fully included in a mainstream classroom, the school should strive to apply recommendations from the Persons with Disabilities act as well as implement the recommendations in the school Disability Policy. This will require finances set aside to ensure good infrastructure like lighting in lecture rooms, provision of overhead projectors, and provision of hearing aids as well as increasing the human resource of sign language interpreters" (with a gender officer).

Responding to the first hypothesis, the results indicate that, the resources, infrastructure has a significant positive relationship with hearing impaired students' academic performance. This implies that an improvement in infrastructure to suit hearing impaired learners will lead to an increase in the students' academic performance thereby enhancing

the teaching and learning process. The correlation coefficient of 0.459 indicates that a 1 percent improvement in infrastructure will lead to a 45.9% increase in the learner's academic performance. This finding is seen to be significant to a 1% level ($\text{sig.} = 0.000 < 0.05$). Thus, we reject the H_01 and accept the alternative hypothesis (H_{a1}). This states that "There is a significant relationship between resources infrastructural and institutional barriers faced by hearing impaired learners and the teaching and learning process". The voices indicated that the lecture method of teaching to a class that had HI students affected their learning outcomes negatively, especially for the students who came from deaf- only schools. These findings concur with Fox and. Ysseldyke (1997) that inclusion fails because teachers are unable to meet the demands of modifying and delivering an appropriate mode of teaching students with Hi. In addition, issues such as rapid rate of instruction and discussion, rapid turn taking and rapid change of topics by teachers were insensitive to the needs of the HI student trying to follow the lesson.

Dotter (2008) explains that having sign language as the first language for the hearing impaired any spoken or written language becomes their second, because there is very little instruction on structure and grammar for sign language. In that case for many hearing-impaired people, it is difficult to grasp linguistic information on a second language. The students pointed out that use of projectors and diagrams in class would assist with comprehension and this concurs with Iding (2000) who suggests that the use of dynamic visual displays to accompany instructors' verbal descriptions is especially helpful for learning about scientific principles or processes that must be visualized in order to be understood.

The results from hypothesis two equally indicate that social barriers have a positive correlation with hearing impaired learners and academic performance thereby affecting the teaching and learning process. This implies that an improvement in social barriers, attitudes and stigmatization towards hearing impaired learners especially from their peers and teachers, will lead to an increase in the behaviour at school, academic performance, self - esteem and generally enhance the teaching and learning process. The correlation coefficient of 0.191 indicates that a 1% improvement in elimination of social barriers, stigmatization and attitudes of their peers will lead to 19.1% increase in the students' academic performance and teaching and learning process. However, this finding is seen to be insignificant ($\text{Sig.} = 0.145 > 0.05$). Thus, we reject H_02 and accept the alternative hypothesis H_{a2} which states that "There is a significant relationship between social barriers faced by hearing impaired learners and the teaching and learning process"

These findings speak to a study by Stintson & Walter (1997) which indicated that Deaf teenagers in mainstream settings prefer to relate to other Deaf students. At colleges, HI students must deal with expectations, standards and ways of functioning that are different from their previous schooling experience, and this sets off loneliness and isolation. Deaf students do not have as many close friendships with hearing peers, and if there are, these relationships are more sporadic (Wauters & Knoors, 2007).

The findings indicated that for 75% of the HI students, their participation in social functions was low for both the number of friends in class and the contact they had with other students outside class. A study by Reich et al (1977) in comparing a variety of mainstream settings found that being educated with normal hearing classmates exaggerated the student's differences instead of diminishing them. Hearing students learn a lot more from their environment through listening to the T.V or radio, having discussions with other students and by listening in on passers-by or conversations in a restaurant etc, these helps form opinions and necessary life skills; this is not the same for a HI student. This is in agreement with a study on social isolation experienced by Deaf College students by Foster (1988) which concluded that social mainstreaming may be more difficult to achieve than academic mainstreaming, because a student with a hearing loss is frequently on his/ her own when attempting to initiate or sustain relationships with hearing peers.

The findings indicated mixed reactions when it came to the relationship between teachers, administrative staff and the HI students. Several participants reported difficulties building positive and effective relationships with the staff. There were a variety of reasons for this including the perceived attitudes, lack of knowledge about deafness by some staff, and difficulties with communication.

These findings concur with results from a study by Marks (1997) which indicated that attitudinal barriers and discriminatory practices in inclusive settings can prevent the full participation of HI students as effectively as separate facilities and programs. Similarly, many persons with disabilities believe that negative attitudes and stereotyped images held by nondisabled persons are the greatest barriers to their full participation in society (Gerdes & Mallinckrodt, 1994). Without appropriate knowledge, faculty staffs are ill-prepared to make decisions about how to effectively provide accommodations in their classrooms. These findings therefore suggest that teacher's attitudes toward HI students can be improved through awareness trainings, potentially lessening the barriers encountered by these students at college. English (1993) concludes that among deaf college students in mainstream settings it is found that students who reported more interaction with teachers did better academically.

Also, the results of hypothesis 3 revealed that teaching methods as well as profound professional knowledge has a significant positive relationship with hearing impaired learners thereby affecting the teaching and learning process. This implies that an improvement in the teaching methods and professional knowledge on how to handle hearing impaired learners will lead have a great positive impact on the teaching learning process. The correlation coefficient of 0.354 indicates that a 1% improvement in the teaching methods and professional knowledge will lead to a 35.4% increase in the teaching and learning process and the academic performance of learners. This finding is seen to be significant at a 1% level ($\text{sig.}=0.0006<0.05$). Thus, we reject the H_03 and accept the alternative hypothesis (H_a3) which states that "There is a significant relationship between the teaching methods used by the teachers and the teaching and learning process".

Educational interpretation like any other profession has a code of ethics and professionalism which must be adhered to.

However, like in any other working relationship, the interpreter- student relationship experiences challenges. The participants revealed that challenges occur once a negative attitude or a breach of conduct is detected. It is evident that the interpreter is in control of the interpreted information and it gives them an advantage over the student. This is in agreement with (Ostrove & Olivia, 2010) who posit that in order for a working relationship to be successful between an interpreter and HI student, there has to be mutual respect and trust, and the interpreter must be aware of the advantage they hold by virtue of their hearing ability.

In addition to socializing with the hard of hearing community, the HI students indicated that they felt it was of paramount importance if the interpreters were conversant with the Deaf culture to enable the interpreters understand them [HI students] better thus improve their working relationship.

Summary of major findings

In respect to age of hearing-impaired students, it is evident from the findings that the younger students experienced more challenges on how to handle life in secondary school unlike the older students. A study by Kersting (1997) concurs with the findings and showed that Deaf first-year college students tend to have more social difficulties in developing social bonds with peers. For a first-year student, to assimilate new information and knowledge, they have to overcome the shortcomings of their previous school experience, such as language deficiencies, inadequate study conditions, a lack of logic skills, problems with reading comprehension and difficulty in producing text.

As concern the level of deafness, the study findings showed that the students who had profound levels experienced challenges majorly with the lecture mode of instruction, the sign language interpreters and had a difficult time socially integrating with their hearing peers. Those with moderate and mild levels experienced challenges working with interpreters. The infrastructure especially class environment which was noisy because they used hearing aids as well as poor lighting which made lip-reading difficult as was shown in one of the interviews. This is evidenced as expressed by the in-depth interview participants.

In line with sign language interpreters, the findings from the pilot study indicated that most (60%) of the participants felt the competence of the interpreters was up to task although could be improved especially on assisting the HI learn vocabulary, while the 40% indicated the need for the interpreters to preferably have a bachelor's degree. The study findings indicated that participants who had interpreters in class found them competent enough but felt the interpreters needed to expose the students to vocabulary which ordinarily is not in sign language. It was also a general feeling that lessons would be richer if the interpreter had basic content knowledge because familiarity with the content may lead to more

appropriate sign selection and few misinterpretations of a teacher's emphasis. These findings are comparable with Locker (1990); Bremner and Housden (1996) who reported that deaf students felt that subject specific knowledge would be an advantage to educational interpreters, and they should be encouraged to specialize in interpreting for subjects they have studied.

With respect to infrastructure, evident from the findings that lighting affected how a HI student interacted in class. Dim lighting was reported to cause difficulty when following an interpreter during a lesson. These findings are consistent with the views of Kaderavek and Pakulski (2002) that appropriate lighting is also necessary for those students who supplement audition with speech reading.

With regards to available resources findings, the results show that HI students would have an easier time if the teacher used instructional tools such as overhead projectors and diagrams. This would enable them follow the teachers slides and the interpreter simultaneously, it would also make it easier for the students who were not accompanied to class by an interpreter. In instances of laboratory use, the findings indicated that HI students heavily relied on looking at what the technician was doing without having the procedure explained or signals to indicate a significant sound or on /off status of equipment.

Talking about social integration, findings indicated that for a greater number of the HI students, their participation in social functions was low for both the number of friends in class and the contact they had with other students outside class. A study by Reich et al (1977) in comparing a variety of mainstream settings found that being educated with normal hearing classmates exaggerated the student's differences instead of diminishing them. It is equally evident that the lack of social integration does not cut across to all the HI students, and some have a very good relationship with their hearing peers, but these are dependent upon a student's previous interactions with the hearing as well as level of hearing loss. Holt (1994) concurs with this finding that students with mild to moderate hearing losses tend to use speech and lip-reading as the primary communication mode. Due to communication ease, they are more capable of participating in academic activities and interacting with hearing classmates directly than those with profound hearing loss.

On relationships with staff, the findings indicated mixed reactions when it came to the relationship between teachers and the HI students. Several participants reported difficulties building positive and effective relationships with the staff. There were a variety of reasons for this including the perceived attitudes, lack of knowledge about deafness by some staff, and difficulties with communication. Equally the findings were indicative of the fact that some members of staff lacked the knowledge and understanding about deafness. It showed that some staffs were too quick to offer solutions even on instances where the student needed options for them to make a decision that suited them or too quick to dismiss.

These findings concur with results from a study by Marks (1997) which indicated that attitudinal barriers and discriminatory practices in inclusive settings can prevent the full participation of HI students as effectively as separate facilities and programs. Similarly, many persons with disabilities believe that negative attitudes and stereotyped images held by nondisabled persons are the greatest barriers to their full participation in society (Gerdes and Mallinckrodt, 1994). Without appropriate knowledge, faculty staffs are ill-prepared to make decisions about how to effectively provide accommodations in their classrooms. These findings therefore suggest that teacher's attitudes toward HI students can be improved through awareness trainings, potentially lessening the barriers encountered by these students at college. English (1993) concludes that among deaf college students in mainstream settings it is found that students who reported more interaction with teachers did better academically.

Conclusion

From the study it can be concluded that students with hearing impairment in Government Bilingual High School Mendong. Academic school of Excellence and WECARE school faced some factors that affect their academic performance. Most of the students indicated that they had weak physical and emotional support from teachers. The research also found out that student with hearing impairments battle with low self-image and the feelings of isolation from the society. However, they were able to surmount these challenges and were in strong support of inclusive education. Majority were of the opinion that from learning in an inclusive certain rather than excluded in a special institution.

The sample institutions had made efforts to adapt their environment to suit students with hearing impairment. However, some students still could not easily asses some areas of the institution. Some of the areas pointed out were offices, libraries, and games fields.

Some assistive learning materials was shown to have significant effects on academic performance. Students with hearing impairments who were issue with extra assistive materials had a higher chance of performing better in academics as compared to students who were not issued these materials. It can therefore be concluded that students with hearing impairment in institutions of learning do face challenges that affect the academic performance.

Base on the findings of the research, it can be concluded that hearing impaired learning has an effect on the teaching and learning process as well as their social interaction with their peers and teachers and academic performance. Inclusiveness in public schools goes hand in hand with modifications of infrastructures, training of personnel and modification of attitude. Every human being can learn and have something to offer, it is therefore in this light that the Ministers of both primary and secondary schools adopted this system of education but much is still to be done in terms of its full implementation and in order to maximize participation by all learners enabling them to participate in decision making and development in the society.

Recommendations

Base on the findings, the following recommendations were made;

- 1) The government needs to enforce the various legislation enacted for the benefits for person with Disabilities such as the disability Act (2003) and the persons with Disabilities Amendment Bill (2007). This Act states that learning institution shall take into account the special needs of persons living with Disabilities with respect to curriculum facilities examinations and other similar considerations.
- 2) Teachers as well as support staffs should be giving mandatory and basic training of disabilities accommodations in other to better equipped to adequately cater for students with learning disabilities especially hearing impairments. This entails more seminars and training courses.
- 3) Strengthen guidance and counselling services for the students with special needs in other to cultivate a can-do attitude and confidence in themselves and their abilities.
- 4) Appropriate adaptations accommodations and modifications need to be made in the instructional approaches and existing physical facilities in order to enable the students with impairment to maximize their participations in the learning activities.
- 5) Library content should be available in different format such as Braille and electronic format which can make it possible for students with various disabilities to assess and utilize them.

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