Facilitating Academic Achievements in Deaf and Hard of Hearing Learners in Inclusive Education Programmes Using Bilingual Educational Methodologies: A Case Study of Inclusive Special Schools in Akwa Ibom State – Nigeria.

Doctoral Thesis

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Declaration

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Brno, 2017

Godwin Irokaba
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**INTRODUCTION**

Education prepares and equip learners with knowledge and skills needed to forge a better future. Education begins in the home and expands in the school. At school, children learn to read, write, think independently, and be capable of problem solving. These positive attitudes can be achieved when children/pupils/students comprehend instructions and are capable of inductive and deductive reasoning. The extent to which children absorb information and benefit from teaching is dependent upon a wide range of variables. Home environment, social environment, teacher’s skills, and language development of the children, all play a part. The Early Childhood Learning and Knowledge Centre (ECLKC, 2016) postulated that “School readiness and school success for children are tied directly to mastery of their home (first) language”. In an early documentation, the centre asserted that even before birth, babies already knew the sound and rhythms of all the languages they have been exposed to (ECLKC, 2013:1). Therefore, after birth, children easily acquire the languages of the community naturally and effortlessly as they hear them frequently spoken. These expositions reveal the relationship between language to learning and cognitive development. It also help us to reflect on the situation of children who attend school without having developed language (first and second) well enough to carry out learning tasks. Yet, these same disadvantaged children are expected to achieve and perform at par with their peers who have rich access to school curriculum in their first and second languages. This is the level of disadvantage majority of Deaf learners finds themselves when they attend inclusive or special school programmes and their only means of learning is the spoken language of instruction aided by a sign system which present the exact spoken language to them in sign form. In situations like this, Deaf learners always lag far behind in academic achievement and cognitive development.

This study proposes that a more effective approach to enhancing academic achievements in Deaf learners would be through the use methodologies and strategies in bilingual education approaches. The bilingual education approach is an approach which uses both the first and second languages on purpose or in alternating ways to give Deaf leaners access to the curriculum. So doing would not only promote learning in Deaf pupils and students, it also
build and fortifies their first language skill and activate their cognitive processes through procedures called language embedded and language reduced contexts (Baker, 2006:178).

This dissertation will examine means to improving learning outcomes for Deaf learners using bilingual education methods. In chapter one, the study will examine the achievement problems often reported about Deaf learners in literatures and in schools. It will look at the concept of inclusion and inclusive education from a Nigerian’s perspective and contrast the terms to appropriate the understanding underlying their use. The chapter will also lay out the questions this dissertation will answer in chapter four after administering interventions, the aim of which is to prove or disprove the notion that bilingual methodology improves learning in Deaf students. Chapter two will explore literatures relevant to implementing bilingual education in inclusive classrooms of Deaf learners. Other component of the chapter is a short review of special needs education in Europe with focus on Deaf education. The chapter will be subdivided into four main sections, each reflecting the principal issues in the study, namely, language, teaching methods, and bilingual methodology. In chapter three, the methods used to collect data would be described and the procedures used to gather the needed information will be explained. Chapter four will methodically examine the collected data and use them to answer the research questions indicated in chapter one. In chapter five, the research will discuss findings from the study and on the basis of that, draw conclusion from the findings. Chapter six closes the dissertation with recommendations for further study base on the experiences (both direct and indirect, positive and negative) gathered during the course of this study. A summary of the whole process is then presented to highlight what was done and accomplished in the course of the study.
1 **BACKGROUND OF THE STUDY**

**Introduction**

Nigeria is a country in Sub-Saharan Africa. The country was discovered by the British as far back as 1914, when the Northern and Southern Protectorates of the then “Niger Area” were amalgamated to form what is today called the Federal Republic of Nigeria. Nigeria has an area of 923,768 sq km, which is four times the size of the entire United Kingdom, and is the 32nd largest country in the world (CIA factbook, 2015). Nigeria’s population which stands at 173,615,345.0 (World Bank, 2015), is seventeen times the population of the Czech Republic.

Nigeria is regarded as one of the leading economies in Africa, thanks to the country’s rich oil resources and its growing entertainment industry. A recent report (Akanbi, 2014:27; CIA Factbook, 2014) put Nigeria’s economy as Africa’s largest, with a Gross Domestic Product (GDP) worth US$ 502 billion. Nigeria’s economy thrives with the crude oil boon, and oil accounts for the country’s major foreign reserves. Despite Nigeria’s abundant natural and human resources, and its ranking as a middle income nation (CIA Factbook, 2014), a UN Special Envoy report on Global Education (2013) finds that Nigeria has struggled to make progress in key developmental indicators (p. 1). Quoting a World Bank (2012) data, the report observe that about 68% of Nigerians lives in poverty. Illiteracy rate among adults is 61%. A UNICEF (2012) study provided the following alarming report about basic education enrollment among children and teens in the various age groups in Nigeria:

**Tab. 1: Data on out of school children in Nigeria**

<table>
<thead>
<tr>
<th>Age group</th>
<th>Estimated population of school aged children</th>
<th>Number out of school</th>
<th>Percentage of out of school children</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years</td>
<td>4.5 million</td>
<td>2 million children</td>
<td>45%</td>
</tr>
<tr>
<td>6-11 years</td>
<td>24.7 million</td>
<td>7.3 million</td>
<td>29.6%</td>
</tr>
<tr>
<td>12-14 years</td>
<td>10.9 million</td>
<td>2.8 million</td>
<td>26%</td>
</tr>
</tbody>
</table>

With an estimated 10.1 million school aged children (6-14) out of school (either never been enrolled in school, or abandoned school as dropouts), Nigeria has the highest number of school aged children who are out of school compare to any nation in the last decade (2004 -
This statistic shows that Nigeria is one of the countries in which the UN Millennium Development Goal (MDG) for education which require all children to be receiving some form of education by the year 2015 was not met. It also call to question the commitment of Nigerian government at providing access to quality education in a country where education is valued as an instrument par excellence for national development (NPE, 2004:1).

When Nigeria became a Republic in 1963, the Nigerian government worked to steer her education system away from the British colonial master’s model. The government wanted an education system which would address the nascent nation’s indigenous needs. A national curriculum conference was held in 1969 to develop a framework education policy which gave birth to what was later know as the National Policy on Education (NPE). In 1977, the first draft of the national policy on education emerged in print. It documented the road map for the administration and planning of education at all levels in Nigeria. It laid the philosophy and goals of Nigeria’s education, and specified the educational model the country would adopt. Periodically, government modifies the policy by way of revisions, to ensure that the education practices in Nigeria reflect current national initiatives and conform to emerging global trends and best practices (Onwuliri, 2006:24). For instance, when UNESCO rolled out its Education for All (EFA) plan in 1990 to mop up the setbacks which hindered the realization of some aspects of the Universal Declaration of Human Rights of 1948 (UNESCO, 1990), the Nigerian government responded by amending its education policy to accommodate key issues from the Education for All (EFA) thematic statement. In 1998, a new policy was released, and in it were provisions that allow for adult and continuing education programme for school drop outs, and for nomadic children. This provided opportunity for wider access to education for low income children, rural dwellers, the disabled, and nomadic settlers (UNESCO, 2012:2). By September 1999, government began working to implement the action plan on the universal basic education. The UBE Act of 2004 was soon enacted and it provided for free basic education to Nigerian children with penalty on parents who fail to enroll their children in school when they have reached the official school age of 6 (UNESCO, 2012; UN Special Envoy Report, 2013:2). The previous education system in Nigeria known as the 6-3-3-4 system (six year of primary, three year of junior secondary school, three year of senior secondary school, and four year of university education) was changed. The new system became a 9-3-4 model. This model is also practiced
in other countries of the world. It covers 9 years of basic education, 3 years of senior secondary school, and 4 years of university education. These new adjustments were further reflected in the revised national policy on education of 2004 (Labo-Popoola, Bello, & Atanda, 2009: 638).

While these initiatives are commendable, they are poorly implemented, monitored, and evaluated at the Federal, States and Local Government levels. Despite efforts to ensure that all children go to school without costs to the parents, school buildings are inadequate, dilapidated, and poorly equipped to absorb the influx of pupils and students from all walks of life into the educational colloquium (Yusuf & Ajare, 2007: 4). Special needs children in rural areas couldn’t be included in local schools due to the non-availability of specially trained teachers to work with them. Where teachers are available, the children have to trek long distances to attend the programme. Most parents are of low economic status and cannot afford to bear the cost of daily transportation for their wards (Yusuf & Ajere, 2007). Not being able to attend schools, these special needs children resort to public dependency to make a living. In some places, the number of special needs children on the streets outstrip those that are found in schools. Unfortunately, in Nigeria, there are no available current annual data on census of special needs learners or enrollment figures at the various centres in a given year. Where data are available, they are extremely manipulated and the figures over blown by schools who fake outrageous number of students to curry financial support to their centre from government and NGOs. Therefore, such data cannot be used for working reference. This situation impede efforts at knowing the exact population of school aged special needs children enrolled in schools (inclusive and special schools) at a given time. Reports emanating from schools suggests that special needs learners, most especially, Deaf students, display perfunctory attitude toward school. Investigation by this researcher reveal that these students are having rough time catching up with school tasks due to inadequate specialist teachers in deaf education. The few available teachers are not well trained and they find themselves short charged to implement the practical reality of teaching Deaf learners as contrasted to the theoretical concepts they are familiar with.

In this chapter, this study will review the history of the development of deaf education in Nigeria. The study will equally discuss inclusive education from the perspective of Nigerian expositors, as well as current understanding of inclusive education as contained in the newly
drafted national policy on inclusive education (NPIE). The dissertation made a contrast between the terms ‘inclusion” and “inclusive education” due to the presumed need for clarity because in Nigeria, inclusion is sometimes a metaphor for dumping Deaf learners in schools without putting plans in place to ensure a barrier free learning opportunity for these ‘included’ learners.

Also in this chapter is the research’s statement of the problem. In it, the researcher noted the underlying problems in Deaf education which triggered the research interest in the topic under study. The aims and objectives of the study were outlined, and so was the purposes for which the study was intended to serve upon completion. Questions which the study will attempt to answer in chapter four were also listed in this chapter. The limitations encountered in the course of the study were articulated. Also considered in this chapter was the scope (delimitation) of the study and a presentation of the operational definition of the core terms used in the study.

1.1 Development of Deaf Education in Nigeria

Education of Deaf and hard or hearing learners in Nigeria remain underdeveloped despite that it started far back in 1957. The journey began when a group of Wesleyan Missionaries decided to have social interaction with a group of Deaf people living in the outskirts of Lagos, a suburb in South Western Nigeria (Ajavon, 2006). Early pioneers in the education of deaf children in Nigeria were graduates of the famous Gallaudet University, then known as Gallaudet College. These early pioneers were themselves Deaf. One cannot discuss the history of education of Deaf persons in Nigeria without mentioning the likes of Dr. Andrew Forster, Dr. Pius Mba, Mr. Ezekiel Sambo, and Dr. Gabriel Adepouju. With the exception of Dr. Andrew Forster, these pioneers in the education of Deaf and hard of hearing learners in Nigeria are themselves Nigerians by nationality.

The earliest efforts by these educationists yielded many positive results. While Dr. Forster is renowned for his missionary works in the Western coast of Africa, he is credited with setting up the Mission School for the Deaf in Ibadan, Nigeria, in 1960. The Centre, which has two Departments, now provide both Christian leadership and educational training to the Deaf.
And to distinguish itself from every other school for the Deaf in Nigeria, the Centre has now been rechristened Christian Mission for the Deaf Church (CMDC), Ibadan. It combines both Christian training and education project.

The works of Dr. Andrew Forster also touches through Ghana, Cote d’Ivoire, and Chad Republic, all in West Africa. Despite that these regions of Africa are separated by language (Nigerian and Ghana are English speaking, while Cote d’Ivoire and Chad are French speaking), they share a common identity, the use of the American version of sign language. Ghana has presently developed its own peculiar sign language, while Cote d’Ivoire has migrated to full core American Sign Language (ASL). Nigerian Deaf community is still using the old version of sign language known as Pidgin Signed English. The hearing community on its part is using the Seeing Exact English (SEE1) version and this is the version of sign language which is forced upon Deaf learners in schools for the Deaf across the country.

Dr. Mba, on his part is well remembered for championing the creation of the first Special Education Department in a University in Nigeria. The University of Ibadan, one of Nigeria’s premier Institutions started training teachers in special and Deaf education in 1974. For being the voice behind the creation of the Department, Dr. Mba became the first and only Deaf Head of a Department in a Nigerian University till date.

About the same year 1974, another milestone in the education of Deaf learners in Nigeria was achieved. Dr. Gabriel Adepoju succeeded in convincing the Kwara State government to set up the first government run school for the Deaf, the Kwara State Schools for the Handicapped, now known as Kwara State School for the Deaf, Ilorin. For his laudable efforts, he was appointed the first Principal (Administrator) of the school. There and then, he was able to translate the knowledge he obtained from his training in the United States into molding Deaf leaders for the future.

Three years from the time Dr. Adepoju helped found the first indigenous school for the Deaf in Nigeria, Mr. Ezekiel Sambo, also a Gallaudet alumnus, collaborated with the Plateau State government to have a school for the Deaf established in the North of Nigeria. The result of his efforts saw the setting up of the Plateau School for the Deaf, Jos, in 1977. The Plateau State government rewarded Mr. Sambo for his efforts by appointing him the pioneer Principal of the school. There is no disputing the fact that the Plateau School for the Deaf (PSD) Jos,
was the hotbed of Deaf civilization. The school produced a set of Deaf leaders who were able to stand on their own and prove their mettles in a world of hearing people. These brilliant Deaf individuals gave proof to the notion that capacity for excellence is not reserved for those who can hear.

It was little wonder that during those days when these Deaf educators were at the helms of affairs in schools and programmes for the Deaf in Nigeria, Deaf students were being mentored by the best deaf educators Nigeria ever had. In those day, teaching Deaf students was not as challenging as it is today. These foundation members brought innovation and style to teaching, and learning was appealing to Deaf students than it is nowadays.

Unfortunately, after these Deaf pioneers left the scenes in retirement, the fortunes of the schools they helped to establish began to plummet. A new generation of administrators are now in charge of administration and leadership in all the government owned schools for the Deaf in the country. These men who have little or absolutely no knowledge of Deaf education have run the school as if they were regular hearing schools. Government is not helping matters either. Appointments to the post of Principal of schools for the Deaf is no longer by merit or on proven ability. Neither is it based on a candidate’s training, knowledge and experience in the field of deaf education. Anyone can become the Head of any school for the Deaf provided he is a loyal party member of the ruling State government. In other words, education of Deaf and hard of hearing learners in Nigeria have become mired by politics and Deaf students suffer the brunt of these malfeasance. Teachers who are employed to teach in Deaf schools are people who have no training in the field. Most are there just to fill up positions created by the scarcity of teachers in subject areas in schools for the Deaf. The few who passed through Special Education training are overwhelmed by the task of teaching Deaf leaners.

Universities should take blame for the deplorable condition of deaf education in Nigeria. The curriculum for teacher training in special needs education in Nigeria is more theoretical than practical. They are also out of touch with current trends and evolving realities in special and inclusive education. Nigeria still operate a 19th Century pedagogical practice in a 21st Century changing society. This is akin to the proverbial putting an old wine into a new gourd. The old wine of pedagogical approaches concocted from the 19th Century methodological theories
cannot fit into the new bottle of paradigm shifts which has revolutionized Special Education practices in this 21st Century.

At present, there is an easy route out of the challenges and responsibilities of running special schools in Nigeria. Policy makers believe that if special needs learner are placed in regular schools along with regular students, they would sink and swim with the students and thus make progress (MOE NZ, 2016:6). The bane of this assumption is the crude understanding regarding the technical aspects and strategies in the implementation of inclusive education, coupled with faulty planning and lack of professional guidance. It would be beneficial to analyze the subject matter of inclusion and relate it to the principle of inclusive education.

1.1.1. Inclusive Education and the Deaf: Perspectives from Nigeria

Education administrators in Nigeria assumes that the solution to the teaching and learning problems which confound Deaf education in Nigeria, and which stems from poor teacher training, can be adequately addressed through integration. The thinking was that if Deaf students attend classes with normal hearing students, with an interpreter in attendance to sign for them during lessons, they would be benefitted. This does not solve any problem, but rather, create more of it. This assumption is indirectly advocating dumping Deaf learners (and special needs students) in regular schools in the name of inclusion (Voss, 2016:3). Such practice only expose the unreadiness of the school system to implement the principle of equal access to the curriculum for all learners. This is further indication that Nigeria and her education system still have a long way to go in promoting true inclusion through the implementation of inclusive education principles.

Issues about inclusion and inclusive education have taken the front burner in global education discourse. Inclusion is considered a best option in promoting social and educational integration of learners with special needs. Inclusive education is advanced as the 21st Century’s shift in paradigm in special needs education. In many instances, the lack of clarification about what inclusive education is and the manner the term is used creates confusion regarding mainstreaming and inclusive education. Moreover, the terms inclusion
and inclusive education are seldom differentiated and both terms are used to denote same things.

As more materials and literatures on inclusion and inclusive education continue to saturate libraries and textbooks in teacher training modules, available information has become prevalent to educational community through articles, seminars, conferences and working group reports. New understanding on the subject matter of inclusion vis-a-vis inclusive education become apparent. Before now, to an average Nigerian educationist and layman, the terms inclusion and inclusive education are understood from the Nigerian perspective of integration. There seems to be no distinctions between the two terms as they are used interchangeably to mean the same thing. There has been articles from Nigerian writers where inclusion is portrayed as just a matter of terminology peculiar to countries and continents. For examples, inclusion is said to be a term used in the United States for inclusive education. In the Scandinavian countries, the term is said to be called normalization, while in Britain, it is called integration. In Canada, the term is said to be known as mainstreaming. Africans are said to call it open education. It is little wonder that every article that emanate from Nigerian authors defines inclusion and inclusive education as the practice of educating handicapped and non-handicapped children in the same classroom and environment. A few examples are:

Michael & Oboegbulem, (2008: 313): “inclusive education is, by definition, the full integration of learners with or without special needs into the same classroom and school, thereby exposing them to the same learning opportunities”. Ahmad, (2000) defined inclusion as the education of all children and young people with and without disabilities or difficulties in learning together in ordinary pre-primary schools, colleges, and universities with appropriate network support (Michael & Oboegbulem, 2008). Garuba, (2003), writing in the Asia Pacific Disability Rehabilitation Journal, explain that: “Inclusion refers to the "full-time placement of children with mild, moderate and severe disabilities in regular classrooms" (p. 192). Adekunle, Bakare, & James, (2013) sees inclusive education as a system designed to restructure general education schools and classrooms to accommodate all students including learners with special needs (p.4). Okorosanya-Orubite, & Maigida, (2008:2), quoting Okosanya, (2007), explained that inclusion is a placement alternative for accommodating all special needs children alongside their able bodied counterparts in the same learning environment for instructional purpose. The same concept is held by Ajuwon
(2008), who defined inclusion as “the philosophy and practice for educating students with disabilities in general education settings” (p.11).

Obviously, inclusion gives disabled persons the opportunity to exercise their rights to education in line with the provisions of the UN Declaration of Human Rights (UNDHR, 1948: Article 26). However, disabled persons are not the only ones excluded from education prior to that declaration. Other non-disabled persons also had no such rights due to gender, religion, and socio-economic status. In providing for equality of educational opportunity to everyone, the Law should not be seen as goading disabled persons into an education arrangement that would create further handicapping effects on them. Disabled persons can exercise their rights to education by attending schools in special education facilities. In so doing, the education system is ensuring the fulfillment of everyone’s rights, and that no one is left out in the gains of education. It should not matter whether the person receiving education is disabled, disadvantaged, or belongs to a minority group. What is paramount is that the law gave everyone an opportunity to be “included” in the education arrangements. With this understanding, it is inappropriate to say that the fundamental principle of inclusion is educating the disabled and non-disabled together in one environment. Whereas the notion of educating learners with special needs alongside normal children in regular classrooms is encouraging, it should be adopted only if such practice does not present a restrictive environment to their academic achievements and progress. That is to say that including special needs learners in regular classrooms can be considered appropriate where there are adequate arrangement to accommodate their needs. In this sense, we have inclusive education.

**Inclusion: A broader Concept**

An examination of the word “inclusion” attests that the noun form of the locution has no ambiguous meaning. The word has the same meaning in Special Education as what its interpretation in English semantic entails. Inclusion, with regards to Special Education, was adapted during the time efforts were made to reverse the very negative practice of excluding certain group of persons from gaining access to education. In attempt to demonstrate that education is a right and not a privilege reserved only for a selected few, the word “inclusion”
was employed to convey that notion. Bloemers and Hajkova, (2006:210-216), gave a list of ancient and modern practices which were used to deny certain group of persons, most especially, people with special needs, their rights to education. These practices are: “exclusion from social participation”; “social Darwinism and Eugenics”; “isolation”; “participation restriction”; ”typographical abandonments”; “marginalization”; “seclusion”; “deprivation of rights”; among others. The only noun which can be used to qualify efforts to circumvent or reverse these trend and practices is inclusion. Inclusion therefore is the direct opposite of exclusion.

Inclusive education, on the other hand, is somewhat dissimilar to inclusion in that, it is not just about placing students in a classroom alongside others. It is the mechanism, process, strategy, approaches, and techniques used to substantiate inclusion. Bartonova, Vitkova, & Vrubel, (2014:9) concur with this view when they posited that inclusive education involves a wide range of strategies, activities, and processes that seek to realize the right to quality, useful, and adequate education for all students, including students with special needs. These approaches are not necessarily limited to integrating students into classrooms with other learners. In integration special needs learners are expected to catch up in activities designed for the regular students (NPIE, 2016:9. They sink and swim in that process with no specially designed programs to bootstrap their progress (Fuller, 2011). Conversely, in inclusive education, the curriculum, teaching and learning methods, as well as the learning environment (physical and conceptual), are tailored to the peculiar needs of all students (NPIE, 2016:10). The process allows special needs learners to develop and progress at their own pace, and to attain learning goals considered acceptable. Contributing, Cardona (2013) wrote that “Inclusive education is planning an education that responds to the child’s needs through the development of an Individual Education Plan (IEP) which also involves the child”. IEP plans allow each child to develop individually and on his/her peculiar pace while still attaining the goals of the curriculum. In inclusive education, teachers must be reading to accommodate special needs learners in their lesson delivery. Accommodation, is that process of curriculum delivery which require a teacher to introduce changes in her teaching method. According to Voss (2016:18), changes could be made in the following areas in teaching:

- Where you teach,
- Who teaches,
- Materials you use,
- How you teach, and
- How the student can respond.

Voss (2016) further described another aspect of learning activities essential in an inclusive education classroom. She identify this as “modification”. Modification can take the form of changes in our grading method, on what we grade, and how we grade special needs learners (p.26).

There are hardly much proof to show that mainstreaming special needs learners into regular classrooms help their education or improve their social acceptance in the communities. It is the training they receive and their ability to maximize their potentials that enables them to break barriers. Social acceptance of special needs learners can be achieved through benign advocacy by teachers who understand that the challenge students face in inclusive classrooms is the mutual acceptance of one another irrespective of differences. Thus, inclusive education begins with teacher training. The nature of the curriculum in general education also helps or mar inclusive education. Does the curriculum create awareness about the presence of people with differences in the society? School subjects like Religious education can be used to enlighten other students on the real causes of disabilities and help to purge the superstitious perceptions of disability as a divine retribution.

**Rights to Education**

The subject matter of inclusion gained prominence following the UN Declaration of Human Rights in 1948. Article 26 of that charter stated inter alia, that: "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit."

The words “everyone”, “generally available”, and “merit” are broad terms which imposes no limitations or restrictions on individuals as to who is, or is not qualified under the Law to receive education. The use of the word “merit” in describing higher education possibilities
for anyone who wishes to strive to that goal conjures the understanding that higher education is available and accessible to ‘whoever’ qualify for it irrespective of the person’s status. The Convention guarantees the rights of “everyone” to free elementary education and open access to technical and professional education. Technically speaking, this right also include those of persons with disabilities, notwithstanding that the charter did not plainly make that statement.

Recognizing the need for clarity and for the avoidance of conflicting opinions about whose rights the education system should guarantee, the UN Convention on the Rights of the Child (UNCRC) was adopted and ratified on 20th November 1989 and entered into force on 2nd September 1990. The Charter was specific about who the term “everyone” represent. Article 2, paragraph 1 of that Charter provides that: “States, Parties shall respect and ensure the rights set forth in the present Convention to each child within their jurisdiction without discrimination of any kind, irrespective of the child's or his or her parent's or legal guardian's race, colour, sex, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status”. Providing an expository note or synopsis on the Charter, a UNICEF fact sheet (1991, p. 1), expounded the meaning of the Charter, explaining that “the convention applies to all children, irrespective of their race, religion or abilities; whatever they think or say, whatever type of family they come from. It does not matter where the children live, what language they speak, what their parents do, whether they are boys or girls, what their culture is, whether they have a disability or whether they are rich or poor. No child should be treated unfairly on any basis”. In other words, the Convention prohibited the exclusion of any child from receiving education base on any form of ‘disadvantage’ or peculiarity.

From mere glance, the Charter is advancing the rights of every child to education without any form of discriminations or inhibition. Every child therefore, is to have access to education, including those children who might previously have been denied education due to poverty, disability, religion, or sex. In essence, everyone is included in the rights to universal free primary and advanced education. This is the vision that inspire the emergence of the inclusive education concept. The Charter did not spend time debating whether all these children should be enrolled into one school in the name of education or whether appropriate provisions should be made to accommodate the peculiar needs of the children to be served.
Without questions, this is a decision for the respective governments of the signatory States to make based on their resources and infrastructures.

Governments of different countries have operated different kinds of schools for their school age populations. No individuals or groups have faulted the operation of educational programmes that separate the sexes. We have for example, Boys schools and Girls schools. For instance, in Nigeria, we have famous schools like the Christ the King College, Kings College, Government Boys Secondary School, which are all male only schools. We also have the Queens’ College, St. Louise College, Federal Government Girls’ College, among others, which are female only schools. In as much as it does not make sense to accuse those schools of promoting segregation or sexism, we also cannot be consumed with debating whether handicapped children should be educated in the same classrooms with their non-handicapped peers, or be segregated in a special school where they can receive more attention. It all boils down to the availability of schools and of acceptance of enrollment to receive education and training.

**Salamanca Declaration and Inclusive Education**

The Salamanca Statement of 1994 is a strong pro inclusive education document. Though the conference made a strong case for the inclusion of special needs children into regular classrooms alongside their normal counterparts, it did so on what it called the cost effectiveness of promoting quality access to education for special needs learners (Section 2, par. 15). It also advanced a child centred pedagogy as a means of meeting the unique needs of these learners in an inclusive education setting (par. 2. Sub section 4). It is noteworthy to point that the declaration did not rule out inclusion in special schools, special classes, or special sections within a school (Section 1, par. 8).

The UN Convention on Rights of Persons with Disabilities (2006), provided a balanced view of inclusion and inclusive education. In Section 24, paragraph 1, the Convention also advocated an inclusive education system at all level and lifelong learning. In paragraph 2, sub section (a) and (b), the convention reaffirmed the rights of persons with disabilities to inclusion rather than exclusion in the general education system on equal basis with others in
the communities they live. This according to the convention, should be consistent with the goal of full inclusion.

**Inclusion and the Nigeria National Policy on Education**

Following the Salamanca Statement of 1994, the Nigerian government reviewed its education policy to align with the current frenzy for inclusive education. The government, through the Federal Ministry of Education, expanded its policy statement to provide for a clear and concise special needs population which they categorized as:

1. The disabled,
2. The disadvantaged, and
3. The gifted and talented.

The policy’s main objectives was the total inclusion of the above listed category of persons with special needs. To avoid any ambiguity about who are involved in these groups, the Policy (NPE, 2004) made the following distinctions:

1. The Disabled: These are people with impairments (physical, sensory) and because of impairment/disability cannot cope with regular school/class organization and methods without formal special education training. In this category are people with visually impaired, hearing impaired, physically and health impaired, mentally retarded, emotionally disturbed, speech impaired, learning disabled and multiply handicapped.

2. The Disadvantaged: These are children of nomadic pastorals, migrant fishermen, migrant farmers, hunters, etc. They are those who, due to their lifestyles and means of livelihood, are unable to have access to the conventional educational provision and therefore require special education to cater for their particular/peculiar needs and circumstances.

3. The Gifted and Talented: They are people (children and adults) who possess very high intelligence quotient and are naturally endowed with special traits in arts, creativity, music, leadership, intellectual precocity, etc, and find themselves
insufficiently challenged by the regular school/college/university programmes (Section 10, par. 94).

The government specified the objective of Special Education as the equalization of educational opportunities for all children, their physical, sensory, mental, psychological or emotional disabilities notwithstanding. It also provides for free education opportunities for children with special needs at all levels, and recommended that all necessary facilities that would ensure easy access to education shall be provided through inclusive education or integration of special classes and units into ordinary/public schools (NPE, 2004, Par. 96 (c)(i)).

Here too, the Nigerian government was pursuing inclusive education and did not make alternative provision for educating special needs learners in special schools. In practice however, there are more special schools in Nigeria and very few inclusive education programmes. It is a misnomer to equate inclusion to inclusive education, integration, normalization, mainstreaming, or open education. There is not much proof that these terms all mean the same things. The concept of inclusion evokes a reminder to the old practices of excluding certain group of persons from the education systems due to their underprivileged status or disabilities. These practices gradually changed, thanks to the universal Declaration of Human Rights (1948) and the UN Convention on the Rights of the Child (1990), which recognizes the rights of everyone to free and compulsory education. These declarations therefore made it possible for these segregated groups to be brought into or included in the education system. It is this act that is referred to as inclusion. It is a direct opposite of the old practices of exclusive education for the privileged and exclusion of the underprivileged from education.

1.1.2. Inclusive Education Perspectives from the Nigeria National Policy on Inclusive Education

Most recently, the Federal Ministry of Education saw a need to draft a policy which would uniquely and comprehensively address the subject matter of inclusive education and guide stakeholders in implementing the programme across the schools. On May 1st 2016, the
Federal Ministry of Education debuted the final draft copy of its inclusive education policy for Nigeria. The 37 paged document is government’s roadmap to implementing UNESCO’s (1994) guideline for action on inclusive education at the national level. The document set the national benchmark for the minimum standard for the effective implementation of inclusive education in Nigeria (NPIE, 2016:10). While acknowledging the issues that has often been raised among students of special education and also layperson about whether inclusive education is just another term for integration, the policy come clean in clarifying the misunderstanding, stating that whereas integration require learners with special needs to adjust to the requirements presented by the school system, inclusive education stresses the tailoring of school environment, curricular and assessment to the needs of the special learners. In addition, inclusive education adopts a learner centred goal manifested through the interaction - communication - dialogue learning model. This contrasted with the curriculum and teacher centred approach which obtains in integrative classroom system (p.10).

In several places in the policy, government used the terms “quality education” to explain its fascination and acceptance of inclusive education as the best form of educational arrangement for learners with special needs. It acknowledged that over 10.1 million children who should be in school are out of school due to marginalization resulting from gender, poverty, disability, conflict, minority, ethnicity/language/ religious, cultural choice, geography(remoteness), age, albinism, nomadism, migration/refugee crises, and so on. It explained the high dropout situation in schools to be due to unsafe or insanitary school environments, abuse and discrimination at school, or lack of effective teaching techniques to help the students learn. (p.12).

Of interest in the policy statement was the distinction drawn between inclusion and inclusive education. While the policy did not discuss the differences in a conspicuous manner as it did when differentiating integration and inclusive education, it used the terms in the same sentence such that any discerning reader could spot the differences. For example, in restating UNECSO’s (1994) views that inclusion is a dynamic approach of responding positively to pupils’ diversity and of seeing individual differences not as problems, but as opportunities for enriching learning. Continuing, the policy stated that the whole concept of educating all learners in the same environment is about changing and improving the way education works.
This in essence, involves restructuring education culture, policies and practices so as to respond to diverse range of learners (p.14). The policy further stated that a useful method of judging whether inclusive education is taking place is to look at the learner’s presence, participation and achievement in education (p. 13). By its ability to identify the critical issues that determines policy formulation in inclusive education, the writers of the Nigeria national policy on inclusive education showed that they have a clear plan of action to achieve the much touted “quality education” for the vulnerable and marginalized group of students.

1.2 Statement of the Problem

Educating Deaf learners presents the most challenge to special educators in Nigeria. Various factors contribute to this situation. Weak policy and flawed decisions by policy makers in respect to deaf education, are the prominent ones. The people who steer education affairs at federal and State levels in Nigeria are people who do not have understanding, neither awareness, nor accurate information about global best practices in the field of deaf education to guide them in formulating good policies. Additionally, lack of consensus among Deaf leaders and members of the Deaf communities about what direction deaf education should take and the objective methods to achieving best results contributes further to the problem. In Nigeria, deaf children come to school with a natural gestural language and means of communication. In schools, unlike in the home where their parents and siblings tune in to their language and communication pattern to effect an interactive process, these children encounter a far different environment less enthusiastic about nurturing and encouraging their native sign language. Schools label their native language “broken English”, “Deaf-glish”, and “bad English”. They force the children to jettison sign language and assimilate a manual method which presents a technical form of communication. Schools even go further to provide their own definition of sign language, stressing that anything that must be called sign language must be visual English. Any sign language which do not follow living English verbatim, is regarded as bogus sign language. In trying to adapt to a new experience, deaf children sacrifice the valuable opportunity they have to acquire learning by natural method. In exchange, they take up an artificial approach which create the shaky foundation they carry
all through their entire education journey. As they struggle to acquire the “living English” through the system of communication handed to them by the school, they get trapped and lost in a web of confusion and cognitive torpidity.

Education system in Nigeria create a dulling effect on deaf learners. They sink and swim the students alongside their hearing counterparts, adopting curriculum plans and methods of instruction originally designed for hearing learners. Consideration is not given to the peculiar teaching methods required of these students. The education system in Nigeria require Deaf students to cover the same syllabus within the same time frame and write the same national standardized examinations with their hearing counterparts. The system does not consider that these hearing students grow up speaking and functioning in the official language of the test and they have a lopsided advantage over their deaf counterparts. At the end of the school year, schools graduate Deaf students who can barely read and write understandable English. At best, the Deaf can be said to have only passed through school but education didn’t pass through them. Events in deaf education have raise questions which beg for urgent answers. Parents, teachers and education authorities have wondered how and where things have gone wrong in the education of Deaf and hard of hearing learners and how these situations can be tackled?

Over the past Century, the education of Deaf and Hard-of-hearing learners has gradually evolved and new understanding has emerged. In the past decades, the dominant question was about method. The issue generates heated debate among the oralist and manualist schools of thought. At different point in time, efforts at educating Deaf children had stressed an oral only method, a manual method, and aural rehabilitation approach. Notwithstanding the approaches then adopted, it was documented that deaf children lag behind their hearing counterparts in virtually all measures of academic achievements. For instance, Johnson, Liddell and Erting, (1998:5), quoting Gentile, (1972), found that deaf students’ achievement on the Stanford Achievement Test (SAT) was markedly depressed in spelling, paragraph comprehension, vocabulary, mathematics concepts, mathematics computation, social studies and science.

The early attempts at introducing credible methods to boost both language and academic achievements of Deaf learners led to the discovery of methods embedded in what is called
the total communication philosophy. Total communication generated intense interest upon inception because it stressed on the utilization of all means of communication to transmit knowledge to deaf learners. In Nigeria, the appeal is still undiluted and total communication still rank uppermost in choice of methodology among teachers. The philosophy of total communication has been used for decades, until research found that it was deficient in addressing the language needs of Deaf learners. Studies discovered that total communication is a system of communication and not a full-fledged language (Livingston, 1997:14). It was viewed as an artificial language which does not use a natural approach to communication. It follows a rigid pattern of signs that threads on the heels of spoken language. Using total communication in teaching deaf learners would deny them the opportunity to develop a first language and prevent them from attaining a threshold level in language development which would enable them to acquire learning (Cummins, 2000). This search for a foundation language for instruction and for Deaf identity resulted in the bilingual/bicultural movement.

The concept underlying bilingual/bicultural education is the assumption that before a child can acquire a second language, he/she must first have a first language in which he/she is fluent and can use that language for problem solving. Expecting children to receive education and solve problems in a foreign language which they have never heard spoken in its original form is a mirage. Bilingual education seek to give equal importance to a child’s first language and help him develop a second language in which he can equally make significant decisions in, as well as read and write.

Bilingual education (also known as dual language education) is a valuable strategy that should be adopted in the education of deaf and hard of hearing learners. The deaf must be bilingual to participate and function actively and robustly in education and in society. Research on methodologies in bilingual education for deaf learners got a significant boost in 1997, when the U.S. Department of Education awarded a Federal grant for the establishment of star school projects in five States in the U.S. The aim of the project was to train teachers in the area of American Sign Language (ASL)/English bilingual education methodology. The star school project, later rechristened ASL/English bilingual professional development project, has trained teachers from various schools for the Deaf in the United States towards implementation of the ASL/English bilingual philosophy in the participating schools (Nover, 2006).
Unfortunately, while there are no such projects in Nigeria, the Federal Ministry of Education, through the Educational Research and Development Council (ERDC) in Sheda, Abuja, awarded a task in 2008 – 2009 for the development of indigenous sign language text book for Nigerian schools. The project was awarded to non-deaf education professionals and they ended up re-enacting a version of the total communication signs using Nigerian participants. Confusing signs, coupled with wastage of fund awarded for the project, led to the incompletion of the work, and its abandonment. In the meantime, researches are ongoing in various aspects of deaf education to find a credible method in teaching deaf learners. Deaf learners in Nigeria still have no language at present. They function as semi-linguals in educational and social situations. In most cases their proficiency in the artificial gestural language they use is not strong enough to enhance academic achievements. Majority of Deaf persons in Nigeria are known as low achievers academically.

The Dual Language Challenge

Language is the most significant issue in the life of a Deaf child for a number or reasons. Language is the code which ignite the complex operation of the human mind. Cayea (2006), proffers that language is the key to how we function in the world. He theorized that without language, we will lack the tools necessary to organize our thoughts or define events occurring around us because language is the nucleus of the metacognitive interpretation that allow us to comprehend the world (p. 1). Deaf people, though not able to hear, have the capacity to acquire and develop language - spoken and gestural. The language of the vast majority of Deaf people is sign language. When sign language is developed appropriately and used consistently, it is as effective as spoken language (Cayea, 2006:3). To enable the deaf to develop effective sign language, Cummins (1979:229), recommended that fifty percent of instruction in the early grades should be provided in sign language. Cummins (ibid), also suggest that a second language should be provided by the school if the home environment is not conducive or is limited in exposing deaf children to second language input. Bilingualism can be adduced when an individual is able to use two (or more) languages in daily functioning. In the case of the Deaf, bilingualism is when they have a solid first language skill, which they can use and understand sign language expressions (not total
communication), and also have basic or functional level skill in English language. Bilingualism is when the deaf can tap from their first language skill to create thoughts and expressions in a second language. To foster bilingualism in Deaf children, schools should have a learning experience (curriculum) which support both languages in the teaching and learning process. Sign language and natural gestural methods should be the primary medium of instruction, while the dominant language – the community language - is used as the language of literacy. Dual language education for the deaf therefore entails the separate, as well as the concurrent use of two languages in the literacy and education programmes of deaf learners (Garate, 2012).

Being bicultural is often associated to being bilingual. The Deafness and Family Communication Center (DFCC, 2005) explained that in bilingualism, children uses two languages and fit into two cultures. Bilingual Deaf children, according to the DFCC (ibid), acquire the following abilities:

- Learn Sign Language (SL) as a first language.
- They learn English or other native languages as a second language, and they use these for reading and writing.
- Children maintain their identity as part of a Deaf culture and the Deaf community.
- They also remain part of their family's culture and their family's community.

Sign language (SL)/English bilingual philosophy, as explained from a DFCC perspective, is based on the perspectives that:

a. Because of their inability to hear spoken language, English and other verbal languages are very difficult for deaf learners to comprehend.
b. Since they learn by seeing, sign language as a visual language is best for them.
c. The acquisition and proficiency in one language easily enhances learning another language.

Generally, there are two kinds of bilingual education approach. These are additive bilingual education and subtractive bilingual education (Baker, 1993:57). The additive bilingual education is considered a positive form of bilingualism. It is also known as maintenance bilingual approach. Maintenance bilingual education is a form of positive bilingualism in that it maintains a child’s first language, while adding a new language to his/her existing
repertoire (Cummins, 1994). In maintenance bilingual education, the extra language learned is intended to consolidate an existing one and not compete with it as the individual’s dominant language. Both languages are used independently or interchangeably at some given situations.

In contrast, transition bilingual education encourages the temporary retention of a first language which is then discarded as the individual acquires a new one (Collier & Thomas, 2009). Transitional bilingual education is regarded as a negative form of bilingualism. Being subtractive, it aims to return a student to a condition of monolingualism. It is therefore negative in the sense that the presence of a new language makes an existing language obsolete and it gradually fade into oblivion because of non-use. The argument often advanced by proponents of transition bilingual education is that retaining a first language interferes with progresses needed to attain proficiency in the new language. These exponents believe that the best approach to learning a new language is to get immersed into it and avoid stressing one’s language organs with two or more languages competing for space.

The issue of what language approach we teachers should take has important implication in the education of deaf and hard and hard of hearing learners. Bilingualism is said to have positive effects on students. Collier & Thomas (2009) reported that bilinguals outperform monolinguals on school tests. They also found that present increase in the contents in school curriculum have triggered cognitive complexes which requires proactive approach to problem solving. The American Speech-Language and Hearing Association (ASHA, 2014) explain that bilingual children have the capacity and facility to learn more than one language students. They listed the advantages of being bilingual to include:

1. Ability to learn new words easily.
2. Ability to use information in new ways.
3. Coming up with solutions to problems.
4. Categorization of words.
5. Logical thinking.

Subtractive bilingualism inhibit cognitive development in students. It yields quite the opposite of what additive bilingualism does on a child. A study by Atkinson (2011), found that teachers have positive comments about the effects of language and cultural plurality on
students. Quoting comments from teachers whom she interviewed, it was noted that bilingualism create awareness in students about their culture and heritage (p.14). Schools owe it to the students to embrace and encourage their cultures to show them that their cultures are valuable. She also found that bilingual students have more opportunities in jobs than monolinguals (p. 15).

For teachers who may assume that encouraging dual language in students may be difficult, Volchik (2000) caution that learning a second language does not have to be difficult in a language program. Key for success is for educator to be familiar with how second language is acquired and what they can do to incorporate language in students. She further explain that:

Language programs are taught differently from other subjects. Administrators who develop language programs must be qualified to make the decisions that will affect both students and teachers. Otherwise, language programs will continue to fail, and students will continue to fall behind.

Problems facing Deaf Education in Africa

The problems of deaf education in Africa are similar to the problems of deaf education in other continents. Beginning at the time when the French physician, Jean Marc Gaspard Itard (1775 – 1838) discovered a feral boy called Viktor, who was believed to be deaf, the cardinal issue in deaf education has been how to give deaf children language and make learning easier toward enhancing their communication skills.

Perhaps the greatest problem in deaf education in Africa is the lack of distinction between language and communication. Educators in Nigeria do not understand that for communication to be happen, there must be a language medium to channel the intended message. They are misled by the definition of total communication which designated it a philosophy which incorporates all means of communication, formal signs, natural gestures, fingerspelling, body language, listening, lipreading and speech (Hand & Voices, 2014). The hidden trick in this definition which educators in Nigeria fall to identify is the allusion to total communication as a “means of communication”, and not it being a ‘total language’. The
‘formal signs’ mentioned in the definition are not essentially sign language. They could be any form of sign writing, sign post, marker, or just a hand movement.

In using total communication to teach Deaf children, a lack of method confront educators. Identical approach of teaching hearing children is used with the Deaf when total communication is utilized. There would be little or no distinction between deaf education and hearing learners. Both the curriculum and method follow the same pattern for both categories of learners. Grushkin (1998) observes that the problem militating against academic development of deaf learners is that educators of Deaf and Hard-of-hearing regard these learners as being hearing people without the auditory sense and have used instructional approaches that conformed to or paralleled approaches taken with hearing children. Present perception in special needs education is the assumption that inclusion is the remedy to the academic slump of the deaf. Unfortunately, none of these protagonists have evolved a mechanism for successful implementing the inclusion programme. In the United States for example, where inclusion is part of the education law, each child has an IEP which explain his/her strengths, weaknesses, goal, as well as recommendation on how to achieve them. The ground work for inclusion can be seen in the fact that civil Laws in the U.S. provides that Deaf persons are entitled to interpreter services when they need it. Visual media programs are subtitled in English for Deaf viewers to follow along. In Africa however, what the authorities understand as inclusion is integrating handicapped children into normal classrooms. Integration is practiced in the primitive form. It merely involve educating handicapped children in regular classrooms without the necessary prerequisite setups to expedite the process. In the end, all efforts at inclusive education in Africa tends to be a failure.

Lack of effective communication between teachers and students is another known problem in deaf education in Africa. Since simultaneous communication is the ‘official’ method of instruction, Deaf children’s limited knowledge in a second language can easily interfere with comprehension. Johnson, Liddell and Erting, (1989) noted that the problem in this situation is not with the Deaf child, but with the teacher. They observed that teachers who uses the simultaneous method “produces utterances such that the child will recognize many of the signs, but will lack the competence in English grammar and the experience in the invented English signs necessary to decode the teacher’s message.”
Livingston, (1997:1), quoting Sheomake, (1992) in the “silent news” hinted of another problem teachers create when using the total communication method in teaching deaf children. She explains that

*hearing teachers would try to teach a lesson using Signed English, and when the Deaf child did not respond with comprehension, the teacher would simplify her English even more. This waters down the concept she was trying to teach.....Thus, it is the teacher’s English which the Deaf students did not understand.*

1.3 Aim and Objectives of the study

The aim of this study is to:

Assess the effect of bilingual educational methodologies on academic performances of Deaf and hard of hearing learners in inclusive education programmes in junior secondary schools in Uyo and Ikot Ekpene Local Government Areas of Akwa Ibom State – Nigeria.

Objectives of the Study:

The objectives of this study are to:

- Examine through treatment, the reading ability and comprehension capacity of deaf and hard of hearing learners per the use of word for word teaching and learning approaches.
- Assess the outcome on deaf students’ comprehension, a reading task concurrently executed in both languages as part of a bilingual educational strategy.
- Provide seminar to teachers of deaf and hard of hearing learners in inclusive education programmes on the application of bilingual education methodologies in the classroom by the 17th of October, 2016.
1.4 Research Questions

This study intend to find answers to the following questions:

- Do deaf children/pupils/students in Nigeria learn well when taught in total communication philosophies, or do they fare better in bilingual education methodology?
- Does total communication deprive Deaf children the opportunity to develop language naturally?
- To what extent do teachers in deaf education understand academic and social sign languages and use them in the classroom?
- Does the use of bilingual educational methodologies enhance teachers’ lesson delivery and improve comprehension and academic achievements in deaf and hard of hearing learners?

1.5 Purposes of the Study

The major purpose of this study is to investigate the variation in learning outcome of teaching strategies in bilingual methodologies versus total communication.

Other purposes of this study are:

1. To create awareness about and encourage the introduction of bilingual education as a methodology in inclusive education, which has the potency to fast track learning and promote academic achievements in Deaf and hard of hearing learners, and promote healthy academic competition between Deaf pupils/students and their hearing counterparts.
2. Build the capacity of teachers in Deaf education in Nigeria in the application of bilingual methodologies in teaching.
3. Induce professional discussion at institutional, State and national stages in Nigeria for the re-examination, re-assessing, and reevaluation of present approaches and
strategies in teaching deaf and hard of hearing learners with a view to re-strategizing and improving the present practice.

4. Elicit further researches by indigenous researchers in the area of bilingual/bicultural education in relation to inclusive education and the Deaf.

5. Develop a sign language assessment toolkit for use to identify language threshold level of Deaf learners and interpreters, in the formal evaluation and rating of sign language tests and identifying skill levels.

1.6 Limitations of the study

During the course of this study, certain limitations were encountered which restricted some of the researchers original plans. Notable limitations were:

1. Lack of fund from the Akwa Ibom State Ministry of Education to sponsor the originally planned joint workshop/seminar for teachers from the participating schools. As a result, the workshop was held in each respective schools.

2. Some teachers were shy about their sign language skill. Therefore, they did not want to be used in the study. Selection of participating teachers was done by the school Principals based on their volition and judgment.

3. Time factor was another limitation. The Akwa Ibom State Ministry of Education for instance, needed time to process the request for fund but the researcher was constrained by the one month period approved for his travel.

1.7 Delimitation of the Study

The following are the scope which this study covers:

1. The samples for this study (students and teachers) were drawn from the junior secondary unit (grades 7 – 9 or age groups 12 – 14) in the schools selected in the study. The student population and samples surveyed were entirely Deaf students, not
hearing students. However, participating teachers in the schools surveyed were both Deaf and hearing teachers.

2. Participating schools in the study were inclusive special schools for the Deaf. Ordinary special schools (segregated special schools) were not sampled. Schools in the Czech Republic were also not sampled. However, they impacted the study by way of the observation and practicum done by the researcher.

3. This study concentrated on the thematic issues of pedagogy namely, teaching, learning (curriculum), and methodologies in deaf education. Other than that, topics bordering on causes of hearing loss, treatments of hearing loss, parental issues, cochlea implants, hearing aids, globalization of education, and so forth, were consciously omitted from deliberation to maintain consistency and coherence on the subject matter of this study.

### 1.8 Operational definition of Terms

For the purpose of this research, it is necessary to provide the definition of the core terms that form the crust of arguments in the study. The terms are operationally defined in one three forms, namely, conceptual, paraphrase, and cited sources. Cited definitions are written in italics:

**Bicultural education:** It is an *empowering educational environment which fosters deaf culture and promote appreciation of the cultures comprising the broader society* (Gibson, Small & Mason, 1997). In other words, bicultural education is an environment in which the school, the home, the deaf community and the hearing community create an enabling and an enriching experience which encourages, and empowers the deaf to take active roles in their communities (DCC, 1997).

**Bilingual education:** From a conceptual point of view, “bi” means two and “lingua” is a Latin word for “tongue” and “language” (Dictionary.com (2015), & English Oxford Living Dictionary (2015)). “Bilingual” therefore means two languages. In the same vein, the word “education”, when taken in its simplest meaning, is the process by which we learn to read and write. Putting all these pieces together, we can arrive at the meaning that bilingual education is the ability to read and write in two languages. This definition is not much
different from what the professionals sometimes provide. According to Wikipedia, (2015), bilingual education involves teaching academic content in two languages, in a native and secondary language with varying amounts of each language used in accordance with the program model.

**Communication:** Communication is the process by which we encode and decode information, which results in the exchange of messages and ideas that facilitate learning and interaction. Communication is principally done through verbal or non-verbal means (Umolu, 1994).

**Deaf:** There are two distinctions in the meaning. The small letter “deaf” and the capital “Deaf”. Parasnis, (2002:3) provided an operational definition for both terms viz, the “Deaf” are those persons with hearing loss who share a language and cultural value (ASL) that are distinct from the hearing society. “deaf” refers to an audiological condition of having a hearing loss that ranges in decibel (dB) from 90 and above.

**Hard of hearing:** According to the International Federation of Hard of Hearing People, (IFHoHP, 2010:1), the Hard of Hearing (HoH) are people with some level of hearing difficulty, including those with mild to profound hearing losses to those late deafened. The preferred mode of communication of HoH people is spoken language.

**Inclusion:** From arguments advanced in this study, the operational definition for inclusion that would be adopted in this study is the one quoted in Berhanu, (2011:8) which was inadvertently used to describe inclusive education. (Inclusion) extends beyond special needs arising from disabilities, and includes consideration of other sources of disadvantage and marginalization, such as gender, poverty, language, ethnicity, and geographic isolation.

**Inclusive education:** A working definition of inclusive education which will be used throughout this research is that quoted from Berhanu, (2011:7), that inclusive education is a far-reaching notion which is theoretically concerned with all students, and focuses on the transformation of school cultures to (1) increase access (or presence) of all students (not only marginalized or vulnerable groups), (2) enhance the school personnel’s and students’ acceptance of all students, (3) maximize student participation in various domains of activity, and (4) increase the achievement of all students.
**Language:** It is the system of sounds, written symbols, and/or signs used by the people of a particular country, geographical area, tribe, or status (as the case may be), to communicate with each other. It can also be described as the human ability to acquire and use complex systems of communication (Nwaozor, 2015:27).
2 LITERATURE REVIEW

Introduction

Studies in special and inclusive education in the area of Deaf and hard of hearing education have shown that deaf children’s achievement in virtually all aspect of academic activities is murky and rates below average when compared to their hearing counterparts of same age and grade level. Johnson, Liddell, and Erting, (1989:2) documented an analytical study where they observed that “since the 1970s, majority of Deaf students have been educated in total communication programmess in which signing and speech are used simultaneously for communication and instruction purposes. And despite improvement in the development of tests, early amplification and the implementation of early intervention or preschool programs, most students are still functionally illiterate upon graduation”. This is a dire reminder that the methods still used in educating Deaf and hard of hearing learners is out of date with current reality regarding educating Deaf learners.

Heward and Orlansky (2002:193), acknowledged that educating the Deaf is the “most special of all areas of education”, a situation which calls for shifts in paradigm to reconstruct the narrative. Grushkins, (1998:1) took a critical look at the issue of methodology, and lamenting that “educators of the Deaf and hard of hearing have long viewed this population as being hearing people without the auditory sense and have used instructional approaches, especially in reading, that conformed to or paralleled approaches taken with hearing children.” Speaking in the same vein, Livingston (1997:1) deplored the practice of hearing teachers trying to teach Deaf children using exact English sign. And when the Deaf do not understand the teacher’s sign, she will in the process try to water down her sentence to make it easier for the Deaf to understand. It is the teacher’s sentence the Deaf do not understand. This according to Livingston (1997) is responsible for the language and academic development in Deaf children.

In an in-service presentation delivered by Voss (2016:16) where she sensitized a group of teachers on the application of modifications and adaptations in inclusive education, Voss (ibid) equated the practice of teaching Deaf learners in pure English language or a form of it using English signs (without them first being bilingual in that language), to giving hearing
students who speak English a paragraph in Germany and then testing them on it. The challenges present in the teaching and learning in Deaf education cannot be improved without language and methodology playing a significant part in the process.

In this chapter, literatures on bilingual methodologies and teaching strategies with Deaf and hard of hearing learners will be examined. The review will be in four parts, namely, teaching Deaf learners in reflection of the theory of interdependence hypothesis in second language acquisition, bilingualism in inclusive education programme, and methodologies in the application of bilingual educational strategies with Deaf learners. Before then however, suffice it to review some literatures on the education system in Europe, with brief consideration on four European countries.

2.1 Education of Deaf and Hard of Hearing Learners in Europe

There is no disputing the fact that Europe was the birthplace of Special Education. Education of Deaf and hard of hearing learners also has its origin in Europe. We are aware for instant, that in 1815, Dr. Thomas Hopkins Gallaudet travelled in search of a method to use to educate young Alice Cogswell in the United States. Gallaudet’s first port of call was London. In London, there was the Braidwood Watson family who at that time had developed a system for educating deaf children. Their method was so valuable to them that the Braidwood Watson family kept it secret from inquisitive minds. They did not acknowledge Gallaudet’s presence and did not share their ‘secret’ with him. It was while contemplating his next move that Dr. Gallaudet met Abbe Roch Sicard, a French educator who was the head of the National Institute for the Deaf. The school was established by Abbe Charles Michael d’LEpee. Abbe Sicard took Gallaudet to Paris to learn the methods of educating deaf children. Gallaudet stayed some time in Paris where he was taught not only the sign language, but also methods of teaching deaf children by a French deaf man called Laurent Clerc. When Gallaudet finally departed to the United States, he took along with him Laurent Clerc, who become the first teacher for the deaf in the United States (Butterworth and Flodin, 1995).

Before this event, there was a Spanish Monk, Pedro Ponce de Leone, who in 1550, started an oral programme in educating deaf children. His students consists of deaf children from
wealthy homes. He taught them how to pronounce their names and the names of objects. He also taught them how to write those names. After him, came another Spaniard, Juan Pablo Bonet, who in 1620, devised a system of manual communication which became the model for the one handed manual alphabet used in many countries today (Butterworth and Flodin, 1995).

Europe once again took the centre stage when in 1880, in Milan, Italy, at the conference of educators and administrators of schools and programmes for the deaf, a decision was taken that was to define the future of deaf education for the next one hundred years (Norton, 2013:10). It was decided at that Milan Congress, through a resolution, that sign language should be banned in all schools for the deaf around the world (Lane, Hoffmeister, & Behan, 1996:63; Norton, 2013:11). This decision set in motion a dispute about methodology which was to last a whole Century. This came to be known in special education as the 100 year old war between the oralist and manualist schools of thought. This controversy set the stage for the debate on methodology in the education of deaf and hard of hearing learners.

This research will analyze the education systems in few European countries. Four countries were selected. The study will give attention to the state of deaf education in each of those countries. In selecting these countries, a non-probability method was used. The countries were once recommenced to the researcher as a possible visitation point due to their relevance to the study. The countries selected are the Czech Republic, Germany, Finland and Sweden. With the exception of the Czech Republic which is the researcher’s host country, Germany is a leading industrialized nation in Europe and the prime mover of the continent’s cooperation (BBC, 2012). Germany was a top model in the provision of free public basic education. The Organization of Economic Cooperation and Development (OECD) noted that Germany’s model secondary education called gymnasium, became a prototype for other European countries (OECD, 2010:202). Germany was once home to notable world philosophers of the past, and this earned it its pride of place among the world’s leading education elites (OECD, 2010). Finland, on the other hand, is renowned for its multilingual education system. Its Content and Language Integrated Learning (CLIL) project serves as a template in the present bilingual education movement (BBC, 2006). The principles in the CLIL suit the purpose of this research study. Sweden is a close neighbor of Finland. Both countries share much in common including a heritage day celebration in Finland which
celebrate among other things, the bilingual connection of both countries (Wikipedia, 2015). Learning about the education system in both countries can provide deeper understanding regarding multilingual education approaches. It is without doubt that examining the education systems in these four countries, even in shallow mode, will provide useful insight and tips to improving education of Deaf and hard of hearing learners in Nigeria.

2.1.1 Education System in the Czech Republic

The Czech Republic is a central European country with a democratic government. Modern day Czech Republic came into being in 1993 after it split territory from its sister State, Slovakia. The democratic nature of the Czech Republic, coupled with its membership of multinational organizations like the United Nations (UN); Trans-Atlantic Alliance; and European Union (to mention just a few), have impacted positively on its education system. For instance, when the UN Convention advocated the Rights of every child to education under the UN Convention on the Rights of the Child (1989), the Czech Republic reformed its education practices under the Czech constitution (Ústava České republiky Act No 1/1993), to reflect this trend. Also, the Universal Declaration on Education for All, (1990); the Salamanca Declaration, (1994); The Bologna Process, (1999); and the UN Convention on Rights of Persons with Disabilities, (2006) were all implemented in the Czech education Policies (UNESCO, 2015:6-7; 45-47). Thus, from its once communist ideologies, the Czech Republic successfully transformed into a liberal democratic society.

The Czech education system has many interesting features. Since 1st January, 2003, schools enjoy autonomous status. This means that running of schools is entirely the affairs of each respective schools. School heads are responsible for what goes on in their schools. They hire and discipline teachers. School heads are appointed by the organizing body of the school comprising of parents, students, academic staff, and members of the public. This organizing body is referred to as the governing council (Ministry of Education, Youth & Sports, 2012:9; Strakova, 2008:217-224).

According to the Institute for Information on Education (IIE), basic education is free and compulsory for students from ages 6 – 15 (IIE, 2011:4). This consists of the
primary/comprehensive education which is 5 year in duration, and lower secondary school levels (4 year duration). It is known as the ISCED 1 and 2 in the Czech education parlance. Education law in the Czech Republic requires a child to start basic education latest, at age 6. There is however, an exception when certain situation may delay the child’s ability to start schooling, such as illness or certain disability. In that case, the child’s enrollment can be postponed till age 8. At this age, it become mandatory that the child must be in school even if it means attending to him/her with additional supports. If a child’s physical disability is so severe that it limits the child’s ability to learn at a normal rate, the child has a grace period of staying in basic school until he/she is 26 years of age.

After a first five years of education, that is the first stage of basic education, students automatically move into the 4 year lower secondary school programme without an examination. The free compulsory education ends here. After completing primary 5 of basic education, students decide on three options before continuing with their junior secondary school education. They decide whether they want to complete the 4 year junior secondary school education and then continue to the 4 years upper (senior) secondary grammar school programme. Or they may decide on a multi-year secondary school option called “gymnasia”. There are two types of gymnasiu. One begins after a student has completed 2 years in the junior secondary school programme and want to enroll into a conservatoire programme (6 years in a senior grammar school programme). The second type of the gymnasiu programme is when a student, after completing primary 5, decides to enroll into an 8 year multi-year secondary grammar school programme. All senior secondary school programmes, example, the 4 year, 6 year, and 8 year programmes are decided through entrance examinations (IIE, 2011; Ministry of Education, Youth & Sports, 2012; Strakova, 2008:218). Students take maturity examination at the end of their programmes to enroll into a University education. There are also technical and vocational education programmes students can enroll in depending on their interests. This starts at the junior secondary school level. At the end of it, students graduate with either apprenticeship certificate (ISCED 3C), or a maturita.

Certain features of the Czech education system is similar to what obtains in most other countries. It is very likely that the universality of the Basic Education scheme implies that all member nations of the UNESCO should operate a nine (9) year basic education policy. Nigeria’s education system follows that same model. The only difference is that the Nigerian
education system is guided by Policy and not a legislative Acts. As such, what are contained in the Policy are sometimes not implemented.

It is remarkable to note that the Czech education system grants Pupils from ethnic minorities the right to education in their mother tongue to an extent appropriate to the development of their ethnic community (Vrabcova, Vacek, & Lacek, 2008:5). While this might have been developed with certain language minority group like the Roma and Poli ethnic groups in view, it nevertheless addressed the basic needs of Deaf and hard of hearing learners in their pursuit of education. Regulation No. 73/2005 recognized the peculiar leaning needs of special needs learners and guaranteed the individualization of instruction to address those needs.

Education of Deaf and Hard of Hearing Learners: Views from Czech Republic and Nigeria

Education of Deaf and hard of hearing learners in the Czech Republic is believed to have started in 1786, following the establishment of the first school for the deaf in Prague (Ševčíková, 2008:9). Right from the start of the first school for the deaf, instruction in schools for the Deaf in the Czech Republic follow a bilingual model. There are varied forms of bilingual education approaches in the Czech Republic. In one case, it is teaching the deaf to speak the language of the community, while using sign language as the medium for effecting such instruction. In another aspect, it blend both signs and written language in text book form of basal readers for Deaf children. In yet another case, free translations are used to provide the contextual relationship of written and spoken sentences in gestural form to help the Deaf come to terms with the corresponding sentence patterns of both English and sign expressions.

According to the European Agency for Special Needs and Inclusive Education, (2013), the Czech education Act No 29/1984, guaranteed the use of sign language in the education of Deaf and hard of hearing learners. Sign language was accorded the status of a full-fledged minority language recognized under the Sign Language Act of 1998, and amended in 2008. This Act accorded the Czech Sign Language (CSL) a full language status which, like every other language in the world, is recognized to have its own grammatical, syntax, and semantic structures. Thus, the CSL is the primary language of instruction in schools for the Deaf. In families where both parents are deaf, CSL is the first language (L1) in the home. Czech
(Čeština) is learned as a second language (L2) and is used as business and educational language. It is the language the students learn to read and write in. Sign language has no written form. Therefore, all Deaf children must learn Czech to be able to read, write and take their maturita (certificate) examinations.

The education Act No. 561/2004 recognizes the rights of persons with disabilities to equal opportunities like other non-disabled persons. This law also covers Deaf people’s rights to education, and it guaranteed them the right to be educated by special methods, and the use of special aids at no cost to themselves (Ševčíková, 2008:13). The law also make it possible for the Deaf to exercise their prerogative of choice in matter requiring decision as to the kind of education and training they want, and under what arrangement - special education setting or at an inclusive education programme. They are availed with support services from interpreters, school counsellors, and a school psychologist.

In furtherance of the equal opportunity rights enjoyed by the Deaf under the Czech education law, basic education for Deaf and hard of hearing learners in the Czech Republic lasts ten (10) years as against the 9 years duration for regular school children. Secondary education extends to about 6 years duration (Ševčíková, 2008:13). This is to imply that the Czech system has a flexible special needs education policy which give special needs students an opportunity to leverage with their non-handicapped counterparts in the pursuit of their education and in achieving academic excellence. This is a sharp contrast with what the Nigerian education system practices. Schools do not have the autonomy to administer their internal affairs. Schools are directly under the control of government through the Ministry of Education. Employments and appointments are done by the government. And in many cases, such appointments are politically motivated. Deaf students graduate under the same arrangement as their normal hearing counterparts even without any alternative communication mean.

Deaf students in Nigeria do not have the luxury of a first language (L1). Deaf children come to school with a natural language which they use as their primary means of communication. In school, they are forced to discard that language because it is deemed that sign language is a bad language which is capable of distorting Deaf people’s grammatical construction of spoken English. Parents and teachers alike discourage Deaf children from using sign
language. Even educators in special education institutions in Nigeria do not know what sign language is and its relevance in the education of Deaf and hard of hearing learners. A particular revered Deaf educator in Nigeria has this to say: “American sign language, while possibly a nice means of communicating socially, is unsuitable for the educational process” (Okuoyibo, 2008:33). He did not stop there. He went on to misquote Johnson, Liddell, & Erting, (1998), ascribing to them the saying that “American sign language (ASL) is a beautiful, conceptual language and it is truly believed that it has an important place in the proliferation of deaf sub-culture, but it has no place in the education process if deaf citizens ever wish to compete with their hearing counterparts, with any kind of efficiency” (P.33).

To correct this wrong notion, Johnson, Liddell, and Erting, (1998:9) were actually reporting the views held by some educators in the US about what they think about sign language. They quoted a study by Bellefleur, (1988:23), in which he found that educators in the US in the past widely believed that sign language is unsuitable in the education of Deaf learners. Nigerian educators fall into that category. There is hardly a researcher in the Nigerian Special Education field who can tell the difference between sign language and total communication. Nigerians do not know that sign language is a full ledged language and total communication is not. Antagonists of sign language have always spread misinformation, false explanations and wrong conclusions about sign language to advance their ideologies. This is at the root of the education problem facing deaf learners in Nigeria.

2.1.2 Education System in Germany:

Germany is reputed as being the largest economy in Europe and the second most populous nation in the continent (CIA the world Factbook, 2014). Germany exercises great influence in European political, economic and educational system. The Federal Republic of Germany, formerly known as West Germany, became a unified Federal entity when it amalgamated with the Eastern German Democratic Republic in 1990, following the collapse of the Soviet Union, which brought an end to the cold war era (CIA Factbook, 2014). Following these developments, Germany has reshaped itself to become a major player in Western politics and a prominent member of the European Union, and other international organizations.
The German education system has its own unique features as do other European nations. The academic year in Germany consists of two terms of six months each. First term starts from September to February, while the second term start from February till July (Weber, 2007:5). Germany practice free compulsory education in the real sense of the word. Free education in Germany includes free transportation to and from school until a child is aged 10 years. Books are provided to students free by the schools. Parents can make financial contributions to schools but this is solely in form of voluntary contribution. No levies are imposed on students or parents as is done by schools in Nigeria. Even in private schools, financial burdens do not solely rest at the feet of parents because about 80% of private funding come from the State (Weber, 2007:4).

Basic education in Germany follow the same concept of universality under which the Universal Basic Education (UBE) scheme is founded. Basic education is 9 years in duration. It starts from age 6 until a child is 15 years. Elementary education, called Grundschule in Germany, is a four year programme and commences at age 6 until a child is 10 year old. In some cities in German like Berlin and Bradenburg, Grundschule is 6 year long (Lohmar, & Eckhardt, 2013:103). After a child completes elementary school, parents and students then have three educational possibilities. They decide on either continuing at the Hauptschule, Realschule, or the Gymnasium. According to Smith and Woodsome, (2013:7), Hauptschule is attended by lowest-achieving students. Instructions are more individualized and are executed at a slower pace and in the same academic subjects taught at the Realschule and Gymnasium. Additional subjects with vocational orientation are also taught to students in the Hauptschule.

In the Realschule, students’ academic programme has both liberal and practical emphasis. Smith & Woodsome, (2013:8-12) explain that the education focus of the Realschule is differentiated between the Unterstufe (lower level), which incorporates the 5th, 6th, and 7th grades, and the Oberstufe (upper level), which includes the 8th, 9th, and 10th grades. They further observe that “the lower level has a strong liberal arts emphasis, while the upper level is more closely oriented to various disciplines”. Gymnasiums provide students with liberal and language education. Senior secondary school level in a gymnasium is called “Oberstufe”. At the completion of secondary school education, students sit an examination called Abitur examination. This qualifies them for further education at the university. Other senior
secondary school certificates students in Germany receive are Hauptschule certificate and the Realshule certificates.

Germany also has a dual education system which prepare students from school to work life. Education in a dual system takes place in both a company and vocational school called Berufsschule. Learning occur in the company between 3-4 times a week, while instruction in the vocational school take place once or twice a week. The duration of a dual education programme is two to three years, or in some cases, three and a half year. There are approximately 340 different occupation skill students can acquire, and it ranges from as simple as a trade and complex as an industrial skill. Upon completion of their training in a Berufsschule, students receive a State recognized vocational education certificate (Schultz, 213:5-14).

**Deaf Education in Germany**

The Basic Law in Germany (Grundgesetz, Art. 3 – R1) guarantees the right of every disabled child to education and training appropriate to his/her needs. Numerous legislations in Germany protects and recognized the special needs of persons with disabilities. Disabled students attend a special form of education and vocational schools. Depending on the type and severity of the handicapping condition, the students are either integrated in an inclusive education programme or they are educated in a school for the specific type of disability. Some of the placements for disabled students are done following the result of their performance during the academic year. Depending on the performance of the students, they can be placed in a special school, inclusive programme of continue in the same programme they were in, with additional support given to them (European Agency for Special Needs and Inclusive Education, 2012). The same procedures apply to Deaf students.

Just like in the Czech Republic and other nations which are tuning into the Salamanca framework of action, Germany is a strong pro inclusive education country. Deaf students in Germany are spread over in 3,000 mainstream schools and 80 schools for the Deaf (Muller, 2012:8). Schools for the Deaf in Germany consists of nursery, primary and secondary schools. There are several vocational schools where the Deaf can also attend. Increasing
developments in global Deaf education has brought about challenges in technical aspects in Deaf education in Germany, such as Deaf culture and bilingual education.

Sign language in Germany is recognized by law as an autonomous language. This follows the legislation on the equal treatment of handicapped persons Act (2002) passed by Legislature for the German Landers. Brammertz, (2008) observes that since then, several universities and institutions have introduced sign language into their curriculum. He however lamented that very few schools for the Deaf in Germany operate with two languages.

2.1.3 Education of Deaf and Hard and Hearing Persons in Finland

Finland is the first country in Europe to record many firsts in respect to Deaf education. The country is a model to other European nations in the provision of services and education to the Deaf. Since the 1970s, the Finnish government recognized the Deaf community as a minority group with their own cultural and linguistic peculiarity. Sign language is accorded Legislative recognition and backing. According to the Scottish Sensory Centre (SSC, 2003), the 1995 Constitution Act, section 14:3 recognized the rights of Deaf and hard of hearing people to use sign language and have access to it through “interpretation or translation”. Therefore, not only do the Deaf have access to education through sign language, they also have access to information in sign language. In the Finnish education system, sign language is the mother tongue (L1) of the Deaf. Instructional materials like text books are made accessible to Deaf students in sign language. Instruction in the language of the community (L2), in this case, Finnish, is presented to the Deaf in Finnish Sign Language (FinSL). Curriculum in regular secondary schools have FinSL as a subject, of which interested students can choose to study, just like they choose to study subjects of their interest (SSC, 2003).

The Legislation known as Services and Assistances for the Disabled Act (133/2010), provides for free interpreter services to the Deaf in all aspects of life: education, social, recreation, jobs, and studies. In other words, the Deaf have interpreter services for general purposes and personal needs. The Municipal authority pay for these services. Sign language is so deeply rooted in Finnish Deaf education and socio-cultural involvements that Londen,
(2004:14) asserted that any debate about oralism in deaf education in Finland does not exist. While inclusive education can be a debatable issue in Finland, the question of whether a Deaf child will have to contend with spoken Swedish and Finnish language is not relevant. What should be of concern is the likelihood that the child will turn out to be the only one in the mainstream programme. Bilingual education is highly valued in Finnish schools for the Deaf. Londen, (2004) opines that bilingual approaches aid deaf children’s cognitive and psychosocial development. This position is supported in most literatures on bilingual education as we would see in Chapter two of this dissertation.

Finland’s path to education greatness was not mere coincidental. It was the result of years of planning and under studying the education system in other great countries. Sahlberg, (2011) revealed that credit should be given for the knowledge and ideas brought from the United States, Canada, Britain, and from some Nordic countries (P.34). This tend to give credence to the saying that no nation is an island unto itself. In this age of globalization, developing and developed countries alike stand to gain immensely from one another through partnership and cooperation. The success of Finland’s education will remain a reference point for a long time to come. Other key factors lie in the fact that education policies in Finland are intertwined with social policies and with the overall political culture of the nation (Sahlberg, 2011:35). Good governance and the implementation and maintenance of policies and practices which are oriented towards change and sustainable leadership are other contributing factors in the education development of the Finnish nation.

This assessment of the Finnish education system cannot be complete without mentioning that the Finnish concept of Universal Basis Education (UBE) is not just a matter of ensuring that school aged children have access to education and training. In Finland, free, compulsory education involves, in addition to the normal requisites, free nutritious meals for all pupils and free health care while in school. Psychological counselling and student guidance are accessible to students while in school.
2.1.4 Overview of Special Education in Sweden

Sweden is a Scandinavian country that borders Finland to the North East. In many studies, for example, Londen, (2004); Salhberg, (2011); Scottish Sensory Centre, (2003); and (Takala, M. & Ahl, A., 2014), among others, Sweden and Finland share many comparisons. According to Takala and Ahl, (2014:60), Finland and Sweden are neighbouring countries, with similar cultures and school systems. Apart from these identities, Swedish language is recognized in Finland as the second official language. Sweden on its part recognizes Finnish language as a national minority language that must be promoted in all spheres of national life. This illustrates the level of interrelatedness that exists between the two countries in various national issues.

Swedish education system is based on democratic foundations (World Data on Education, 2010:2). The system operates on set out goals which are reflected in the national goal for education. Swedish education system has both compulsory and non-compulsory education policy. Berhanu, (2011:4), explained this distinction, stating that

Compulsory education includes regular compulsory school, such as Sami school, special school, and programs for pupils with learning disabilities. (Sami is an ethnic group with ill-defined genetic origins, living in the northern areas of the Scandinavian Peninsula and Russia.) Noncompulsory education includes the preschool class, upper secondary school, upper secondary school for pupils with learning disabilities, municipal adult education, and adult education for adults with learning disabilities (P. 4).

The Swedish Education Act (1989), which was later replaced by the new Education Act (2010:800), regulate all matters relating to education in Sweden. Like in other European countries under study, education is free in Sweden. Although compulsory education ends upon students’ completion of basic schooling, students in upper secondary schools receive supports and grants from Municipalities to continue their education. Even through to the University, Swedish and Europeans students receive an almost entirely free education. Education in Sweden is publicly funded. That is to imply that the fund to run public education is generated from public taxes.
Special Needs Education within the Swedish System

In Sweden, there are no separate laws aimed at protecting the rights of persons with special needs. UNICEF, (1996:164), observes however that in attempt to integrate various issues pertaining to the disabled, special paragraphs are incorporated into certain laws to serve the needs of the disabled. An example of this is the Anti-discrimination law (2008:567) which prohibits all forms of discrimination and degrading treatments against any individual and disabled persons. A country report on assessment of Sweden education system in respect to special needs education by the European Parliament (2013), observes that the situation of children with disabilities in Sweden is relatively good (P. 8). This is even as it observed that two surveys done by the Swedish Schools’ Inspectorate (Skolinspektionen) show that Swedish schools are not sufficiently adapted to children with disabilities (P. 11). The report noted positively that government policies regarding all children and the disabled are based on the core tenets of the UNCRC and they guarantees children’s rights to non-discrimination; develop at their own pace and merits, and are allowed the freedom to express themselves.

The Swedish education system advocates educating disabled and non-disabled children together in the regular school settings. This practice is called in Swedish parlance as “integration”. Explaining why Sweden uses the term ‘integration’ instead of the more popular inclusive education terminology, Berhanu, (2011:5) explains that the term ‘inclusion’ has been difficult to translate into Swedish. As a result, people see the term as ambiguous. Swedish see the issue as a matter of semantic differences rather than an operational definition. This has led policy makers to question whether the new terminology means only a linguistic shift or a new agenda.

Notwithstanding the Swedish policy intent to educate disabled and non-disabled children in the same school setting, there are special schools that caters to the unique learning needs of special children. The web resource, Specialpedagoska Skolmyndigheten, (2014), explained that Sweden has five regional special schools and three national special schools. Children are accepted into any of those programmes following application from parents for their children to attend the special school. Among these specials schools are the schools for the Deaf. 2.2.
2.2 Sign Language and Its Linguistic Features

In considering the linguistic features of sign language, we are faced with the question of whether sign language is an independent language or whether it is a manual coded representation of spoken languages? To be able to answer this question effectively, we need to understand what language is. BakerShenk, and Cokely (1980:31), defined language as a system of arbitrary symbols and grammatical signals that changes across time and that members of a community shares and use to interact with each other, communicate ideas, emotions and intentions, and transmit cultures from generation to generation. This definition identified different features of language. Valli, Lucas, and Mulrooney (2005:1-7), and BakerShenk, and Cokely (1980:31-44), listed these language features as follows:

- language is made up of symbols
- these symbols and grammatical signals are accepted by members of a language community
- the symbols are organized into a system to aid communication
- language symbols could be iconic or arbitrary
- members of a language community share the same system of communication
- the symbols and system could changes over time as it passes through the generations

Elucidating on how sign language meet up these significant features of language, Valli, Lucas, and Mulrooney (2005:13) explained that ASL is an autonomous language that has developed over time among a community of Deaf users. They asserted that ASL is independent of English and it fulfills all the features that make language unique (p.14). Illustrating the unique process of sign language production, NAD (2015), explained that the brain processes linguistic information through the eyes. The shape, placement, and movement of the hands, as well as facial expressions and body movements, all play important roles in conveying information. These handshapes, location, orientation, movement and facial expressions together form what is called the parameters of sign language. This parameter has the same basic linguistic elements of spoken language, namely, phonology, morphology, and syntax. In linguistics, a phoneme is the smallest single unit of sound which do not have any meaning on itself unless combined with other units (Wilson, 2016), example
of phonemes are each single letter that form the building bloc of words: /e/, /e//a/ then /e/ /a/ /t/. Each of the letters that combines to build the word “eat” are phonemes. Likewise, in sign language, phonemes are seen in handshapes when they are merely hand configurations awaiting to be located or placed somewhere, and given a particular orientation (direction), and moved (movement) to form a sign (word). In the course of that movement, there are times when the hand must be in motion or static in order to complete the sign (Rizer, 2004). This movement and hold on movement is called the movement-hold model (MHM).

Morphemes are another important element of linguistics. Morphemes are the smallest meaningful unit of language (Llau, 2015). Morphologies are seen in morphemes and these are also called markers in sign language. In sign language, there are a number of morphologies. Llau (2015) listed some of these as: derivational morphology, inflectional morphology, deriving nouns and verbs, compound words, lexicalized signs, and numerical incorporations. There are also mouth morphemes which are important part of the sign language linguistics. Example of each of these morphemes is provided in the table below:

Tab. 2: Samples of sign language morphemes used in ASL

<table>
<thead>
<tr>
<th>Sign Language Morphology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derivational morpheme</td>
</tr>
<tr>
<td>Preach + (er)</td>
</tr>
<tr>
<td>Sit Chair</td>
</tr>
</tbody>
</table>

To understand how these expressions are used in sign language to convey the same sentiment uttered in English or other languages, let’s consider the following example:

**English:** The weather is very cold today

**Visual English signs:** THE WEATHER IS VERY COLD TODAY

**Sign Language:** TODAY, FREEZING COLD
The extent of the cold is described by the altered sign for COLD which is expressed with a little stiff body demonstration (indicating severity), and a chattering teeth (indicating shivering). In sign language linguistics, this is usually written as:

\[ \text{Cht} \]

TODAY, FEZING COLD

2.2.1 A Comparative Analysis of Sign Communication Approaches Used By Deaf and Hard and Hearing Persons in Nigeria, the US, and the Czech Republic

It is an obvious fact that sign language varies all over the world, and so are the systems of sign communication used by the respective cultures and language communities. Each culture’s language system(s) seem to impact its method of sign communication. Even in Regions within a common country, there are variations of the sign language approaches used among the Regional Deaf communities. The development of sign languages across the cultures can be the result of cultural and social belief systems and attitudes about deafness and the deaf. Legal rights and educational considerations for deaf persons also inform the type of sign system each country, culture and civilization adopts.

Sign language is a language distinct from verbal and other written forms of communication. It does not have alphabetical encoding system like most other languages. Sign language is a visual gestural language in which gestures, manual, facial and body movements are used to form words and sentences instead of speech. The eyes, not the ears, capture these gestural signals and interpret them in the brain. (NAD, 2015; WFD, 2015). Sign language is not that ordinary language everyone is accustomed to. Even among the deaf, sign language is a complex linguistic system.

Various forms of manual communications are used all over the world. However, not all these communication methods are sign language despite that they are also used by the deaf. The development of sign languages across the cultures is tied to the cultural and social belief systems and attitudes about deafness and the deaf. Perlmutter (1994:1), observes that sign language variances across the culture is in sync with language disparities all over the world. Each culture’s language system impact the method and approach of sign communication used
in that respective culture. For this reason, we have American Sign Language, (ASL), Czech Sign Language (CSL), Chinese Sign Language (CH-SL), and so forth. All these sign languages have expressional variances from one another due to socio-cultural differences. Even among regions with a shared national boundary, sign language still differs. These differences are similar to the dialectical variations that exists within language communities all over the world (NAD, 2015).

Legal rights and educational considerations for deaf persons also determines the type of sign system countries, cultures and civilizations adopt. In Europe where education laws stresses inclusive education of learners with special needs, sign language approaches in European countries encourage sign supported speech approaches. Bilingual education is a requirement in the laws. Deaf children are trained to speak the language of the community through the use of assistive listening devices and cochlear implantation. They are expected to perfect their speech through constant uses both at home and in school, as well as in social engagements. While this requirement may work well for some deaf children, it may not do the same for others. Besides, there is the danger that children will learn to gloss their signs rather than master the language of the general community through signing and speaking. This partly contribute to the sign language variations (dialectical differences) that exist across the Deaf communities in the Czech Republic.

Nigeria has over 350 language communities or groups. These groups have their major languages. Subgroups exist within these major language groups and they have a slightly different dialect from the umbrella group. For example, the people in the South Eastern Nigeria are predominantly Igbos. They speak a language also called Igbo language. One would expect that all Igbo States in the South Eastern Nigeria would speak that single language, but unfortunately, not. While some speak plain Igbo, others speak wawa Igbo, and yet others speak another brand of the Igbo language yet to be given a name (Ozor, 2015). This dialectical differences also exist among sign language communities in regions across Nigeria. This observation has significant implication in the linguistic debate about sign language.
2.2.2 Nigeria

Nigeria has a social model view of deafness. In Nigeria, deafness and other disability conditions are believed to have a supernatural cause. Deafness is a stereotype. The deaf encounters social stigma and differential treatment than other disability groups because hearing is seen as a fundamental sense organ which unlock many of the attributes that make us human. To overcome the prejudices associated with deafness, the deaf are encouraged to as much as possible, conceal their 'disability'. They should put on the appearance of being hearing people who just happen to have a faulty auditory sense (Gruskins, 1998:1). If they must sign, they should use an artificial sign system created by hearing educators, which manually code the English language and present it visually in the exact pattern it was spoken (Neidl, Kegl, Maclaughlin, Bahan, & Lee, 2000:8). Thus, total communication is the officially endorsed communication method in all Nigerian schools and programmes for the deaf since the 1970s (NPE, 2004:30). Due to the widespread use of total communication, Deaf associations in Nigeria recognize and embrace known variations like the sign supported speech (SSS) method, in which they sign and speak at the same time; Seeing Essential English (SEE1), where they sign components of a compound word separately including markers; Signing Exact English (SEE2), where compound words are given their ASL signs in conjunction with English sentence arrangement; and Signed English (SE), where word for word signing is used (Wikipedia, 2015); as the authentic 'sign language', to the extent of referring to these methods as the American Sign Language (ASL). Whenever a deaf person and interpreter in Nigeria uses SEE1&2 in communication and interpreting, they call it ASL. The Nigeria National Policy on Education (NPE), which is the government's White Paper on educational reforms, worsens matter by, rather than setting up a committee to investigate the linguistic values of sign language, decided to officially label total communication a sign language.

2.2.3 The United States

The United States is a strong cultural model advocate of deafness. In the United States, the terms "hearing impairment" and "disability" are loathed and not used in reference to the deaf. What is used in the US are the terms "Deaf and hard of hearing". The term has gained
international recognition and endorsement. The World Health Organization (WHO), in its Fact Sheet number 300, of March 2015, uses the terms "hearing loss", and "deaf and hard of hearing" in its updated terminologies to replace the previous terms "hearing impaired".

Deaf people in America take pride in their condition and crave for self-identity. The Deaf do not see deafness as a limitation, neither as an ailment that can be treated medically, nor a condition that responds to early intervention. American's Deaf community view itself as a cultural minority group just like other linguistic communities in the US that speak other languages beside English. The community prefer to be addressed with the capital "D" letter "Deaf" to indicate that they are a language minority group and not a disability or impaired group. Sign language thus reflects independence from other spoken languages. The community equate speaking while signing to audism and therefore, users of ASL do not voice out English sentences while signing. ASL has its own peculiar speech patterns which enable ASL users to sign and still exercise their vocal mechanism.

2.2.4 The Czech Republic

The Czech Republic, like most other European nations, view deafness as a medical condition. The deaf are considered to have a medical situation and must therefore seek medical, psychological and specialist supports to rectify their 'anomaly'. This medial model perspective of deafness explains the Czech Republic's continuous use of the term "hearing impairment" in reference to the deaf. It is also the reason behind the vast cases of cochlear implantations (CI) on deaf children in the Czech Republic, aimed at correcting or repairing their hearing defect (impairment) and providing them with a follow-up 'treatment' cum training in auditory rehabilitation. The purpose of this service, it is believed, is to enable the deaf use their residual hearing and assistive listening devices to some benefit. Thus, education of the deaf in the Czech Republic mainly takes the form of oral/aural method. Oral because pupils and students undergoes speech training in spoken Czech language, and aural because they must also learn to perceive sounds with their cochlear implanted ears and the use of assistive listening devices (ALDs). Observation report from visits to schools and inclusive programmes for the deaf, and from social interactions with the deaf community by this researcher shows that approximately 60% of learners aged 2 - 6+ are fitted with cochlear implants. 30% which comprises mostly the hard of hearing, wear hearing aids to rehabilitate
their 'hearing impairment'. The 10% who use neither CI nor hearing aids seem able to cope with lip reading. By and large, the form of sign language used in the Czech Republic is not easy to pinpoint by name. The Sign Language Act (1998) of the Czech Republic recommend "Sign Language and Signed Czech" as the language of the 'hearing impaired' (EU-CRIPD, 2005:85-86). This form of sign communication suit the inclusive education thematic focus of the Czech Republic, as in other European countries. In theory, one might think that this description resembles contact sign, but in practice it is more natural that it resembles an autonomous sign language peculiar to deaf people in the Czech Republic.

Common features of the sign languages used across the three cultures is discussed in the table below:

Tab. 3: Basic features of the various sign languages

<table>
<thead>
<tr>
<th>Countries</th>
<th>Nigeria Total Communication</th>
<th>USA American Sign Language</th>
<th>Czech Republic Czech Sign Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic features of the Sign languages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of classifiers</td>
<td>not used. In TC, words are read out, not used to demonstrate actions uses fingerspelling in the form of English</td>
<td>uses classifiers</td>
<td>uses classifiers</td>
</tr>
<tr>
<td>Fingerspelling</td>
<td></td>
<td>uses fingerspelling to name complex terms, places or sign-less words</td>
<td></td>
</tr>
<tr>
<td>Lexicalized signs</td>
<td>sometimes used with 2 or 3 letter words but in English/fingerspelling formation</td>
<td>uses lexicalized signs</td>
<td></td>
</tr>
<tr>
<td>Non-manual signs</td>
<td>Communication in TC is just a straight line demo. No facial expression and body movements in spatial orientation</td>
<td>ASL uses NMS and role shifts as integral parts of the language</td>
<td>NMS is also an integral component of CZL</td>
</tr>
<tr>
<td>Morphemes</td>
<td>It adds the –s; -d; -ing; and even some prefixes. Uses the sign “past” for the ‘-ed’ morpheme</td>
<td>double signs and specific motions are use to express plural morphemes. The sign “finish” is used to express Past tense. has its own peculiar mouth morphemes</td>
<td>also uses double signs when denoting plural tense. Sometimes, the specific number of items are used.</td>
</tr>
<tr>
<td>Mouthing descriptions</td>
<td>The exact English words are mouthed</td>
<td></td>
<td>also uses mouth morphemes as well as Spoken Czech</td>
</tr>
</tbody>
</table>
2.3 Interdependence Hypothesis in Second Language Learning

Since the inception of the field of special education, the importance of language in the education of Deaf and hard of hearing learners has generated so much interest and debates. Teaching deaf children has often been considered one of the most challenging tasks in special and inclusive education (Heward and Orlansky, 2002:193). Teaching and learning requires a medium for the transmission of knowledge, and that medium is language. Communication, teaching and learning are channeled through a language that is understood by both parties. Deafness is a language and communication disability. It precludes the learning and use of spoken language in general expressions. In the past, notable philosophers, among whom was the Grecian philosopher, Aristotle (384-322 B.C.E.), declared that Deaf people cannot be educated. He went further to elaborate his views saying that “without hearing, people could not learn” (Gracer, 2003:196). It is understandable why Aristotle held such view. Aristotle was a product of the Socratic school of philosophy, and he belong to the Sophist movement. Mastin, (2008) noted that this school of philosophy speculated about the nature of language and culture, and members of the movement employed rhetoric to achieve their purpose. To this group, there was a strong connection between hearing, speech, and intelligence. Aristotle even alluded that the blind are more intelligent than “deaf and dumb” persons because the blind can hear and develop language (Gracer, 2003). It was Aristotle who coined the phrase “deaf and dumb” to allude to the popular views at that time that any person who is deaf is also dumb and senseless.

Most people will agree with Aristotle’s position on the blind and deaf comparison. Helen Keller (1880-1968), who was the most celebrated deafblind person of our time, agreed when she said:

"I am just as deaf as I am blind. The problems of deafness are deeper and more complex, if not more important than those of blindness. Deafness is a much worse misfortune. For it means the loss of the most vital stimulus-- the sound of the voice that brings language, sets thoughts astir, and keeps us in the intellectual company of man" (cf. Better Hearing Institute, 2015).

Helen Keller’s statement strike the debate on the mark. Language, it is known, enables a child to form thoughts, create concepts, and be able to express self comprehensively and logically.
Therefore, any child deaf from birth or who became deaf before language is acquired will most likely be deficient in spoken language due to lack of a natural means to acquire spoken language. It is believed that people who are limited in language ability are deficient in intellectual capacity. Patkin (2013:3), noted that Language competency is essential for cognitive, social, emotional, and psychological development in children.

2.3.1 Achieving Bilingualism in Deaf Children Through the Common Underlying Proficiency (CUP) Theory

The interrelationship hypothesis of the Common Underlying Proficiency (CUP) is a theory founded on the belief that the human brain was predisposed to learn language and use it in cognitively beneficial situations. The theory suggests that there is a relationship between one language and another in the acquisition and transfer of knowledge and learning (Cummins, 2006:3). In other words, the hypothesis assumes that competency and skills in a first language can help the learning of a second language if the child has the cognitive capacity to use the first language in his general functioning. This theory was developed by the Canadian linguist, Jim Cummins, a Professor in the University of Toronto, who in 1981, developed the Common Underlying Proficiency (CUP) theory which ignited strong debate about the role of first language in promoting cognitive development in second language learning and usage. Some researchers have used other terms to refer to the same theory. Baker, (2001), quoted in Cummins (2006:4), called it “the Common Operating System (COS)”, while Jiang (2011:177), refers to it as the “interplay of two language systems”. This study may as well call it the “interconnectivity linguistic theory”.

The Separate Underlying Proficiency (SUP) theory is the opposite of the CUP. The theory also come from Cummins. It states that there is no relationship between one language to another. The theory, according to Combs, Tellez, and Celedón-Pattichis, (2009), maintains that languages are learned independently and in isolation of each other, without any interplay of proficiency in a first language. In other words, the SUP theory posits that someone who is not proficient in a first language can learn a second language, and can even achieve greater proficiency in the second language because L1 and L2 function and develop independently in the brain, and knowledge and skills acquired in one language are not transferable to the
other. L1 confuses kids while they’re learning L2. The CUP and SUP theory are tied to an early study by Cummins (1975), in which he made reference to a language threshold level which is a precursor to social and cognitive functioning in a language. The theory suggests that to be able to learn a second language, a child must first attain a threshold level of social and cognitive functioning in a first language. Lasagabaster (1998:119), explains that when the threshold level in a first language is weak, there is the probability that the second language acquisition will also be weak, leading to semilingualism in both languages. When the proficiency level (threshold) in a first language is strong, there is the possibility that the proficiency level in a second language could also either be strong (in which case we have a balanced bilingualism), or it could be below average, or weak, resulting in a case of dominant bilingualism in the first language. Critics of the threshold level rejected the theory on grounds that Cummins did not specify what degree of competency qualifies as a threshold (Lasagabaster, 1998:120). Their criticism was however quashed when, as Ben-David (2000:4) explained, Cummins addressed this problem through a theoretical framework which embeds the CALP language proficiency concept within a larger theory of Common Underlying Proficiency (CUP). Language threshold level therefore, is the ability of a child to attain basic interpersonal communication skills (BICS) in a first language (L1), and use that skill to develop cognitive academic language proficiency (CALP) in that same language as well as in a second language.

Cummins, (1984:183) illustrated this theory using a diagram of two icebergs in order to nail home the point. In the iceberg diagram below, there are two icebergs protruding atop a water level. On the surface, the two icebergs are separated. This two icebergs which are seen on a surface view, represents two languages of a language user. Beneath the surface, the two icebergs are fused into one larger body, the central operating system. This implies that the two languages which are visible on the surface, actually do not function from a separate source. They are interconnected, interrelated, joined, or emanates from a common source. This common source is the language faculty in the brain known as the central operating system, located at the Wernicke’s area, in the left hemisphere of the human brain.

Shedding more light on the outworking of the interdependence hypotheses and on Cummin’s (1984) popular iceberg illustration, Franson (2011), elaborated that:
Common underlying proficiency refers to the interdependence of concepts, skills and linguistic knowledge found in a central processing system. Cummins states that cognitive and literacy skills established in the mother tongue or L1 will transfer across languages. This is often presented visually as two icebergs representing the two languages which overlap and share, underneath the water line, a common underlying proficiency or operating system. Both languages are outwardly distinct but are supported by shared concepts and knowledge derived from learning and experience and the cognitive and linguistic abilities of the learner.

2.3.2 Language in the Education of Deaf Persons

A World Health Organization report estimated that there are over 360 million deaf and hard of hearing persons around the world. Of this figure, 32 million are children below the age of 5 (WHO, 2015). We may presume that these children might have been born deaf, or they became deaf before they developed social language and comprehensible speech. Whatever the case, they face a daunting challenge as they grow up. In their quest to learn, they must attend schools where they are expected to learn the basics and techniques of reading and writing in the form used in spoken language of the general community. Hermans, Omels, Knoors, and Verhoeven (2008:518) observes that learning to read is vital for individuals to participate in society. However, they noted a sad truth about deaf children which is frequently reported in many literatures: that even after completion of high school, most Deaf person’s reading level remain as low as 3rd or 4th grader’s (Johnson, Liddell, and Erting, 1989:5, Grushkins, 1998:179).

Literacy takes the form of spoken language. The spoken language is the language of the general hearing public. The Deaf child must learn to read and write those languages for social and academic purposes even though he/she has never heard these languages used in the spoken form. To appreciate the hardship a deaf child encounters while attempting to learn the grammars and linguistic organization of a language that is foreign to them, a Watchtower (2009) article provided this analogy: “imagine yourself in a foreign country in a soundproof room made of glass. You have never heard the local language spoken. Each day, the local people come to you and try to speak to you through the glass. You can’t hear what they are saying. You see only the movement of their lips, but they think you must be able to
understand it” (p.24). Voss, (2016:16) analogized the Deaf experience to giving students something to read in a language they do not know or understand, and still go on to test them in that language.

Over the past Centuries, a number of educators and writers have undertaken researches and studies that proves that the Deaf are educable. Such studies lead to a string of developments and discoveries which gave rise to the field of Deaf education. For instance, the 15th Century writer, Rudolphus Agricola (1443-1485) in his book "De Inventione Dialectica", reported about a congenitally Deaf person (in Italy) who learned to read and write (Enerstvedt, 1996:23; Butterworth and Flodin, 1995). This report greatly inspired Girolamo Cardano (1501-1576), who tried to use his skills as a physician to find solution to the language problem of the Deaf. In those days however, Enerstvedt, (1996:23) reported that some philosophers like Aviceinna had rejected the idea of the brain as the source of speech. Aviceinna believes the heat was the centre of language and cognition.

Some educators went steps further than just searching answers to the question of whether the deaf can learn to read and write and reporting their assumptions, to getting fully involved in the process of teaching the deaf to learn to read and write. One of such educators was the Spanish Benedictine Monk, Pedro Ponce de Leon (1502-1584). He was credited with establishing the world’s first school for the education of the deaf (Duchan, 2011). Ponce de Leon taught his pupils how to vocalize their names, the names of objects, and how to write those names. After him came another Spaniard, Juan Pablo Bonet, who in 1620, published the first book ever, about using sign language to educate deaf children. Pablo is credited with developing the one handed manual alphabet which was a model for the American Sign Language (ASL) as used today. Butterworth and Flodin, (1995), wrote that an important milestone in the education of deaf people was the founding of Gallaudet College (now Gallaudet University) in Washington, D.C. in 1864. The University remains the only liberal arts institution for deaf people in the United States and the world. One of the missions of Gallaudet University is “to be a bilingual, diverse, multicultural institution of higher education that ensures the intellectual and professional advancement of deaf and hard of hearing individuals through American Sign Language and English”.

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2.4 Bilingualism in Inclusive Education Programme: Perspectives From Europe

Inclusive education of children with special needs in regular schools and classrooms is considered the most viable form of education for learner with disabilities in Europe. Laws give backing to this requirement and most deaf pupils receive their education in inclusive settings. The goal of inclusive education, in a nutshell, is to give disabled pupils a feeling of belonging within a larger society, and to create in normal pupils a sense of awareness and acceptance of the inherent abilities in disability. Deaf pupils undergo preliminary preparation in medical therapy requiring the utilization of cochlear implants and the use of assistive listening devices to help them adopt as effectively as possible, in an inclusive education environment. Further supports are provided by way of pedagogical counselling and guidance to the pupils while on the programme. Sign language training is also provided to the pupils and those significant to their education, namely, parents and teachers.

In principle, the major aim of inclusive education with regard to Deaf and hard of hearing learners is to provide them with opportunity to live and function within two worlds: the hearing world as exemplified by the family and general public, and the deaf world which is embodied by the Deaf community and sign language users. The common explanation often advanced in support of inclusive education is that integration, and not segregation, is the underlying principle of inclusion. Deaf people are required to live and function in the hearing world. To do so effectively, they must learn to speak, read and write the language of the general public, as well as do things the way hearing people supposedly do. In a sense, the deaf must be bilingual and bi-cultural to fit into a multilateral egalitarian society.

In Europe, majority of Deaf children aged 0-6 undergo cochlear implant, a situation where an electronic device is inserted into the brain to replace the functions of the damaged cochlea of the inner ear. In inclusive education, so much importance is attached to being able to speak because deaf pupils, regardless of the age of onset of impairment, must come into contacts with their hearing peers on regular and daily basis. Also, parents crave for their deaf children to talk to them since not many parents know sign language. They yearn to hear the voice of their children. Human voices bond families to one another and do stimulate emotions.
Through the sound of the human voice, we can inspire love, warmth, respect, and of course, any human emotion (Eleweke, 1990:14). Despite the clamour for cochlear implant, the European Union of the Deaf (EUD, 2013), quoting Marschark (2001), noted one caveat about cochlear implant (CI): that it does not change deaf children into hearing children, rather, the process can improve their hearing to the level of hard of hearing persons. Thus, cochlear implanted Deaf children do not become hearing kids, rather, they are borderline Deaf and hearing children. Implanting children do not take away their true identity. These children still have an intrinsic sense of belonging to the Deaf community. They recognize that they are first and foremost, Deaf persons who undertook a corrective medical procedure to assist and support their ability to interact with sound and learn speech. As such, they should not be deprived the opportunity to learn and use sign language. In a different article by Marschark (2009), quoted by the EUD (ibid), it was disclosed that fluency in sign language support spoken language development when the ability to perceive auditory information - through use of a cochlear implant - is attained. The language and cultural situation their circumstance bestow on them should be nurtured and supported by the home and school toward helping deaf pupils achieve success in an inclusive education programme.

2.4.1 Bilingual Education and the Deaf in the Framework of Inclusive Education in Europe

In some European countries, the subject matter of bilingual education has received little to no attention in teacher training programmes in special needs education. Nearly all the EU countries have signed and ratified the UN Convention on Rights of Persons with Disability (with the exception of Finland, Ireland and the Netherlands, which are yet to ratify), and which have been in force since 2011 (CESAI, 2016). Leeson (2006:7), explained that the EU Parliament passed two resolutions in 1988 and 1989 recognizing sign language as a full-fledged language, and in 2003, the Council of Europe’s Parliamentary Assembly passed a resolution calling for the protection of sign languages in member States. Legislations in almost all of EU nations recognize both minority and majority languages spoken in their domain. Sign language, as a minority language of the deaf communities, has gained legislative recognition in Europe, which make it possible for the Deaf to have linguistic
access to the curriculum in their first language. A Eurydice publication (2012:9) explained that in Europe, two main models for teaching the majority language in schools exists in form of direct integration (inclusion) in regular classrooms, or in separate special classes where pupils are attended to base on their needs.

It is of interest to note that in spite of these legislative enactments and action plans on inclusive education, bilingual, bicultural education is not a notable feature of inclusive education discourses among European educators. The possible explanation is that bilingual educational issues in special education are relatively new and there are very few professionals and specialists in that area. Furthermore, in Europe, bilingual issues are not thought of as belonging to the field of education. Bilingual discourses are left to the field of linguistics. This raises some crucial questions about such things as who should develop bilingual curriculum for special schools, is it the linguists or special educators? Who are the right people to translate into action and execute the legislative provisions for bilingualism in special education, specifically, in the education of Deaf and hard of hearing person? Within Europe, special schools are downsizing (see table 2.4 below), and the Deaf are educated in inclusive education programmes along with their hearing peers in regular schools through speech and in some cases, with the help of sign language interpreters. Remedial instructions to be provided by special educators are arranged for them when they have difficulties catching up with their peers in the regular classrooms.

In a survey conducted by this researcher in conjunction with the Ministries of Education in some European countries, data was sought on the number of special schools (deaf only schools not sharing location with normal hearing schools) between the years 2000 – 2015, and the number of inclusive schools with placement for deaf children between the years 2000 – 2015. The findings were interesting. The researcher first sought these information from the Secretariat of the European Agency for Special Needs and Inclusive Education (ASNIE) where it was discovered that the Agency does not maintain such data. Unfortunately though, more than half of the countries contacted did not return requests on the information sought, which is a proof that such useful data is not available. The little data obtained is illustrated in the table below, and will be used to generalize the situation of inclusive education in Europe:
In Europe, special schools for the deaf are winding down while inclusive programmes are on the rise. Legislative Acts grant equal educational opportunity to persons with special needs, the deaf inclusive. Due to these legislations, schools are obliged to enroll deaf children without discrimination. Parents are attracted to the idea of their deaf children schooling with their hearing peers and this has affected enrollment to special schools. In attempt to survive the challenge posed by inclusive schools, special schools have to form mergers in order to stay active. With every new development comes responsibility. Inclusive education schools have to brace to the challenges of meeting the education needs of deaf learners and guaranteeing their success by implementing special curriculum that incorporate principles of bilingual education for deaf learners.

Special Education Departments in Europe do not have data storage habit which can be easily retrieved in time of need. Over 90% of countries surveyed in this study complained of not having available data on deaf education programmes in their country. This contributed to the poor return of information sought for the study.

### 2.4.2 Bilingual Readiness and the Education of Deaf Learners

Bilingual readiness, as used in this study, is the preparedness of a Deaf child for success in an inclusive education programme. Put differently, it is those existing factors (first language...
proficiency, concept development, and reasoning) which aids a Deaf child to meet up with expected challenges and cope successfully with education in an inclusive environment. Hendar & O’Neill (2016:2) noted that deaf children are a heterogeneous group with different educational needs. Those needs are usually dependent on the language level of a deaf child and his ability to create thoughts and express ideas that are understandable to others.

Every child, whether deaf or hearing, has a natural ability to acquire, develop language, and to learn. Chomsky (1965) believes that infants are wired at birth with a hypothetical tool which he called the language acquisition device (LAD). He further developed the theory of universal grammar (UG) to explain what a typical child can do with language when he has a collection of words (signs) which he generate by mere hearing (and seeing) people speak (and sign). Before then, two notable neurologists, Carl Wernicke and Paul Pierre Broca discovered two organs in the left hemisphere of the brain which facilitate language development, speech and communication in infants (Psy3242, 2008). These two organs known as the Wernicke area and Brocas area of the brain are essential to one’s ability to learn, understand, use speech, process sounds, and execute reading skills, as well as make appropriate facial expressions while communicating (Taylor and Vaidya, 2009:64). Any anomaly or damage to any of these organs can cause language or speech disorders.

This being the case, every deaf child, no matter how profoundly deaf he/she might be, has the innate potential to acquire language and learn speech, if there is no damage to the speech and language organs of the brain. While the ability to acquire language and produce speech are believed to be dependent upon a child’s interaction with a speech community and his immediate environment, (Svartholm, 2010:160), some psychopathologists posits that speech and language behaviours are mental in origin. Taylor and Vaidya (2009) argue that interactive behaviours in infants can be the result of natural events. For example, laughter is a universal human behaviour and one of the first social vocalization of human infants which emerges between 2 and 6month after birth. Congenitally deaf (and also blind) infants laugh (and cry) although they have never perceived the laughter (and cries) of others (p. 55).

Some may argue that laughter and cries are emotional behaviours which are not speech and language expressions. It must be remembered that both behaviours are children’s ways of vocalizing their emotions and in doing so, they produce sounds which communicate
important messages about the child’s feeling and needs. These, in addition to other infantile behaviours like cooing and babbling, which deaf babies also manifest (Sullivan, 2014:20), are indication that a child’s speech and language organs are intact.

### 2.4.3 First Language and Cognitive Development in Deaf Learners

Language is the means through which an individual gain access to information and communicate with others. Language also ignite the process of thinking. Through language, we give expression to our ideas, thoughts, emotion and feelings. Language is an important element in human characteristics. Children born without the capacity to learn language and use it, perhaps due to some brain disorders and birth defects, lack those basic human traits and characteristics which identify us as higher creation.

Deaf children need language not just for communication purposes, but also for cognitive development (Wikipedia, 2016). Because most deaf children are deprived of language, they are dwarfed in cognitive capacity and less capable of critical reasoning. In the absence of language, they try to acquire linguistic skills which would help them communicate and interact with their environment (Wikipedia, 2016). These linguistic skills come in different forms. Some are imitations of other languages and come in the form of word for word signs for every speech uttered by a speaker. Others are gestural expressions which seek to visualize a concept in sign form. Yet, others take the form of linguistic codes not based on sound, in which concepts and ideas are expressed in utterly peculiar ways using signs, classifiers, and facial expressions, to give a natural meaning to the ideas intended (Morgan and Woll, 2006: 1160). When concepts and communication are presented to Deaf children in word for word forms backed by speech, it become harder for the children to make meaning from that communication because they have never heard that particular language spoken, nor do they even know the meaning of the words they are made to read from the speaker’s lips (Johnson, Liddell, and Erting, 1989:5). The diagram on page 106-107 of this dissertation illustrate the struggle a Deaf child passes through while trying to make sense of a teacher’s spoken and signed foreign visual sentence.
The illustration support Awake’s (2009:24) assertion that a Deaf person sees only a mouth movement when a speaker speaks and uses word for word signs, but is unable to pieces the information together to get the message the speaker is expressing. Sign and speech are different vehicles for communication. How well we convey our points either aid or mar comprehension. Mike Freiss (2016) developed a maze theory to illustrate the difficulties Deaf children encounter when teachers and signers speak and sign exact English at the same time. The illustration (attached with permission on page 107 of this dissertation) explains that a child sees spoken English signs in the form of a loop. It confuses, instead of giving comprehension to the listeners. Bumping signs is synonymous to coarse or stuttered speech. It takes and experienced user to understand such speech, not children who do not yet know the language of expression. While a child may be able to recognize some signs he is familiar with in a loop and bumped speech, he detached each word separately from the rest of the sentence. The sentence become foreign to him. He wasn’t able to combine words with the abstract signs from a “speaker” to make meaning of the sentence. The end result is poor understanding and poor cognition, which usually lead to failure among deaf children struggling to develop bilingualism from poor foundations.

2.4.4 Cultural Pluralism in Inclusive Education

The terms bilingual/bicultural education often goes hand in hand. Leveridge (2008), opine that language is the verbal expression of culture and both are entwined and deeply rooted. Bronya (2013), espoused the importance of language, maintaining that language afford a person the opportunity to get to know about other cultures and get involved with them. Kang (2005), philosophized that language is an expression of culture, and language form the basis for ethnic, regional, national or international identity. He averred that the relationship between language and culture is symbiotic. While relating language and culture to inclusive education of the deaf, Small and Cripps (1995), argue that bilingual, bicultural education must reflect in both the teaching and in the program model the goal of empowerment, which is accomplished through manifestation of respect (for each individual’s uniqueness), collaboration (in team work between teachers and students), and advocacy (for the rights of the deaf).
Inclusive education should ideally promote a bilingual, bicultural environment which is characterized by a tripartite effort where teachers, hearing students and deaf learners work together to achieve the goals of education. This sentiment was clearly captured by Small and Cripps (ibid) who state that:

*Bilingual bicultural education is about the learning of two languages and two cultures. It is about appreciation of who we are and acceptance and appreciation of others. It is about understanding our own cultural values as well as others. It is about digging deep into ourselves to understand and develop our full abilities and becoming empowered to express them fully. Through this empowering education, we can meet the world with the whole of who we are.*

Bicultural aspect of education is also a means to acceptance of self-identity for Deaf and hard of hearing learners. The practice of ‘normalizing’ deaf children by making them pass through a surgical process to fix or correct their hearing problem in order to benefit from inclusive education is anti-inclusive. If all children should be hearing or near hearing in to be educated in regular schools, then inclusion is non-existent. The goals and basic tenets of inclusive education are founded on the principle of awareness of diversity and allow such diversity to exist without discrimination or victimization. Inclusive education should therefore strive at normalization of learning opportunities through acceptance of differences. Deaf and hard of hearing learners do not have to deny the existence of their hearing problem to be bilingual and bicultural. Sweden does not recognize inclusive education as a vehicle for cultural plurality. It advocates bilingual education which it argue yield into one culture - the result of two cultures co-joining to becoming monocultural instead of bicultural (Svartholm, 2010:160).

### 2.5 Methodologies in the Application of Bilingual Strategies in the Classroom

From a conceptual point of view, the word “bi” means two and “lingual” is an English word derived from the Latin word ‘lingua’ which means “tongue” or “language”. Putting these words together will provide us with the simplest, concise understanding of bilingualism which is that “bilingual” means two languages. “Education”, on the other hand, is the process
by which we learn to read and write, as well as the means through which are can enter other cultures and civilization. When these two simple concepts are merged, we arrive at the definition that bilingual education is the process by which we learn to read, write and function in two languages. This is the basic understanding of bilingual education from which we can develop a broader definition.

There are various definitions of bilingual education. But the most comprehensive definitions which would be adopted in this dissertation are those provided by Merriam Webster (2016), and Wikipedia (2015). The Merriam Webster online dictionary (2016) defined bilingual education as:

"an English-language school system in which students with little fluency in English are taught in both their native language and English."

Whereas Wikipedia (2016) was more concise in its definition, proffering that bilingual education means:

"teaching academic content in two languages, in a native and secondary language with varying amounts of each language used according to the program model."

Bilingual education benefits learners who are not well grounded in the majority language of instruction. In Nigeria, English is the language of instruction. Majority of deaf learners have demonstrated difficulty with reading and writing in plain English. As with every other language, children acquire the ability to speak that language by hearing it spoken around them. Congenitally deaf children do not have that advantage. They have never heard a language spoken and do not have mastery of the sentence structures in a spoken language. The only option they have is to learn the grammatical patterns and semantic structures of that language. This has never been easy. Special strategies are needed for use by teachers to promote bilingualism in deaf learners.

**Teaching strategies In Bilingual Education**

Notable strategies in bilingual approach are:

- Translation method
- Preview View and Review method
- Code switching
- Translanguaging
- Language separation
- Concurrent use of language
- Purposeful concurrent use

2.5.1 Translation Method

We can define translation as the process of converting words, phrases and sentences from one language to another. Translation method can be so effective a method of teaching deaf children which can rapidly promote comprehension and improve learning performances. Translation is not the same as interpreting. In using translation method, a teacher gives note on her lesson in the language of the general community, which is usually the deaf child's second language. In Nigeria education, this is English language. Thereafter, the teacher will translate the lesson (usually, the equivalent meaning of the words, phrases and sentences), in the child's first language – sign language. In so doing, the teacher employs one or both methods of translation used in bilingual education, namely, literal or free translation. A skilled bilingual education teacher will most likely adopt the literal translation, then use questioning to allow her students rephrase the content freely in their own words to test how well they comprehend the content and context of the passage.

Literal translation

When lessons are written on the board for student to copy into their note book, the act of teaching does not end there. The teacher must read the note with the students to provide them with knowledge of the content, in order for them to be able to read the note on their own and absorb the information therein. While reading the note with the class, the teacher could adopt a linear translation approach. In doing so, the teacher read across the lines and translates the lesson sentence by sentence rather than word for word. Word for word translation is used only when it become necessary to revise a phrase. The importance of the literal translation approach is to give students a lead in reading their notes and guide them through sentence construction and the equivalent sign expressions of the sentences.
**Free translation**

Unlike literal translation, free translation does not adopt a linear translation approach. Instead, it provide opportunity for rephrasing, re-wording and re-arranging the order of the sentence to suit one’s pattern of description while retaining the meaning, points and gist of the sentence. Free translation is a way of knowing how well someone understands a passage and is able to recount the event in his own words and perception.

**2.5.2 Preview, View and Review**

There are three main parts in lesson delivery. These are the introduction, the presentation and the revision/evaluation. The University of North Carolina (UNC, 2016) Department of Education refers to this as the pre-activities, activities, and the assessment stages. Introduction is the pre-lesson activities the teacher engages the students in. They are those things the teacher does to capture students’ interest and prepare their mind to assimilate the lesson. In bilingual education methodology, this pre-lesson engagement is called the Preview stage of a lesson. The pre-lesson activities could be in the students’ first language (sign language) or it could be in English (L2).

If the ‘Preview’ activities are in the first language, then the ‘View’ activities, that is the lesson presentation, must be in the second language. The final part of the lesson the ‘Review’ phase then will conclude in the first language. The principle in the Preview, View and Review methodology is that the language used at the beginning of the lesson, the ‘Preview’ stage must also be the language at the conclusion of the lesson of the lesson, the ‘Review’ phase of the lesson.

**2.5.3 Code Switching**

Code switching is the act of alternating between languages. It is a bilingual behavior in which a person borrows a word or phrase from another language to complete his sentence. Code switching goes by other names. It is also called code mixing, style shifting, or language borrowing (Nordquist, 2016).
People code switch for a number of reasons. Some people code switch to hide their fluency or memory problems in the second language, (Nordquist, 2016), or to integrate themselves to others. Esen (2016), indicates that switching commonly occurs when an individual wishes to express solidarity with a particular social group. Esen (ibid) noted that code switching is of different types depending on where in the sentence they occur. An inter sentence code switching occur at the end of a sentence, an intra-sentence code switching is located at the middle of a sentence, while extra sentential code switching, which is the insertion of bracket to denote the meaning of the interjected words. Example of code switching is: Dobre den. How are you?

2.5.4 Translanguaging

Translanguaging involves making input in one language and receiving output in another language. Gárate (2012), explain that translanguaging is the presentation of a lesson content in one language and expecting a product in another language (p. 4). Activities in translanguaging could be cognitively demanding tasks, and are suitable for students in higher grades.

2.5.5 Language Separation

Garate (2012:3) noted that languages can be separated by place, time, person, or subject. Separating language by place implies having different sections of the classroom for the study of language. Example, students could be receiving instruction in sign language in the classroom but go to the computer lab to type their classwork in English. In a different example, students could go to the school cinema hall to watch a movie captioned in English language, and at the end of the movie or an allotted viewing time, return to class and re-enact the story from the movie in sign language. Alternatively, they could relate the story in sign language, maintaining the accurate role shifts of the characters.

Language separation by time is having a specific time schedule in the curriculum for English only activity, and another equal time for sign language related instruction and activities.
Separating language by person is teaching a subject by two people using different languages. A classroom instruction by a hearing teacher can be translated to Deaf students afterward in a resource room by a teacher in the same subject who is fluent in sign language. Thus, language separation by person and subject involve more of the same context in separate language use.

2.5.6 Concurrent Use of Language

At first glance, some may think of the word “concurrent” to imply simultaneous or parallel use of both languages at the same time in the classroom. Concurrent use of language is not the same as simultaneous use of both languages as in simultaneous total communication. Conversely, concurrent use of languages implies the frequent switching or occasional integrated use of both languages in the classroom (Baker and Jones, 1998:589). It requires purposeful and structured planning to effectively use both languages concurrently in a lesson. Garate (2012:4) provided four instances where teachers can opt for concurrent language use as: Purposeful Concurrent Use, Preview-View-Review, translation, and translanguaging.

2.5.7 Purposeful Concurrent Use of Language

As the name suggests, purposeful concurrent use of language is the alternating use of both the minority and majority languages in the classroom on purpose or for a purpose. In other words, it is the switching use of the languages for a purpose and not by random decision. Baker and Jones (1998:589), averred that in purposeful concurrent use of both languages, an equal amount of time is allocated to both languages and teachers consciously switch from one language to another. The purpose for the switching, according to Garate, (2012), could be either for lesson emphasis, exposing students to a target vocabulary, or to summarize a topic.
3 METHODOLOGY

Introduction

This study investigated the performance outcome of Deaf and hard of hearing learners who are taught in bilingual methodologies. Specifically, this study intended to ascertain whether total communication deprives Deaf children the potential to develop English language competency through the use of natural sign language approach? Consequently, the research created two main assumptions which will be proved or rejected in the study, namely:

1. To promote academic achievement in Deaf learners, teachers, students and interpreters must have above average sign language skill.
2. The methods and strategies used in teaching Deaf and hard of hearing learners determines learning outcomes and academic achievements.

This study is a mixed methodology research design. It is mixed in that the data collection was by field/case study and a pilot experiment. In the case study part of the research, in-depth information was investigated and described in form of empirical analysis. In the pilot experimental part of the study, the validity and reliability of a measuring (test) instrument was conducted. It was in the process of establishing the validity and reliability that statistical measures were employed.

The major intent of the case study was to draw inferences on the causal relationship of teaching methodology on academic performances of Deaf learners. Purposive sampling method was used to choose participants for the study. This method was appropriate for a case study of this nature because the task before the researcher was the selection of Deaf students from schools with heterogeneous populations and full educational programmes (basic and secondary school) for Deaf and hard of hearing learners. Unlike in the Czech Republic where schools are separated according to types, example, materska skolka, zakladni skola and stredni skola, Nigerian schools for the Deaf always have all component units within one single location. Interesting too is the fact that the schools sampled also caters to other special needs learners. Besides the Deaf, there are also visually impaired and mentally challenged learners in the schools. Thus, in using purposive sampling, the researcher relied on his judgment in picking the grade levels to participate in the study. Central to that decision was the
understanding that in the Czech Republic, streni skola (senior secondary schools) for the Deaf is not commonly available. Majority of Deaf learners can be found in zakladni skola (basic schools). Therefore, two reasons informed the choice of junior secondary school in this study:

1. Desire to relate samples to what is commonly understood in the Czech education system, and
2. Assess the reading skill and comprehension capacity of Deaf learners who have completed Primary school. In other words, the samples are homogeneous in that they are above Primary school but below senior secondary education.

Whereas the causal relationship of the intervention on students’ achievement was investigated, the study was cautious not to be unnecessarily concerned about the internal validity of the process, but rather, on credibility and dependability of the test measures (Capella University, 2008:18). The issue of validity and reliability was limited to the testing instrument.

A descriptor of the research design and the pattern of activities employed in the study is described below. The notations followed the pattern of qualitative design notations provided in the dissertation guide of Capella University (2008:19):

<table>
<thead>
<tr>
<th>Type of design</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three group mixed methodology design</td>
<td>P₁  O₁  X  O₂</td>
</tr>
<tr>
<td></td>
<td>P₂  O₁  X  O₂</td>
</tr>
<tr>
<td></td>
<td>X  O</td>
</tr>
</tbody>
</table>

Where:  
P represent participating schools in the study.  
O₁ is the pre assessment observation and interactive engagements of the researcher with the samples.  
X denotes the treatment, exposure, and intervention applied on the group.  
O₂ was the performance outcome or result after a treatment was administered.  
O is a one group posttest only assessment.

The three groups assessed are:
1. Hearing students in Masaryk University,  
2. Deaf students in junior secondary programmes in Nigeria, and  
3. Teachers in the education of Deaf learners.
The purposive sampling method was considered most appropriate for this study because being a non-probability sampling technique, it belong to a group of sampling methods affiliated to qualitative studies. Purposive sampling method does not rely on random selection of samples. It is flexible on population size and the size of participants in this study is not big enough to require random selection. In this case, all classes in the junior secondary school of basic education were used. Males and female students were also represented. Regarding purposive sampling, Laerd Dissertation (2012) concur that purposive sampling relies on the researcher’s judgment in the selection of samples, and is suitable for samples that are small in number. Capella University (2008:38) hinted that the key thing in qualitative research is not measurement, but description and interpretation of data. This correctly broach the mission of this study. Contributing, Crossman (2016) described purposive sampling as a sampling method which is selected based on the characteristics of the population, which is intended to meet the objective of the study. These definitions support both the intent and purpose of this research study.

In the descriptor above, we saw a slightly different design, but similar approach to assess the sign language skill of teachers (both Deaf and hearing teacher). Teachers who participated in the study were also purposively selected by the school Head. The researcher had no hand in the selection. But being aware that they are all teachers in the education of Deaf and hard of hearing learners, the researcher assumed that they are familiar with some methods of teaching and systems of communicating with their Deaf students. They were shown the Linguistics of American Sign Language clip assembled by Viali, Lucas & and Mulroney (2005), and required to relate the conversation, story and linguistic features in clip. This done, the researcher evaluated the performance of the teachers as a whole, and then compared the performances of the hearing teachers with the scores of the Deaf teachers. The criteria for assessing the teachers was the same rubric in the sign language assessment inventory (SLAI). See Appendix 1-3.

As noted above, in this study, two tests were conducted. One was to establish the validity and reliability of the sign language test instrument invented for this study, and the second was a reading comprehension assessment of Deaf students in a junior secondary school. Samples used in the first experiment were hearing students in Masaryk University, while samples in the second survey were Deaf students in Nigeria. The sign language assessment inventory
was a test instrument innovated and developed for the purpose of this study. The need for a test instrument for sign language assessment (SLA) arose out of necessity for a sign language test instrument for this study. It was discovered that in the Czech Republic, like in Nigeria, there is no known developed test instrument for sign language assessment available. Sign language tests for the Czech sign language assessment, and Nigeria’s version of the ASL are often done by guesstimation. This makes them prone to error and bias. It would no doubt affect not just the reliability and validity of such tests, but their credibility as well. Any scores awarded by guesstimation are mere conjuration. They could be questionable at times.

To any extent that there might be any version of test instrument for sign language assessment in the Czech Republic as some may want to argue, these instruments will not be suitable for this study due to differences in the aim and objectives of this research with any previous studies that might exist. Besides, this research is targeted at a specific age group (12 years upward) and the study was interested in identifying specific language skills that would help determine the sign language skill level of the samples. Furthermore, as Hauser, Paludneviciene, Supalla, and Bavelier (2006), rightly observed, several groups have developed test of sign language skills which are suitable for their respective researches. These tests are categorized by type and purposes. Whereas a number of them were designed to give a detailed picture of language use in signers, others give a general profile of language proficiency (p. 156).

While the target group for whom this test kit was developed are Deaf and hard of hearing persons, the test is also used for every other signers irrespective of hearing status, who might wish to know their sign language skill level. Therefore, the test is designed for use in evaluating both deaf and hearing persons who have been exposed to some measures of sign language for varying length of time.

### 3.1 Population and Samples

There were three category of samples in this study. 6 were hearing students in Masaryk University. Others were 68 were Deaf learners and 14 were teachers drawn from a population of 359 Deaf students and 64 teachers in two inclusive schools in Nigeria. The population was
a heterogeneous group of students in primary, junior secondary and senior secondary schools in the selected schools. Students in Junior Secondary 1-3 were chosen for the study based on the researcher’s judgment. Because the size of deaf students in the two schools surveyed were small (42 and 34), the researcher used all the 76 students in the junior secondary as participants.

The population of the entire Deaf pupils/students in the schools surveyed was 359. Of this number, 76 were students in the junior secondary. On the day of the survey, 68 students were present and participated in the study. The different categories of students in the schools and their population is shown in the chart below:

Diagram 1: Population distribution in the schools sampled

**Participants in the micro study**

The first appraisal of sign language proficiency using the sign language assessment inventory (SLAI) was done in a micro study involving a group of six hearing students who were learning American Sign Language (ASL) in the course: Deaf Culture, Education and Communication, under the guidance of the researcher. The initial number of attendees was 9. However, due to the tight schedule of some students they could not take the assessment.
The age range of the 9 students was 21 – 28. Mean age of the students in the course was 24 (n = 24). The average age of students who participated in the test was 22. The age distribution of the students is shown in the bar graph below:

The gender distribution of the participants was skewed in favour of females. Participation in the test was voluntary. Students took the course as an elective course, which implies it is not mandatory for students in the Department. The sex distribution of the samples is illustrated in the following chart:
Tab. 5: Table showing the full data on the testees

<table>
<thead>
<tr>
<th>S/no.</th>
<th>Age</th>
<th>Sex</th>
<th>Hearing status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>a.</td>
<td>25</td>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>b.</td>
<td>24</td>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>c.</td>
<td>28</td>
<td>M</td>
<td>0</td>
</tr>
<tr>
<td>d.</td>
<td>23</td>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>e.</td>
<td>21</td>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>f.</td>
<td>21</td>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ \mu = 23.8 \quad \text{mean age of the samples} \]

\[ \text{variance} = S^2 = \frac{\sum (x_i - \bar{x})^2}{n - 1} \]

\[ = \begin{array}{ccc}
26 & 2.2 & 4.84 \\
24 & 0.2 & 0.04 \\
28 & 4.2 & 17.64 \\
23 & -0.8 & 0.64 \\
21 & -2.8 & 7.84 \\
21 & -2.8 & 7.84 \\
143 & 23.8 & 38.84 \\
\end{array} \]

\[ s = \sqrt{\frac{1}{N - 1} \sum_{i=1}^{N} (x_i - \bar{x})^2} \]

\[ S^2 = \frac{38.84}{5} = \frac{38.84}{5} = 7.76666 \]

Thus, the age variance for the samples is: 7.8
3.2 Instrumentation

At an early point, this study mulled adopting one of the tests from the test batteries for sign language assessment referenced by Hauser, Paludneviciene, Supalla, and Bavelier (2006), such as the American Sign Language Proficiency Assessment (ASL-PA) developed by Maller, Singleton, Supalla, & Wix, (1999); the Test of Adolescent and Adult Language-Third Edition (TOAL3) by Hammill, Brown, Larsen, & Wiederholt, (1994); the American Sign Language-Sentence Reproduction Test (ASL-SRT) by Hauser, Paludneviciene, Supalla, and Bavelier (2006); and the Sign Communication Proficiency Interview (SCPI) by Caccamise & Newell, (1999). This attempt was frustrated as there are no description of the test process to guide the researcher on what to assess and how to go about the process. The researcher has to invent a test instrument after careful consideration about the scheduled activities for which the instrument was needed, the elements to be tested, and the audience for whom it is targeted. Moreover, there was need to maintain originality in all aspects of this study and be guided by the principles of academic integrity.

Further motivation to inventing the Sign Language Assessment Inventory (SLAI) came from the researcher’s experience with the Gallaudet University’s American Sign Language Proficiency Interview (ASL-PI) required of all students of Deaf education. The researcher however, is of the view that the ASL-PI has some defects which needed to be improved on. For example, the ASL-PI does not have a list of specific sign language skills to be assessed. The assessment in the ASL-PI is described in broad terms and the test only assesses functional capacity of a signer. It does not have a rubric that spell out the grading system under the test. It was unclear how examiners used to determine a signers level in domains such as superior, advanced, intermediate, survival or novice. In the views of this researcher, the ASL-PI also has the weakness of being biased at times. The desire to knot these and other observable loopholes in most of the existing test instruments for sign language proficiency assessment were what prompted the development of the Sign Language Assessment Inventory.
Overview of the Test Instrument

The test kit for the Sign Language Assessment Inventory (SLAI) was developed in English and translated into Czech for the benefit of testees who may prefer it in the Czech language. This also makes it possible for the instrument to be used for Czech Sign Language (CSL) assessment. The test kit has a rubric to inform the clients of the skills to be evaluated and the rating system to be used. There is also a test manual that guide the test administrator on the procedures for the test and a rating scale for scoring.

The test rubric has 5 domain of skills on which testees are evaluated. Each skill domain has 4 points rating scales almost similar to the pattern of the Likert scale. The highest grade in each evaluation is 4, while the lowest grade is 1. Testees are graded based on the points he/she garnered on the examiner’s sheet. In formal evaluations, there should usually be 2 or 3 evaluators. Each examiner watches the video recording of the test interview and score the client according to the guidelines listed in the test rubric. The score of each of the evaluators on a single client is collated and summed up and the average score is recorded as the authentic grade of the client. The 5 skill domains on the test inventory and in the rating scales are:

![Diagram 2: The distribution of skill domain in the test rubric](image-url)

88
The basal score in the test is 20, while the highest percentile score is 100. There are two ways to determine the score of a testee. The first is to add the scores and multiply by 100, then divide by 20. The second is to calculate the score of the testee and multiply the result by 5. Whereas 5 is the number of skills evaluated.

Example 1: \[ \frac{(\sum X) \times 100}{\sum Y} \]

Example 2: \[ N = \frac{(\text{# of domain}) \times (\text{# of scores})}{1} \quad \text{or} \quad G = \frac{(D) \times (S)}{1} = N\% \]

The scoring method can be illustrated using a line chart:

Graph 3: A line chart showing the grade equivalent in the rating scale

The language assessment inventory is not intended for use with toddlers or children under the age of 13. The test could be used for people from 13 to 50 years of age who have been used to sign language for a reasonable period of time. More importantly, the test is most suitable for evaluating the signing skills of would-be teachers and interpreters, or interpreters who need certification or recommendation for sign language proficiency. In other words, the
ASLAI is a sign language proficiency test instrument for use to determine the signing skill and level of proficiency of a client.

As with every other tests, results are recorded using a comprehensible grading system. The grading system for the SLAI is the A, B, C, D and F system, which can also be appraised as “pass”, “intermediary” “weak”, or “Fail”. As described in the score sheet in the test kit, the following are the grading scale for the test:

**Grading system:**

<table>
<thead>
<tr>
<th>Score Interval</th>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 – 80</td>
<td>A</td>
<td>very good</td>
</tr>
<tr>
<td>79 – 70</td>
<td>B</td>
<td>good</td>
</tr>
<tr>
<td>69 – 50</td>
<td>C</td>
<td>fair (intermediate)</td>
</tr>
<tr>
<td>49 – 40</td>
<td>D</td>
<td>rudimentary (basic)</td>
</tr>
<tr>
<td>39 – 05</td>
<td>F</td>
<td>poor (beginners)</td>
</tr>
</tbody>
</table>

Pass grades are “A” and “B”. Intermediate score is the grade of “C”. A weak grade is “D”, and poor signing skill is represented by the “F” grade. Scores of A – C indicates that a student has cognitive level functional skill in sign language, while D and F is proof of basic communication skill ability. In professional selection, only clients whose passes are within the “A” and “B” range are considered qualified signers. Some schools recruit teachers based on their competency in sign language. In Gallaudet University for example, no student of deaf education is allowed to graduate if he/she has a grade of “C” in the American Sign Language Proficiency Interview (ASL-PI). This might sound a bit weird, but it serves to demonstrate the level of importance the institution attach to sign language proficiency in the field of deaf education and in the skills of teachers trained to work with deaf and hard of hearing learners. Sign language competency and communication/teaching skill remains a central requirement of every teacher of deaf learners.

The grading scale, rubric and examiner’s manual (in English and Czech languages) for the SLAI are enclosed in Appendix 1-3.
3.3 Sub-Tests

Prior to the administration of the test, the researcher guided the students through a semester long session of practices in American Sign Language (ASL). During that time, students were exposed to between 30 – 45 minutes a week familiarization of ASL. The process lasted 12 weeks (which is approximately 3 months). It met the standard minimum length of time needed to prepare for a summative evaluation test. It was the students’ first contact with ASL. Topics covered within that period includes:

- fingerspelling and numbers,
- pronoun words,
- family relationship,
- religious words,
- colours,
- describing shapes,
- classifiers and their use,
- question words,
- conversational ASL, and
- miscellaneous signs.

Students also interacted with some ASL videos, and did practices in receptive skill domain. Receptive skill in sign language is the ability of a person to comprehend information and decode meaning from a manually induced expression and respond accordingly. Evaluations were also carried out monthly and they covered all new topics and new concepts which the students learned during that particular month. The purpose of the formative evaluation was to determine the extent of students’ progress in the lessons and to identify their weak points for the purpose of providing individualized assistance if need be.

The overall achievement of the students in the three formative evaluations was average. However, none of the three evaluations recorded a full participation by all the students. The first evaluation recorded 3 absentees. The second had 2 absentees, while the third evaluation had 3 students absent. Attendance data during the evaluations is described in the chart below:
Tab. 6: Table illustrating the percentage of attendance in the pre-test evaluation

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>No. on roll</th>
<th>Attendance</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pr.</td>
<td>Ab</td>
<td></td>
</tr>
<tr>
<td>1st formative evaluation</td>
<td>9</td>
<td>6 (67%)</td>
<td>3 (33%)</td>
<td></td>
</tr>
<tr>
<td>2nd “”</td>
<td>9</td>
<td>7 (78%)</td>
<td>2 (22%)</td>
<td></td>
</tr>
<tr>
<td>3rd “”</td>
<td>9</td>
<td>6 (67%)</td>
<td>3 (33%)</td>
<td></td>
</tr>
<tr>
<td>Average attendance</td>
<td></td>
<td>6.33</td>
<td>2.66</td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td></td>
<td>70.4%</td>
<td>29.6%</td>
<td></td>
</tr>
</tbody>
</table>

This is further illustrated using a pie chart:

![Pie chart](chart.png)

Graph 4: A pie chart showing the percentage of student attendances at the 3 pre-test evaluations

Individual scores of each of the 6 participants in the 3 formative evaluations are shown in a 3-D clustered bar graph below:
Graph 5: A bar graph illustrating the scores of the students in the 3 pre-assessment test

A frequency distribution of the formative evaluation scores is shown below:

Tab. 7: Frequency distribution of the pre-evaluation scores

<table>
<thead>
<tr>
<th>Mark</th>
<th>Tally</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>III</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>III</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>IIII</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>II</td>
<td>2</td>
</tr>
</tbody>
</table>

\[
\bar{x} = \frac{\sum fx}{\sum f} = \frac{3 \times 4 + 3 \times 5 + 8 \times 6 + 1 \times 7 + 2 \times 8}{3 + 8 + 1 + 2} = \frac{12 + 15 + 48 + 7 + 16}{17} = \frac{98}{17} = 5.7
\]

\[\sum f = 5.76 \approx 6 \text{ (to the nearest whole number)}\].
Graph 6: A frequency distribution of the subtest scores

### 3.4 Procedure

The test was intended to last an hour, with an equal distribution of 10 minutes to each of the 6 clients. Each participant was at liberty to pick a topic he/she would communicate about. The test format was an interactive session between the testees and the examiner and the overall atmosphere was relaxed. This pattern corresponds with the process also used in some tests, example, the Gallaudet ASL-PI.

Prior to the test, the examiner took a few minutes to review the test procedure with the participants and take questions from them. The examiner also conducted the testees around the language assessment studio venue of the evaluation, where a demonstration of the general test procedure was presented. Participants also listened to instruction from the camera man who told them that at the count of 3, he would commence capturing events, and at the dot of 10 minutes, the camera would stop running. He explained that when it get to one minute to stopping the camera, he would give a ‘time-out’ sign so the testees would round up their presentation. Seating pattern was also demonstrated and each testee was advised to sit in whichever position would be convenient to him/her, but would not block from camera view or obstruct viewing the recording on the projector screen.

At the commencement of the interview, the test administrator started the conversation with a brief welcome to each client, then followed with the question of whether the testee has any
story or topic of interest to converse about. With this question, the interview begins. Along the way, the researcher/examiner sustains the conversation with brief intermittent questions to keep the conversation flowing. At the end of it all, that is, after every participant has taken turns in the test, the examiner thanks the participants and ask if they have any questions, concerns, apprehension or misgivings? Finally, he inform the clients that the tests and the results will only be used for the purpose of this dissertation which was to determine the reliability and validity of the test instrument.

Grading the tests was time consuming and it followed the pattern described in the rating manual (appendix 3). It took approximately 5 hours to grade the tests. The examiner reviewed the video and looked for the demonstration of each particular skill listed in the rubric. Awarding marks against each skill domain depends on 4 cardinal attributes, namely: fluidity, clarity, originality, and poignancy of the client.

### 3.5 Validation and Validity of the Test Instrument

Validation, according to Lugalia (2016:4) is the process by which an instrument is tested to verify its specified performance. It is done to ensure that the amount of error present won’t affect the interpretation of the test result and thereby compromise the result of the test (P. 7). Higgins and Green (2011), explained that the validity of a test instrument considers to what extent a test instrument measures what it is intended to measure. An instrument can have content, construct, criterion or external validity. The SLAI has both content and construct validity. Its content covers the parameters of sign language, while its construct measures those attributes which are regarded as the major linguistic components of sign language.

The instrument was validated before it was used as a test instrument. It was presented at a dissertation sub-committee meeting of the Department of which was attended by the Head of Special Education, Masaryk University, and a visiting Professor from University of Calabar, Nigeria, among other members, for deliberation and vetting. All members got a copy of the test rubric, the rating sheet, and the rater’s manual. They were examined with a view to offering advice and making constructive criticism where need be. It was unanimously agreed that the instrument should contain some references to credit the work of past
researchers from whom this researcher derived the idea and inspiration to design the instrument. Furthermore, it was explained that the education laws of the Czech Republic requires such form of acknowledgement by citation of sources, for a test instrument to be recognized as having met the basic requirement of an instrument which can be deployed for academic purposes. These significant points were noted and taken into consideration by the researcher and applied (see section 3.2 above).

The instrument was further presented to a team of senior researchers in special education from Charles University, Prague. They examined the instrument, checked through the test procedures and guidance for the tester both in English and Czech languages, as well as interviewed the researcher to learn more about the instrument. It was adopted for use as a research tool.

### 3.6 Methods

The toolkit for this study comprises a rubric, a reporting sheet, test administrator’s manual, video recorder, and a projector. Data for this study was collected through direct one-on-one (individual) interviews, observation and reporting. The setting was a language assessment lab/studio with a serene ambience. The test was executed for two main purposes, namely, (1): to determine the reliability of the SLAI as a test instrument, and (2): to establish the threshold proficiency level (TPL) of the students in sign language (SL). The test does not intend to rate this first set of students on 100% or 5% skill level. This would be inappropriate because the clients were exposed to ASL for a very limited period of time each week. Therefore, it would be unrealistic to expect that they would transform into geniuses capable of achieving 100% proficiency or there about, at this stage. However, such would have been different were the participants Deaf or sign language interpreters who have been using sign language for a considerable longer periods. In such case, the skill level to be determined would be the numerical equivalence of superior to weak capability.

The sign language assessment inventory (SLAI) assesses the signs language competency and skill level of signers – students, teachers, and interpreters, both deaf and hearing. The first assessment of sign language proficiency using this test instrument was carried out in a micro
study involving a small group of 6 hearing students taking an ASL course in Deaf culture, education and communication. They were the first in a planned set of three groups of sign language users to be used in the micro and case studies for this dissertation. The remaining two groups will consist of Deaf students and teachers in basic education programme (12-14 year olds) in inclusive special schools in Nigeria.

Threshold level hypothesis is a bilingual concept used by Cummins, (1984), which refers to the degree of functionality one has attained in a first language, and which could be a precondition to predicting possible achievement capability in a second language. Researchers, example, Lasagabaster (1998:119) have argued that when the threshold level in a first language is weak, the capacity to perform basic and cognitively demanding tasks in a second language would most likely also be weak, which can lead to a condition known as semilingualism in both languages. If however, the proficiency level (threshold) in an already existing language (first language) is strong, it can lead to a stronger competency in a second language, leading to either balanced bilingualism or dominant bilingualism in one of the languages. Bilingualism occurs when a person is able to perform linguistic and cognitive processes in context embedded and context reduced situations in a first language. This will make it easier to transfer those functional processes into a second language.

The hearing students who participated in the study were exposed to ASL awareness for a period totaling approximately 7 hours, (that is, 30+ minutes weekly for 12 weeks). In assessing their ASL skill within that short period of time, the role of intervening factor like the threshold level hypothesis in a pre-existing skill in another sign language may also be determined. In this case, the first language will be considered as the pre-existing sign language of the testee, while the second language will be ASL. Although all the participants in the test are multilingual who, besides speaking their own native languages, are also able to speak the English language, and function linguistically in the American Sign Language (ASL), it is not obvious if any of them has existing knowledge of another sign language beyond the rudimentary stage. The test may help to determine this, but it will not be a priority here.

As explained in the procedure, the aspect of sign language measured were narrative tasks of routine activities or events in the life of the students. 4 students narrated about their family. 1 student ‘spoke’ about herself, while another student conversed about her favourite animal.
The test assessed how well the students were able to integrate the 5 components of sign language into their regular conversations. These 5 components encompasses the parameters of sign language, as well as other linguistic features of sign language. While the parameters are not the exact linguistic components looked out for in the test, they are however crucial in every sign language. Significant linguistic constructs are concealed in them. For example:

Parameters of sign language:
- handshape
- location
- orientation
- movement
- non-manual signs

Tab. 8: Linguistic representation of the parameters

<table>
<thead>
<tr>
<th>Parameters</th>
<th>linguistic significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>phoneme</td>
<td>morpheme</td>
</tr>
<tr>
<td>handshape</td>
<td>hand configuration</td>
</tr>
<tr>
<td>location</td>
<td>placement of the palms</td>
</tr>
<tr>
<td>orientation</td>
<td>direction of the palms</td>
</tr>
<tr>
<td>movement</td>
<td>n/a</td>
</tr>
<tr>
<td>non-manual signs</td>
<td>n/a</td>
</tr>
</tbody>
</table>

3.7 Reliability

The reliability of a test instrument is the consistency or repeatability with which that instrument report its measures (Trochim, 2006). In other words, when a test generate the same scores when it is used at a different interval to test the same attributes, the test is said to be reliable. The reliability of the SLAI was tested using the inter rater reliability measures. The inter rater reliability also goes by other names such as, inter corder, or inter observer
reliability (Trochim, 2006). In determining the reliability of the SLAI, the research correlated his scores for each of the testees with a co-rater who had been part and parcel of the test process from the start. The common cutoff in the correlational score is not less than 70 ($r = \geq .70$). The measures of agreement between the scores are computed using the Cohen’s Kappa (1960) statistics:

$$K = \frac{P_a - p_e}{1 - p_e}$$

![Diagram 3: Diagram showing the procedural method in computing the raters’ scores](image)

Tab. 9: Measure of reliability using the inter coder rating scale

<table>
<thead>
<tr>
<th>Roll call of students</th>
<th>Fluidity</th>
<th>Clarity</th>
<th>Role shifts</th>
<th>Use of classifiers</th>
<th>NMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>S/no</td>
<td>R1</td>
<td>R2</td>
<td>R1</td>
<td>R2</td>
<td>R1</td>
</tr>
<tr>
<td>A</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Observed items that are in accord: 23  
Non-accord items: 7  
$$R = \geq .76 = 76\%$$
Tabulated cross presentation of the reliability index of the SLAI test instrument based on each coder’s independent evaluation are shown below. The first table shows the rate of agreement and discrepancies between the coders’ rating. The second table is a computed result on the observations using Freelon’s (2010:23) percentage agreement indicator. It also display the Scott’s Pi and Krippendorff’s Alpha reliability indicators. However, for the purpose of this study, the research will limit its interest and discussions to the Cohen’s Kappa (1960) coefficient in CVS format.

Tab. 10: Cohen’s Kappa distribution of reliability scores

<table>
<thead>
<tr>
<th>1st Coder</th>
<th>2nd Coder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>11</td>
</tr>
<tr>
<td>Category 2</td>
<td>2</td>
</tr>
<tr>
<td>Category 3</td>
<td>0</td>
</tr>
</tbody>
</table>

Total: 13 14 3 30

RelCal calculation of reliability for two raters

N of columns: 9
N of students: 6
N of coders per student: 2

Tab. 11: RelCal calculation of reliability for two raters

<table>
<thead>
<tr>
<th>Student</th>
<th>Percentage Agreement</th>
<th>Scott’s Pi</th>
<th>Cohen’s Kappa</th>
<th>Krippendorff’s Alpha (nominal)</th>
<th>N of Agreements</th>
<th>N of Disagreements</th>
<th>N of variables</th>
<th>N of Decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>60%</td>
<td>0.167</td>
<td>0.167</td>
<td>0.25</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Student 2</td>
<td>80%</td>
<td>0.524</td>
<td>0.545</td>
<td>0.571</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Student 3</td>
<td>80%</td>
<td>0.6</td>
<td>0.615</td>
<td>0.64</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Student 4</td>
<td>80%</td>
<td>0.524</td>
<td>0.545</td>
<td>0.571</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Student 5</td>
<td>80%</td>
<td>0.677</td>
<td>0.688</td>
<td>0.71</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Student 6</td>
<td>80%</td>
<td>0.697</td>
<td>0.706</td>
<td>0.727</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>
3.8 Results

(1) Reliability of the test instrument

The reliability of the SLAI test instrument was proven given that the results of the two raters were at most times 80% identical for 5 students. It was 60% identical for one student. That was the only occasion the index fall short of the 70% cut off point for reliability set by the researcher. The overall test of reliability from the two raters for the 6 students was well above the 70% cut off point at 76.6%.

Further analysis of the reliability using the t-test calculator at 0.05 critical value shows that there was very little variance between the raters to warrant any concerns about the reliability of the tests. The t-test calculation is shown below:

Tab. 12: T-distribution of Raters' score

<table>
<thead>
<tr>
<th></th>
<th>1st Rater</th>
<th>2nd Rater</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean scores</td>
<td>1.5667</td>
<td>1.6667</td>
</tr>
<tr>
<td>Variance</td>
<td>0.4609</td>
<td>0.4368</td>
</tr>
<tr>
<td>Stand. Dev.</td>
<td>0.6789</td>
<td>0.6609</td>
</tr>
<tr>
<td>n</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>t</td>
<td></td>
<td>-0.578</td>
</tr>
<tr>
<td>degrees of freedom</td>
<td></td>
<td>58</td>
</tr>
<tr>
<td>critical value</td>
<td></td>
<td>2.009</td>
</tr>
</tbody>
</table>

Result: The mean scores for Rater 1 and Rater 2 are not significantly different at p < 0.05. In other words, it could be said that there is no major significant differences in the proportion of agreement between Rater 1 and Rater 2 on the scores obtained from testing the samples using the test rubric of the sign language assessment inventory (SLAI) as a measure of sign language proficiency.

(2) Students' threshold level

As noted in table 3.7a above, the score range of the students were 1 – 3 as measured in a scale of 4. A breakdown of these scores shows that on the average, the dominant strength of the students against the listed attributes is 1 (rudimentary). All the students manifested this
capacity on different domains. Both raters agreed 11 times that the skill level demonstrated by the students which permeate all the domains are at the level of basic skill (1). On 9 occasions, the raters agreed that the students showed intermediate skills on some observations. Only two students demonstrated commendable efforts on fluidity in communication, and one of the two students’ use of non-manual sign skill (NMS) was adjudged by the two raters to be of good quality. Rater 1, who is the researcher, had observed that the students demonstrated skills that are equivalent to category 1 (basic skill) on 16 of the 30 observations. This is equivalent to $16/30 \times 100 = 53\%$. The second Rater observed the students’ strength on that range 13 times. This is 43% and signifies 10% improvement than what was observed by the first Rater.

Knowing the threshold level each student falls into can be determined by calculating the individual scores of the students from the researcher’s own observation (1st Rater), using the formula:

$$\frac{(\sum X) \times 100}{\sum Y}$$

where $\sum X$ is the summation of the students’ scores, and $\sum Y$ is the supposed cumulative sum of the skill categories evaluated.

<table>
<thead>
<tr>
<th>Roll call of students</th>
<th>Fluidity</th>
<th>Clarity</th>
<th>Role shifts</th>
<th>Classifiers</th>
<th>NMS</th>
<th>Total</th>
<th>Multiplier</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>E</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>F</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>5</td>
<td>50</td>
</tr>
</tbody>
</table>

From the table above, the range of scores obtained by the students was in the subset of 30 – 50. Two students scored 30% each. Another two had it at 40%. One student each had 45 and 50% respectively. The sum total of the student’s score is 235% of supposed 600. Thus, the averages percentage score of the students is 39.1%. This implies that on the average, the
students’ sign proficiency level is at the beginning stage and suitable only for basic interpersonal communication (BICS) engagements. It is not to the level of higher academic involvements.

Graph 7: Pie chart distribution of the average student score

[Pie chart showing distribution]

Graph 8: A pie chart showing individual percentage and proportion of each student’s scores

Individually, the students performed better than what the average score indicated. Only two students’ proficiency level can be rated as poor or beginner level. One student’s skill was
rudimentary, meaning it is fair enough and suitable for both basic and cognitively not too demanding academic engagements.

Here is a distribution of the threshold level of the student:

![Threshold index of the students as presented in a bar chart](image)

**Summary**

This chapter discussed the method and processes used in assessing the sign language strength and proficiency level of a group of signers using the sign language assessment inventory (SLAI) test instrument. A test kit of this type was considered useful and overdue considering that present methods of assessing sign language skill of sign language users in Europe and Africa is by mere guessimation. The validity and reliability of the instrument was tested using a group of samples from Masaryk University. A sign language test is necessary in the education of Deaf learners in order to determine if pupils need further enrichment in their first language before they can learn a second language. Therefore, the purpose of the test instrument was to predict the second language (L2) readiness of Deaf learners, as well as establish the proficiency level of hearing sign language users for deaf support services. The instrument was tested in a micro study involving a group of hearing students who were exposed to a weekly sign language lesson for a period of 12 weeks, which is approximately
3 months. Topics covered includes a wide range of conversational sign language exercises, including sub-tests in receptive skill capability. An interrater test of reliability was used to determine the instrument’s suitability as a test tool. The reliability coefficient was calculated using the Cohen Kappa statistics. The result shows a RelCal coefficient of $R \geq .76 = 76\%$, which is .06% above the 70% cutoff index. The critical value of the two Raters scores was 2.009 in a t-test statistical analysis of variance. This signifies that the scores of the raters were not significantly different at $p < 0.05$. The students proficiency were tested on 5 skills domain, namely, fluidity of sign expression, clarity, role shifts, use of classifiers and non-manual signs. The result found that of the 6 students who eventually took the tests, 5 fall under the category of basic signers. Their capability was in the domain of basic interpersonal communication skill (BICS), and one has a lower intermediate cognitive signing skill (CALP).
4 RESULTS AND FINDINGS

Introduction

This chapter assesses the findings on the performance outcome of Deaf learners in basic education programmes in inclusive Junior Secondary 1 – 3 who were exposed to bilingual education methodology in two schools for the deaf in Nigeria. As noted in Chapter three, a total of 68 students and 14 teachers participated in the study.

The study was conducted over a period of one month with various activities planned and executed during that time frame. The procedural timeline of the study including the activities undertaken and their objectives are elucidated below:

Tab. 14: Plan of activities and set objective during the data collection period

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>- Visit to the Hon. Commissioner of Education, State Secretariat, Uyo</td>
<td>- To introduce self and mission to the Chief Education Officer of the State: The Hon. Commissioner of Education</td>
</tr>
<tr>
<td></td>
<td>- Visit to the Special Education Centre, Uyo</td>
<td>- Familiarize self with the status, nature, and availability of services in the education of deaf and hard of hearing learners in Akwa Ibom State</td>
</tr>
<tr>
<td></td>
<td>- Visit to the St. Louise’s Special School, Ikot Ekpene</td>
<td>- Create an open forum with stakeholders to discuss issues in the education and training of deaf learners in Akwa Ibom State</td>
</tr>
<tr>
<td></td>
<td>- Visit to the Head of Special Education, Ministry of Education, Uyo</td>
<td>- Review of academic records of deaf students in basic education units in State entrance examinations</td>
</tr>
<tr>
<td></td>
<td>- Review of academic records of deaf students in basic education units in</td>
<td>- To appreciate teachers’ passion in their job, and respond to their challenges in working with students who are deaf and hard of hearing</td>
</tr>
<tr>
<td></td>
<td>State entrance examinations</td>
<td>- Identify the first language (L1) of deaf learners through the preferred method of communication used in the schools</td>
</tr>
<tr>
<td></td>
<td>- Engage with teachers as professional colleagues in the education of deaf</td>
<td>- To assess through observation and participation, the language threshold level of deaf students</td>
</tr>
<tr>
<td></td>
<td>and hard of hearing learners</td>
<td>- Collaborate with the Ministry of education to obtain supply of the needed equipments for the workshop</td>
</tr>
<tr>
<td></td>
<td>- Interact with students in their various learning environment</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>- Observe students in specific learning environments (academic, extra mural,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and co-curricular)</td>
<td>- Provide learning stimulus to deaf students using bilingual education methodologies</td>
</tr>
<tr>
<td></td>
<td>- Engage with teachers as professional colleagues in the education of deaf</td>
<td>- Work with teachers to develop bilingual educational activities for deaf learners</td>
</tr>
<tr>
<td></td>
<td>and hard of hearing learners</td>
<td>- Begin gathering materials for the proposed workshop for teachers on bilingual/bicultural education (e.g., identifying a venue,</td>
</tr>
<tr>
<td></td>
<td>- Interact with students in their various learning environment</td>
<td>getting a projector, white board and markers, sending out invitations, etc.)</td>
</tr>
<tr>
<td>3</td>
<td>- Provide learning stimulus to deaf students using bilingual education</td>
<td>- To assess through observation and participation, the language threshold level of deaf students</td>
</tr>
<tr>
<td></td>
<td>methodologies</td>
<td>- Collaborate with the Ministry of education to obtain supply of the needed equipments for the workshop</td>
</tr>
<tr>
<td></td>
<td>- Work with teachers to develop bilingual educational activities for deaf</td>
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</tr>
<tr>
<td></td>
<td>learners</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Begin gathering materials for the proposed workshop for teachers on</td>
<td>- Provide learning stimulus to deaf students using bilingual education methodologies</td>
</tr>
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<td></td>
<td>bilingual/bicultural education (e.g., identifying a venue, getting a project</td>
<td>- Work with teachers to develop bilingual educational activities for deaf learners</td>
</tr>
<tr>
<td></td>
<td>tor, white board and markers, sending out invitations, etc.)</td>
<td>- Begin gathering materials for the proposed workshop for teachers on bilingual/bicultural education (e.g., identifying a venue,</td>
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<td></td>
<td></td>
<td>getting a projector, white board and markers, sending out invitations, etc.)</td>
</tr>
</tbody>
</table>
4.1 Demography of the Study Area

This study was conducted in Uyo, the capital city of Akwa Ibom State, and Ikot Ekpene, the third dominant city in the State. Uyo and Ikot Ekpene are two of the 31 Local Government Areas in Akwa Ibom State. Uyo is a densely populated, fast growing commercial and tourism hub located in the North Eastern Senatorial district of Akwa Ibom State. A 2006 census put the population of Uyo at 309,573 (AKSG, 2010). However, this has grown to as large as 847,500 at present, according to the latest population tracking service by Population City, (2015). Uyo lies between latitude 5°03′04″ North and longitude 7°56′00″ East, in the Tropic of Cancer. It has an elevation of 45m/157ft above sea level, and occupies a land mass of 156.000sq.km (Dateandtime.info, 2016). It is bordered in the North by Itu Local Government Area, in the East by Uruan Local Government, in the West by Abak and in the South by Ibesikpo Asutan.

The people of Uyo are Ibibio by tribe. They are mainly farmers and traders. Besides their interests in subsistence farming, remnants of their farm products are sold locally to generate income for the households. Locally sold edibles include palm oil, cassava, plantain, banana, and oranges. Majority of the people in Uyo are also civil servants considering that Uyo is the Administrative city of Akwa Ibom State and is also a Local Government Area. Economically, the people of Uyo are dynamic, enterprising, and carve a living in various other trades like craftsmanship and property development. Social life in Uyo is vibrant. Evening times are
used mostly for social gatherings, which is the time of the day workers have returned from their various occupations, and women have sorted their goods for the brisk evening business.

Ikot Ekpene, with a projected population of 179,165 in 2015, and a land mass of 128,000sq.km (AKSG, 2014:11) is the third most important city in Akwa Ibom State. Known as the “Raffia City” because raffia palm and its products were at one time a major export commodity of the city, Ikot Ekpene is the political and cultural capital of the Annang ethnic group in Nigeria (Wikipedia, 2016; Nair, 1972). The city lies within latitude 5°10'54" North, and longitude 7°42'53" East, in the Tropic of Cancer. It has an elevation of 89 Meters (291 Feet) above sea level (Dateandtime.info, 2016). Ikot Ekpene is located in the North Eastern Senatorial district of Akwa Ibom State and is bordered in the North and West by Obot Akara, in the East by Ikono Local Government, and in the South by Essien Udim municipal council.

Graph 10: Graph showing population growth of Uyo from 1975 – 2015

[2006-2015] +7.65 %/year

Picture 1: Map of Akwa Ibom State showing the 3 Senatorial districts of the State

Courtesy: Nigeria Muse (2010)
4.2 Methods of Data Collection

Data for this study was collected from the following methods:

- observation,
- review of academic records,
- conversational interaction with students (focus group discussion),
- open forum with teachers,
- intervention/classroom assessment of reading comprehension skill, and
- receptive and expressive sign language test with teachers

4.2.1 Observation

An overt controlled observation was used in the collection of data for this study. It was overt (open) because the plan of activities for this study (Table 14 above) was made available to the school Heads and teachers were appointed to guide the researcher around the facilities. A survey of the schools facilities, as well as the curricular and co-curricular activities was done in company of the following ad hoc personnel who assisted the researcher with data throughout the period of the study:

1. Head teachers in the schools under study
2. Selected teachers by the school Heads
3. Senior education officers from the Ministry of Education
4. A sign language interpreter

The observation was unstructured and followed a natural approach, with no catalogue of to-do-list needed. The observation gave the researcher a first-hand opportunity to assess the teaching and learning pattern in the schools and of expressive and receptive sign language skills of teachers and students.

The language traits observed and the results are described in the tabulation below.
4.2.2 Review of Academic Records

Available academic records in the schools include class attendance registers, students note books, and transcript of record. The attendance records of the students’ show an above average school attendance report. This indicates that students have a desire to learn and they recognize that schools are the place they could get the knowledge and experience they need to prepare for the challenges of the future.

The Ministry of Education also provided additional data which specified challenges the schools are facing. Needs assessment report from the Ministry of Education listed the following as top priority needs in the education of deaf and hard of hearing learners in the State:

- Audiological services
- Speech and language therapy
- Vocational training services
- Transport services

The Directorate lamented its lack of fund allocation in the budget to establish these services, and therefore, need support and assistance from corporations and philanthropists worldwide to execute their projects.

4.2.3 Focus Group Discussion

The focus group discussion in this study has the following specifications:

- Number of participants: 7
- Number of questions discussed: 7
- Question format: open ended
- Sex distribution: 4 girls, 3 boys
- Question type: exploratory
- Classes represented: JSS 1 – 3 (minimum of 2 students from each class)
- Duration: 50 minutes

The questions discussed with the group are:

1. Where do you come from? Is your family domiciled in this town? How many are you in the family and what is your position?
2. Did you completed your primary education in this school? How was your experience in those basic but fundamental years of your education?
3. Which is your favourite subject in school?
4. Tell me about your learning experiences in an inclusive education programme.
5. What do you want to be after you graduate from school?
6. How are you preparing for your future goal?
7. How many deaf persons from your school have enrolled into the university after completing from here?

During this discussion, students continue to lament the neglect they suffer in classrooms and of not understanding their teachers. They complained that teachers prefer to speak than to
Some suggested that most deaf students’ stay at home doing menial jobs to earn some money, than come to school where they end each day learning nothing. These students do not know what their future will be. They talk of completing secondary school and getting jobs, but cannot specify what type of job they want. About two students mentioned hair dressing and others prefer to wait till they are out of school to know what life holds for them. These students do not have role models they could look up to or model after. Though few students from their schools have enrolled into the university after they graduated, they feel such would be a long process for them. The case of these students explain the despair of most deaf students in inclusive programmes in Nigeria.

### 4.2.4 Open Forum with Teachers

A seminar presentation was organized for teachers at the behest of a school administrator. The seminar provided a forum to engage with teachers and brainstorm on ways of improving learning for Deaf and hard of hearing learners in Akwa Ibom State using the bilingual education methodology. The forum provided opportunity for collaboration among teachers involved in the education of Deaf learner. Questions were fielded and methodologies analyzed to identify the benefits of bilingualism and of bilingual methodologies and the need to use these methods in the classrooms.

### 4.3 Results

The research experiments were conducted to find answers the following research questions:

- Do deaf children/pupils/students in Nigeria learn well when taught in total communication philosophies, or do they fare better in bilingual education methodology?
- Does total communication deprive Deaf children the opportunity to develop language naturally?
- To what extent do teachers in deaf education understand academic and social sign languages and use them in the classroom?
- Does the use of bilingual educational methodologies enhance teachers’ lesson delivery and improve comprehension and academic achievements in deaf and hard of hearing learners?

Results of the findings are explained below:

**Question 1**: Do deaf children/pupils/students in Nigeria learn well when taught in total communication philosophies, or do they fare better in bilingual education methodology?

To test this question, the researcher taught the students English language lesson, utilizing bilingual methodological approaches of translation and PVR (Preview, View, Review) methods to obtain a result. Using the story: “Family and friends” on page 12 of the English reader (see appendix 4), the researcher previewed the lesson with the students by discussing the concept of “English comprehension” with them and letting them get the idea of what comprehension means any time they sees it on the board, and what a teacher expect from them after they read a passage from a text book. Researcher gave students a practical example by telling them a story about his family. In the end, the researcher framed some unwritten assessment in which students enthusiastically and vibrantly participated in answering the questions in their own words in sign language. In the next step, students were invited to read the first paragraph in the story (see appendix 6 for the full procedure). While a student took the lead in reading the story in total communication, the researcher wrote out vocabularies the student is not familiar with and not able to sign correctly. At the conclusion of the student’s reading, the researcher studied the vocabularies with the class, describing the meaning and its usage in a sentence. Before then however, researcher asked the class if they were able to understand the story which had just been read by one of them. The verbal assessment was response was poor, indicating that students were not following through while the reading was going on. Not only does reading a passage in total communication appear boring to students, it does not convey meaning because it seems like students (both the reader and listeners) were struggling to identify words from the reading, not phrases or sentences. Finally, the researcher took up reading the same paragraph in the bilingual strategy of free translation, preserving the original meaning in the story. A written assessment was carried out at the end of the process and the result was impressive. Of the 68 students who took the
test, 47 (69%) students scored no error. 14 (21%) students had just one error and 7 (10%) students made two or more errors. The achievement score of the students is described in the chart below:

Graph 11: Students’ achievement score in bilingual methodology

**Question 2:** Does total communication deprive Deaf children the opportunity to develop language naturally?

To answer this question, the researcher used two approaches to test the assumption that total communication inhibits Deaf children English acquisition process. In the first approach, the research requested the students themselves to read a passage from their Junior English Reader. Unit 1 has a story titled: “Family And Friends” (see Appendix 4 for a copy of the story). The researcher allowed the students the free will to pick someone from among themselves who they trust can read well, and s/he was invited to the front of the class to read the first paragraph in the story. The result of the reading indicates that when Deaf children/students attempt to read in exact English sign system, a lot of uncommon things occur. The research found that:

a. When deaf students read passages in total communication, their reading is badly disjointed making the whole exercise unintelligible.

b. They do not actually read for comprehension. Rather, they are simply “calling out” words from a passage. They have minimal idea about how words are used in English grammar.
c. Students struggle all through the process of reading to “identify” words rather than understand the meaning of phrasial relationship of words in a sentence.
d. When students come across a difficult word, they sign it away by giving it the sign of a word familiar to them which has identical letter(s) with the word they are attempting to sign, example: when they see twe-lve, they will sign twe-nty; an-y for an-other; ei-ght for ei-ther; and so on.
e. At times, the students just think out a sign with a far different meaning or semblance with the word they encountered, example: body for “younger”; out for “half”; any for “already”; and so on.

In the second approach, the researcher organized a conversational interaction between a teacher and a few students. In the conversation, the teacher told the students: “After school hour today, you should go and practice soccer”. Although the students nodded in affirmation but they actually did not understand that simple instruction. At the end of the conversation when the researcher asked for gist on what transpired in the dialogue, the students gave an entirely different account from their own perception. None of the students repeated exactly what the teacher had told them in signing exact English (SEE2). To Deaf students, English language signs appear to be a haze with various confusing patterns. The deaf see the teacher’s sentence as being presented in a labyrinth with no beginning or an end, just like this diagram:

Sentence: After school hour today, you should go and practice soccer
Po škole bys mel jít trénovat fotbal

Diagram 4: Impact of total communication on cognitive development
Had the teacher used sign language in his communication with the Deaf, it would have been less stressful for the students getting to understand him because both teacher and students would have been on the same level of communication. In sign language, the sentence could have been more direct and comprehensible. It could have read something like: SCHOOL END, YOU GO PLAY SOCCER, or SCHOOL END, YOU PRACTICE SOCCER. When the Deaf students were nodding to the teacher, it was because they were picking out the signs they recognize. They were nodding in recognition of the few signs they seem to recognize and not that they understood or comprehend the teacher’s sentence. Eventually, the students abstractly reconstructed the teacher’s sentence to their own language capacity and it reads: SCHOOL GO SOCCER. How they come about this sentence is illustrated in the diagram below:

In a facebook post explaining his views about why learning through speech is not ideal for Deaf learners, Mike Friess (2016) presented a sketched illustration to explain that concept. His illustration is reproduced here with permission:
Diagram 6: Mike Freiss illustration of signs versus speech effects on cognition

From the three illustrations above, the students do not know where the conversation actually starts or ends. To a deaf child, every part of the conversation is the beginning and every part is equally the end. The students’ problem in making meaning from the conversation was that it appears the teacher was “reading” to them a statement rather than conversing to them as a person. As already stated, the students did nod at some intervals in the conversation, it was simply because they recognize words they are familiar with such as SCHOOL, GO, SOCCER. Those are words that appear on top of the bump or haze in the children’s cognition. Thus, while the teacher was presenting big and ambiguous grammar to the students, they were carefully rephrasing his sentence to their own language pattern and not the English language approach. In the end, the sentence the students formed out of the teacher’s long sentence was: SCHOOL GO SOCCER. This may still not convey the exact information intended from the sentence. But it brought the meaning more closer to the comprehension level of the students. Had the teacher avoided using the word “after” in an abstract sense, but could have substituted it with its other synonyms like “end/finish/close”, the students could have frame their own correct sentences in their native sign language. This could have read (among many other possibilities) something like: SCHOOL END, GO PLAY SOCCER. Presenting information to deaf children in their first language (sign language) is appealing to them and contributes to cognitive development.
**Question 3:** To what extent do teachers in deaf education understand academic and social sign languages and use them in the classroom?

Of the 45 teachers who attended the seminar held for teachers, all of them (100%) do not know that sign language is not the same as total communication. Among the 14 teachers who participated in the experiment, only 4 (29%) responded correctly to the sign language assessment presented from the linguistics of American sign language DVD, and these 4 are deaf. 10 (71%) have no idea what the information in the DVD are. Teachers of the deaf (both deaf and hearing), have no idea that sign language is a language distinct from signed English.

This result is presented in the pie chart below:

![Pie chart showing teachers’ language statistic](image1)

Graph 12: A pie chart showing teachers’ language statistic

The difference between students’ knowledge of sign language compared to their teachers is described in the histogram below:

![Histogram showing students – teachers sign language comprehension difference](image2)

Graph 13: Histogram showing students – teachers sign language comprehension difference
Question 4: Does the use of bilingual educational methodologies enhance teachers’ lesson delivery and improve comprehension and academic achievements in deaf and hard of hearing learners?

As noted in the discussion on question 1 above, 68 students took the test and 47(69%) responded correctly to all the questions with no mistake. 14 students(21%) had just one error response, while only 7 students(10%) had more than one error. The assessment was conducted in a quasi-context-reduced situation. Students do not have individual copies of the English reader. They responded the written questions after watching the researcher read the passage to them in free translation. In their answers,

Students made 3 types of written responses: short sentence responses, one/two word responses and selection of A, B, or C options. A school by school analysis of students’ performances is represented in the linear chart below:

Graph 14: Line graph of achievement scores by school

Of the 28 students who participated in the survey from school A, 45% of the respondents (which is 12 students) have no error responses. 45% (another 12 students) have just one error and 11% (3 students) had two errors. 3% (1 student) has more than two errors. In school B, 40 students participated in the assessment. Of this figure, 88% (which is 35 students) responded correctly to all the questions. 5% (2 students) had just one & two errors in their responses, and 2% (1 student) made more than one errors.
5 DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Anything that has a beginning, must also have an end. So says a popular cliché. Years of gathering information, compiling lists, sorting through a stack of literatures and documents, consulting with Professors in four continents, visits to educational programmes for the Deaf in and around the Czech Republic and Nigeria, writing conference papers and presentations, and transferring all the knowledge gained to answering questions which gave rise to this study has materialized into this dissertation project. This study also discovered new knowledge, and created new invention which will be circulated to contribute to the body of knowledge and research on inclusive education and teaching strategies with Deaf learners.

This chapter will summarize what has been done in this study and what was covered in each chapter of the dissertation. It will also discuss the major findings from the study. It will recommend issues that needs further exploration, and which will further contribute to improving the teaching and learning tasks in the education of Deaf and hard and hearing learners.

5.1 Summary

This study investigated a critical problem which has dominated inclusive and special education practices in Nigeria for decades. Concerns about the poor academic achievements of Deaf pupils/students in standardized examinations has raised questions and doubts about the potency of the methods used in deaf education. Teaching strategies that could promote success in both language and academic performances of Deaf learners are not known. Language stands out as the most critical factor in learning and without language, one would be as uneducable as were feral children in the past. For several decades since the introduction of special education into the Nigerian education policy, emphasis was stressed on educating Deaf and hard of hearing learner using similar methods as their hearing counterparts, with total communication being the means of conveyance. Unfortunately, total communication
was not properly understood, nor effectively applied as a teaching strategy in the education of Deaf and hard of hearing learners. The failure of total communication to boost Deaf children’s English language skills and improve their academic achievements and development calls for a shift in paradigm and on pedagogical approaches in the education of Deaf and hard of hearing learners. Bilingual education was proposed in this research as a single approach for attaining two prong objectives with Deaf and hard of hearing learners. Since not many Nigerians have heard about teaching methods in bilingual education, this study sought to create awareness about bilingual methodologies and its application with Deaf learners. Since teachers are the one who guide learning and moderate activities in the classrooms, one of the field activities in this study was to build the capacity of teachers in the use of bilingual methodologies in the classroom. Also, this study sought to make bilingual education a national issue in educational discussions in Nigeria through modelling the curriculum to reflect on bilingual principles. The study also sought to nudge education planners to re-examine, re-assess, and re-evaluate present strategies with a view to re-strategizing and improving the present practice.

These being the purposes which this study intended to achieve, the research understand that to be able to influence public opinion and get support for bilingual methodology as the best alternative in teaching Deaf learners, there must be a buttressing evidence showing that the methods have been used and found to be effective. This was accomplished in the reading comprehension tests conducted with students in the inclusive programmes in Akwa Ibom State in Nigeria. The procedure and results of the tests are discussed in the next sub-section of this chapter. The major goal of the test was to assess the result of bilingual educational methodologies on academic performances of Deaf and hard of hearing learners in inclusive education programmes in junior secondary schools. This practical activity was central to finding answers to the questions created in this study and it was from those activities that this study got its title.

Considering that inclusive education has become a global phenomenon in the education of learners with special needs, a considerable part of Chapter one was devoted to scrutinizing the concepts of inclusion and of inclusive education. The review of literatures explored literary information which concur with the dissertation’s statement of problems and conceptual framework. The section was divided into four sub-sections, with each reflecting
the core issues in the study, namely: Deaf education, teaching, language and methodology. The chapter covered these salient issues in broader discussions under linguistic features of sign language, interdependence hypothesis, and bilingual methodologies in teaching Deaf learners. Considering that member nations of the European Union are involved in a global cooperation in education through the Erasmus Mundus project, and under whose auspices this study was carried out, the review of literatures took cognizance of this fact and began with an overview of the education system in some European countries. The systems of education in four European countries was studied. The countries chosen were: the Czech Republic, Germany, Finland and Sweden. Each of these countries have some notable things about their education system which can be borrowed in the drive to revamp special needs and Deaf education in Nigeria. The detectable features are presented in section 5.2 below.

The literatures on the linguistic features of sign language versus total communication provided profound knowledge about the educational effects of either approach in the teaching and learning process. Johnson, Liddell, and Erting (1989), Grushkins (1998), Livingston (1997) all agree that teaching methods in schools and programmes for the Deaf where sign language are not used are the main causes of language and learning problems in Deaf pupils/students. Johnson, Liddell, and Erting (ibid) went farther to explain that the use of total communication in teaching Deaf learners who were congenitally deaf from birth or who became deaf early in life does not support language development. They provided arguments to disprove the notion that speaking and signing in exact English pattern help Deaf children to develop English language skill. They specifically explain that signing and speaking in total communication philosophy “do not present the grammatical, morphological, phonological and lexical structures of sign language” (P. 5). They presented the contrasting features of total communication and sign language in the clearest terms, arguing that while sign language is a full-fledged language, total communication is not a language but a system of communication. The symbols in sign represent concepts, not English words, while in total communication, the signs are structured after spoken languages. Additionally, sign language is said to develop naturally over time among a community of users, while total communications signs are developed by a committee of people. Sign language are acquired in the normal course of language acquisition. But total communication signs taught and learned.
Cummins, (1984:183) illustrated his argument that a strong second language (L2) is only possible upon a strong first language (L1) foundation using his theory of the iceberg. Both languages, according to Cummins (2006) emanate from a single operating system which is the language faculty in the human brain. The central argument is that if a child is not well rooted in a first language, such a child will have a weak second language development. Other studies (Lasagabaster (1998:119), Jiang (2011:177), Baker, (2001), and Cummins (2006:4)) lend support to this assertion. Earlier, Cummins (1975) had suggested that for a child to be able to learn a second language with challenges, the child must first attain a threshold level in a first language. This is the level when the child is able to use the first language in basic communication skills (BICS) and in some levels of cognitively demanding academic tasks (CALP). Inspired by this clear and logical theory, this study developed the sign language assessment inventory toolkit which is intended for use to assess the first language strength of a Deaf learner and thus predict possible outcome and successes in second language learning and functionality.

The validation of the sign language assessment inventory (SLAI) was carried out by Professors from three universities namely, Masaryk University, University of Calabar, Nigeria, and Charles University, Prague. The instrument was presented to the committee on separate occasions. On both occasions, the instrument was unanimously adopted by the committees. An advice was made to add references to credit those sources from whom the researcher got inspiration. The instrument was tested using an inter-rater reliability assessment in a Cohen Kappa reliability coefficient. The SLAI has both content and construct validity. Its content covers the parameters of sign language, while its construct measures the linguistic attributes of sign language.

5.2 Discussion of Findings

The findings from the study are remarkable as they are distinct. From the analysis of the education systems in Europe, notable features from the countries surveyed are presented below. The Czech education system has four (4) structures or levels. Each level has a planned schedule of instruction (syllabus/curriculum), which are referred to as the School Education
Programme (SEP). These SEP are individual schools’ own pedagogical plans which must be in consonance with the national education programme known as the Framework Education Programme (FEP). The education levels in the Czech Republic, according to the Institute for Information on Education, (IIE, 2011:7), are:

1. Preschool education (2 – 5 years);
2. Basic education or elementary school (ISCED 1&2) (6 – 15 years);
3. Upper Secondary school (ISCED 3) (15 – 18 years);
4. University education (ISCED 5&6).

The features of the system of education in the Czech Republic is described in the follow diagram:

(Courtesy: Ministry of Education, Youth and sports, 2013)

Diagram 7: The Czech education system

**Common Features of the European Education System in Relation to Deaf Education:**

From the study conducted on the four European countries, certain features permeates their education system and the practice of special education as it relate to the education of deaf and hard of hearing learners. These common features are:
1. **Disability Laws:** All European countries, have legislative laws which governs the education of children and youths with special needs. For instance, the Czech Republic has the education Act No. 561/2004 which recognizes the rights of persons with disabilities to equal opportunities like other non-disabled persons. Law No. 198/2009 guarantees equal treatment and legal remedies to protect against Discrimination. This law, also known as the Anti-Discrimination Act, ensures that children from all minority groups (including the deaf) must not be discriminated against in the provision of equal access to education.

The Basic Law in Germany (Grundgesetz, Art. 3 – R1) guarantees the right of every disabled child to education and training appropriate to his/her needs. When Germany ratified the UN Convention on Rights of Persons with Disabilities (CRPD), it went into force on March 2009. In so doing, the Federal Republic of Germany undertook to protect three basic principles of the Law, namely, guarantee human rights of persons with disabilities; protect **disabled** persons against discrimination; and enact legislative laws to ensure the enforcement of their rights Lohmar, & Eckhardst, (2013:237).

The Finnish Constitution (Perustuslaki 731/1999, which came into force in 2000) provides that ‘no one shall, without an acceptable reason, be treated differently from other persons on the ground of sex, age, origin, language, religion, conviction, opinion, health, **disability** or other reason that concerns his or her person’ (European Parliament, 2013:14). Finland also has the Non-Discrimination Act (21/2004) which provides in Section 6 that nobody should be discriminated on the basis of **disability** (European Parliament, 2013; Kekkonen, 2013:4). The country is also a signatory to the UN CRPD, but it has yet to ratify it because certain provisions in the Finnish national legislation which are at odds with the Convention Principles has to be amended first.

Sweden, though not having a separate law on special education, do guarantee recognition to minority languages under the Swedish Code of Statutes no: 2009:600. Section 9 of the law specifically recognizes sign language as one of the minority languages in Sweden, and this language is to be used in the education of deaf and hard of hearing learners.
2. All 27 member countries of the European Union have ratified the UN Convention on the Rights of the Child (CRC). In December 2010, the EU became party to the UN Convention of Persons with Disabilities (CRPD). The Union thus directed all its member nations to ratify the Convention. All 27 members have signed it. 23 member nations (including the Czech Republic, Germany and Sweden) have ratified the Convention. Finland is one of 3 countries still on the process to ratify the Convention.

3. **Bilingual education:** education system for deaf and hard of hearing learners in the countries under survey are bilingual in nature. This is due to the fact that legislations which recognizes special education in those countries also recognizes minority languages including sign language. For instance, the Czech Republic has the Sign Language Act No. 155 of 11 June 1998, in addition to the Education Act No 29/1984, amended in 2008, which recognized the rights of deaf learners to be educated in sign language at no cost to themselves. Germany has the Code of Social Law No. IX 2001, popularly known as the Act on Equal Opportunities for Disabled Persons, 2002. This Law guarantees that the deaf have a right to professional interpreters, whether for education purposes, or for social or other formal engagements. Finland on its part has the most laws for deaf people. Examples, the Constitution of Finland 731/1999; Services and Assistance for the Disabled Act 133/2010; Non-Discrimination Act (21/2014); among others (Timmermans, (2005:110; Kekkonen, (2013:2-5). Sweden’s Education Act 1998:1100 asserted that the goals expected to be attained by the deaf upon leaving school includes the ability to be bilingual. They should be able to master Swedish sign language, as well as read, write and communicate in Swedish. They are also expected to have knowledge of English language (Timmermans, 2005:76).

These countries recognizes sign language as a language in its own right and of the right of deaf and hard of hearing learners to be educated using sign language. In Finland, sign language can be studied as an elective subject in regular secondary schools. Thus, while the deaf must use sign language in classrooms, they also learn the language of the general community which is the spoken and written language. In the Czech Republic, the law require the deaf to be bi or multilingual. In addition to grasping the Czech sign language and the Czech language, they must as a rule, learn another language, either English, German, or Russian.
4. **Inclusive education**: European countries practice inclusive education for learners with special needs. The form of inclusive education practiced in each European country depends on the dictates of the country’s legislation. Czech Republic and Finland both practice the multi-track inclusive education system (Armstrong, Armstrong, & Spandagou, 2010:70; Lohmar, & Eckhardst, 2013:238). German and Sweden have two track inclusive education (see table on page 119). Multi-track inclusive programme provide parents with different options in reaching decision about the form of education they want for their wards. The options could be full, partial or special school placement. Deaf and hard of hearing learners who are capable of functioning independently with assistive listening devices like hearing aids or cochlear implant are usually included in regular schools. They receive periodic support from a special education specialist who visit their school to provide them a one-on-one assistance to help overcome any perceived challenges. Children in inclusive programmes receive allowances from the State. The same privilege is enjoyed by students enrolled in special schools. In Germany, as in Finland, free education is free in the true sense of the word. It involves free meals, transport until age 10, and free books. In the Czech Republic, students in special schools receive allowances for their education which the school use to provide materials and other services needed by the students. Free bus service is non-existent.

5. **Vocational skills for the deaf**: education of deaf and hard of hearing learners at upper secondary schools consists of vocational skill training for students who prefers it. Those students usually get attached to companies for their students’ industrial work experience. This programme is mainly run in special schools for the deaf. At the completion of their programme, students are awarded vocational/technical certificate.

Tab. 16: General basic education information on 4 European countries surveyed

<table>
<thead>
<tr>
<th>Country</th>
<th>Official school age</th>
<th>Age of completion of basic education</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>6 year (can also start at age 7 and no extension of exemption)</td>
<td>15 years</td>
<td>9 years</td>
</tr>
<tr>
<td>Germany</td>
<td>6 years</td>
<td>15 years</td>
<td>9 years (10 years in 5 of the German Landers)</td>
</tr>
<tr>
<td>Finland</td>
<td>7 years</td>
<td>16 years</td>
<td>9 years</td>
</tr>
<tr>
<td>Sweden</td>
<td>7 years</td>
<td>16 years</td>
<td>9 years</td>
</tr>
</tbody>
</table>
From the above information, we observe that individual countries decide the commencement age for basic education in that respective country. Of the four countries surveyed, commencement age could start from either 6 years, as in the Czech Republic and Germany, or 7 years as in Finland and Sweden. Normal duration for basic education is 9 years. This however does not apply to special needs learners in some countries. Czech Republic for example, has a 10 year completion period for children with special needs. The rationale for the one year grace period is for the deaf to learn and cover the curriculum at their own pace and not in competition with hearing schools.

In Germany, 5 States (Landers) have a 10 year basic education duration against the 9 year duration in federal education law. This indicates that the German Landers are independent States and can sometimes take tacit decisions in response to the need of their people (European Agency Report, 2013).

5.2.1 Statistical Data on Learners with Special Needs in Inclusive Programmes in Europe

A statistical analysis of available data on students with special needs from the European Agency report, (2012/2013) in the countries surveyed shows that Germany has the highest number of school aged students identified to have special needs. It was estimated that 406,297 students have special needs. Of this figure, the number of pupils enrolled in “mainstreamed” education is 128,125. While there are no data of pupils receiving education in partial inclusive programme (segregated special classes within public schools), there are 278,172 pupils receiving formal education in special schools. This indicates that Germany practices a two track inclusive education programme at the time this data was filed.

The 2012/2013 report from Finland provided an estimated population of 38,526 Finnish pupils with special needs. 14,545 of these pupils are enrolled in “mainstreamed” educational programmes. 19,201 pupils are educated in separate special classes within public schools. 4,780 pupils are enrolled in special school programmes. Finland thus has a multi-track special educational programme for special needs learners.
The number of compulsory school aged pupils who have special needs in the Czech Republic during the 2012/2013 country report was 79,144. The number of students receiving education in full inclusion programmes during the same period was 44,371. The number of Pupils/students in segregated educational programmes (special schools) during the same period was 27,432. Czech Republic also practice partial inclusive programme. Under this provision, pupils with special needs have their own segregated classrooms in some public schools. The number of students in this programme was 7,159. This multiple types of multiple programmes for special needs learners implies that the Czech Republic practice the multi-track education options for learners with special needs.

On its part, Sweden has a total 10,100 students of compulsory school age who have special educational needs. The number of pupils in segregated special education programmes in Sweden during the 2012/2013 academic year was 8,825. Those in partial inclusive programme were non-available. Available data on pupils/students with special education needs who are educated in full mainstream schools is 1,275. This substantiate the claim that Sweden operate a one track inclusive education approach.

All data discussed and mentioned in this study are obtained from the European Agency for Special Needs and Inclusive Education (ASNIE, 2014). It is worthy of note that the Agency report used the terms “integration” and “mainstream” instead of inclusive education in its report. Nowhere did it use the term “inclusive education” in the report. This raises the curious question on whether inclusive education is viewed in Europe as integration and mainstreaming. For example, the agency’s used the following wordings throughout the report:

1. Pupils educated in mainstream educational settings with their non-disabled peers,
2. Pupils educated in separate special classes in mainstream schools, and
3. Pupils educated in separate special schools.

The researcher used his discretion to substitute the descriptive terms to inclusive education and partial inclusion.

Using a table, the data can be illustrated for clarity, viz:
Tab. 17: Statistical distribution of inclusive placements in 4 European countries

<table>
<thead>
<tr>
<th>Countries surveyed</th>
<th># of compulsory school aged pupils</th>
<th># of pupils in full inclusive programme</th>
<th># of pupils in special educ programme</th>
<th># in partial inclusion programme</th>
<th>Type of inclusive programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>406,297</td>
<td>128,125</td>
<td>278,172</td>
<td>NA</td>
<td>Two track inclusion</td>
</tr>
<tr>
<td>Finland</td>
<td>38,526</td>
<td>14,545</td>
<td>4,780</td>
<td>19,201</td>
<td>Multi track</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>79,144</td>
<td>44,371</td>
<td>27,432</td>
<td>7,159</td>
<td>Multi track</td>
</tr>
<tr>
<td>Sweden</td>
<td>10,100</td>
<td>1,275</td>
<td>8,825</td>
<td>NA</td>
<td>Two track inclusion</td>
</tr>
</tbody>
</table>

The percentage of pupils in full inclusive programme as a fraction of compulsory school aged pupils in the countries surveyed can be represented in pie chart.

![Pie chart showing the distribution of pupils with special needs in full inclusive programme in 4 European countries during the 2012/2013 agency report](image)

Graph 15: Pie chart showing the distribution of pupils with special needs in full inclusive programme in 4 European countries during the 2012/2013 agency report

In table 17 above, Germany has the highest number of school aged pupils who have special needs among the four countries randomly surveyed. Equally, the country has the highest number of pupils in full inclusive programme. But that number is smaller when averaged with the number of pupils in full inclusive programme in Czech Republic and Finland per the number of school aged pupils. The percentage of pupils in full inclusive programme in the four countries was determined using the formula:
The pie chart above indicate that the ratio of pupils in full inclusive programme in the Czech Republic versus the number of school aged pupils with special needs in the country is more than the ratio of same category of pupils in Germany or Finland. Sweden seems not to encourage inclusive education but is more favourable having their pupils with special needs attend special schools.

Using the same method to find the percentage of pupils in special school programme, we get the following distribution:

Graph 16: Pie chart showing the distribution of pupils with special needs who are educated in special school programmes in the 4 European countries surveyed based on agency report 2012/2013

From this second chart, it is obvious that Sweden has the highest number of special needs learners who are enrolled in special schools. Germany has a reasonable number of special school enrollment, just as it also has an average number of pupils in full inclusive programmes. However, it has more pupils with special needs who prefer special schools to inclusive programmes. Finland practices full inclusion than do the other countries. Only a tiny fraction (6%) of school aged pupils with special needs attend special schools in Finland. Czech Republic also appear to encourage more inclusion than segregated education. As seen in the charts, the percentage of Czech pupils receiving education in special schools is small compare to the number in full inclusive programme.
The diagram below illustrate the structure of the education system in Germany.

This diagram is the courtesy of the Ministry of Education and Cultural Affairs, Germany.

Published by: Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, Documentation and Education Information Service, Graueheindorfer Str. 157, 53117 Bonn.

Diagram 8: Education system in Germany
5.2.2 Linguistic Interdependence in Academic Achievement

In the language interdependence hypothesis, the theory posits, as Bilash (2009) expounded, that “every language contain a surface feature. Underlying those surface manifestation of language are proficiencies that are common across all languages”. Vroom (2000) enunciated the same concept, stating that in interdependence hypothesis, knowledge from first language (L1) can be positively transferred during the process of second language (L2) acquisition. We saw proof to this assertion from the result of students’ achievement from the intervention applied to answer research “question one” as described in chapter one of this study. Students have background knowledge in sign language but it has become nearly extincted from learning to “speak” English using signing exact English (SEE2) approach. Unfortunately,
they have few vocabularies to express themselves in English. Thus, when they read, they are not able to transfer that limited knowledge into cognitive processes to help them make meaning from what they are reading. However, after the researcher applied ‘treatment’ by using bilingual methodology, he was able to activate students’ background knowledge of sign language and by using that method, the material became comprehensible to them. Williams (2014) quoting Mayer and Akamatsu (2003: 136-147) explained the benefit of bilingual method with Deaf learners, stating that “bilingual programs give students greater and easier access to curriculum contents and higher level of literacy. The common underlying proficiency that students have in their first language (sign language), will allow them to learn and master a second language – English”.

Using Cummin’s (1979) proposition, the iceberg theory in the interdependence hypothesis is illustrated in a freelance diagram below:

![Diagram 10: Freelance diagram showing the two languages on the surface of an iceberg, fused beneath by a central operating system](image)

The kind of activities teachers enact in classrooms can promote or suppress bilingual development of students. For instance, when teachers and educators of the Deaf engage Deaf learners in learning processes which allows for the active interplay of first and second languages in literacy (as described in bilingual methodologies in chapter 2, section 5), it helps to consolidate students’ knowledge and use of their first language in social and academic situations. When students’ literacy level in their first language is high, it enhances cognitive and academic development in the learners and put them in better and stronger position to develop literacy in a second language. This concurs with Cummins (1979; 1991) submission
that bilingual development can be promoted when learning experiences are programmed around concept embedded situations (events which describes present or ongoing activities), and concept reduced situations (events involving mental reflective situations). Example of activities teachers can use to develop cognitive and language skills in L1 and L2 are illustrated in diagram 11 below:

Diagram 11: Cognitive stimulating tasks for language development

Cummin’s (1976) earlier theory about the threshold level hypothesis accounts for the relationship between language and cognitive development in Deaf learners. Cummins, according to Lasagabaster (1998:119), stated that a threshold level of linguistic competence must be attained in order for the cognitive aspect of bilingualism to become manifest. The European Centre for Modern Language (2016) described the threshold level as “a specification in operational terms which describes what a learner should be able to do when using the language independently for communication”. Not only should Deaf learners be able to communicate meaningful ideas and relate information in their first language – sign language, they should be able to engage in abstract reasoning to be considered as having attained a strong threshold level necessary to guarantee success in a second language.
Deaf children/pupils/students who have weak threshold level in their first language – sign language – cannot have a good second language proficiency. Graph 17 below illustrate the levels of threshold attainment in both L1 and L2 that could yield to language and cognitive skill attainment in the particular language. Level 1 is the lowest or weakest skill capacity in the particular language, while level 3 could be considered as intermediate skill level in the specific language. Levels 4 and 5 are strong threshold in which a language user can perform social and cognitive tasks in the language. A person with a good level of basic interpersonal communication skill (BICS) in a first language can attain a good level of cognitive academic language proficiency (CALP) skills. When learning a second language, a person with a CALP ability in L1 (levels 4 & 5) will very likely demonstrate good BICS skill in L2 (levels 1 & 2). Having that good foundation in both the first and second language will yield a positive bilingual effect and improve learning and academic achievement in learners.

Graph 17: Line graph describing threshold level of cognitive functioning in both language

The rating scale of the sign language assessment inventory (SLAI) followed the same principle found in Graph 17 in rating testees’ skill following the assessment of their sign language proficiency. Such language report is essential in school systems to determining whether students need further language enrichment programmes because they can partake in
classroom learning activities in a second language. This will also help to determine what intervention could be given to bolster students’ proficiency in their L1 so that a positive transfer of that skill to L2 can be achieved.

5.3 Conclusion

Inclusion is a philosophy or theory which propagate equal access to education for everyone, whereas inclusive education is the practice of accommodating every learner for the purpose of granting them access to quality education. Inclusion is a universal right of everyone to education (UNDHR, 1948). Every child (disabled children inclusive) has a guaranteed protection against any form of discrimination for whatever reasons (UNCRC 1989, Article 2). The Law require all children who attend school to be given quality education. Quality education as guaranteed by the UNCRC Articles 28-29, refers to the development of the child’s personality, talents, mental and physical abilities, and respect for the child’s own culture (Miles 2007). Access to quality education is achieved when “schools accommodate all children regardless of their physical, intellectual, social, linguistic or other conditions” (Salamanca statement, 1994, par.2). Accommodating all children entails “giving every child the help he/she needs to learn, and helping them to feel welcomed and valued regardless of ability or disability” (Voss, 2016). It also means “opening the doors to schools, classrooms and school activities to every child and giving them every opportunity to be included with their non-disabled peers” (p. 2).

A synthesis of discussions from the authors referenced in this dissertation, sum up the goals of inclusive education to include:

- Accommodating all children regardless of their Physical, intellectual, social, emotional, linguistic and other conditions
- Developing appreciation for individual differences
- Creating awareness about the needs and challenges of people who may be different from us
- Encouraging acceptance of persons with disabilities into our communities
- Fostering collaboration and team spirit between the school, the students and the community.
A form of methodical modification and accommodation befitting Deaf learners in an inclusive programme is language accommodation. Learning should be provided in the Deaf learner’s first language. Sign language has been extensively proven to be a language in its own right. Sign language is the language of the Deaf community in any part of the world. Deaf children in schools need be given linguistic access to the curriculum in the language of the Deaf community in their regions. Artificially developed manual communication systems which present spoken language to Deaf learners in sequential English forms should be discouraged. There are more effective means of providing speech training to Deaf learners in the form of visual phonetics. Studies by Johnson, Liddell, and Erting, (1989:2) shows that Deaf learners who are taught using total communication remain “functionally illiterate even upon graduation”. Thus, sign language, and not total communication benefit congenitally deaf children in the course of their education.

Another form of modification and accommodation teachers of the Deaf should adopt in an inclusive classroom is the bilingual approach to instruction and learning. Bilingual bicultural education is the form of instructional methodology which attempt to fit Deaf learners into the community without requiring them to deny their deafness by undergoing cochlear implantation. Bilingual bicultural education empower the deaf, preserve their culture, advocate their rights, promote acceptance of individual differences, encourage tripartite collaboration, and enhance school progress and academic achievement in Deaf and hard of hearing learners (Small and Cripps, 1995). Bilingual bicultural education should be an integral part of inclusive education. A bilingual curriculum needs be developed for inclusive classrooms by respective schools to guide the practice of bilingual education in inclusive education programmes.

5.4 Recommendations

Having identified, diagnosed, and tested the problems with Deaf education in Nigeria and the reasons behind the poor academic achievements and low cognitive development in Deaf learners, it is not out of place to prescribe solutions to reverse the situations for better results. This study will like to recommend the follow plan of action to redress the situation:
National bilingual education workshop for teachers: teachers in Deaf education in Nigeria need to have a maximum twice a year capacity building workshop to acquaint them with global best practices in their field of Deaf education. Teachers and the Deaf community need to collaborate on information exchange, particularly, on strategies in teaching Deaf learners. Deaf associations can organize a once a week sign language programme for teachers in their respective communities or Local Government Areas (LGA) in order to familiarize hearing teachers with linguistic patterns of sign language as oppose to total communication approaches. School Heads should desist from stressing the use of total communication in their schools or labelling sign language a Jehovah’s Witnesses sign invention. Sign language is not invented by any religious group. Sign language is the language of the Deaf. While it is true that religion is a very sensitive issue in Nigeria capable of causing disharmony, the language of the Deaf should not be dragged into religious debates or labelled a religious language. It is just amazing how the ignorance of people is taking a serious toll on Deaf students and making them the victim of religious in-fighting.

Deaf Education Teachers Association of Nigeria: teachers in the education of Deaf and hard of hearing learners in Nigeria need to form an association to go by any name they may choose. The purpose of the association is to bring teachers in the education of the Deaf together on a periodic conference to discuss issues of common interest. In the United States, there is body called Conference of Educational Administrators of Schools and Programs for the Deaf (CEASD) which meets every once a year at different locations in the U.S. to brainstorm on various issues affecting Deaf education. This conference is the only body that takes official decisions about any communique reached at meetings. It is the official body that evolve definitions of terms relating to deafness and Deaf education. They work in collaboration with the UN, UNICEF, UNESCO, and so on, in publicizing official decisions taken at their meetings.

Sign language assessment for sign language users: many teachers and interpreters working in schools for the Deaf and in inclusive education programmes are grossly unqualified for their job. It is not a bad idea to encourage teachers and interpreters to take sign language assessment tests to evaluate their competence to work with Deaf learners. The invention of the sign language assessment inventory (SLAI) in this research will help identify the sign language strength of sign language users. Also, knowledge of Deaf pupils/students’ first
language competency is essential to determining how well they could cope with what goes on in the classroom. Knowing their first language threshold level will influence what support and assistance they would require to benefit fully in their programmes.

**Workshop for sign language interpreters:** unfortunately in Nigeria, the term “sign language interpreters” actually mean total communication interpreters. The misnomer come from the erroneous assumption that total communication means sign language. Much of the confusion in Deaf education in Nigeria is sometimes precipitated by the Deaf themselves. That should not be surprising. Because of their low intelligence, Deaf people sometimes make themselves willing tools for exploitation by hearing people who want to maintain their dominance on Deaf people for selfish end. The usual tactics often adopted is the divide and rule strategy.

**Curriculum for Deaf learners in inclusive schools:** while this is not a call for a separate curriculum for Deaf learners different from what is used with their counterparts in regular schools, this study feels that there is need to have a version of the regular school curriculum which symbolize the principle of accommodation and modification which are the core value in inclusive programmes. Example, the teaching duration for a subject under a normal curriculum in Nigeria is 30 minutes, and in some rare cases some subjects are allocated 45 minutes in the time table. The same time frame is followed in teaching Deaf learners. This is a good example of Grushkin’s (1997:1) contention that hearing people teach Deaf learners as if they are hearing persons who just happen to have a faulty auditory organ. Deaf learners who are taught a topic in just 30 minutes cannot learn anything. Teachers who teach Deaf learners in just 30 minutes are merely rushing the pupils/students to the detriment of their cognitive development. The most appropriate time frame to teach Deaf learners and expect to observe positive impact in their learning is one hour. Another kind of modification in the curriculum should be on activities during instruction that would entail language separation during instruction. This means that at times during instruction, Deaf learners have to change location for another learning schedule in another language. Still, this is under the same subject and the same topic being considered by the class. Most curriculum modification is to be done by teachers, not by the regional or federal education authoritie
6 IMPLICATIONS FOR POLICY AND FURTHER RESEARCH

6.1 Implication for Policy

This dissertation has been able to throw open relevant and related issues which are capable of eliciting local and global debates in the field of Deaf education in the near future. One of these centered on a topic which was outside the scope of this study, but which was mentioned in passing terms in the literature review. From the discussions and findings from this study, few observations need further consideration at policy level. For example, it was observed that in Europe, majority of Deaf children undergo cochlear implant as a pre-condition for participation and involvement in inclusive education programmes. It is doubtful whether such practice can assuage much of the effects of deafness on a child’s social, psychological, emotional, language and educational development and attainment. Deaf people implanted with cochlear devices are more likely to face identity crisis. They encounter problem of self-identification and become cultural half casts for not being hearing, neither hard of hearing, nor Deaf persons. In many instances, they identify as hard of hearing persons. But hard of hearing people can function effectively with the use of hearing aid. Do cochlear implanted persons also need a hearing aid? Considering that there are no such things as quasi deaf people or quasi hearing people, cochlear implanted persons need to be identified by a new term for rehabilitation and social security purposes. Perhaps a term like “borderline deaf” can become a new terminology in special needs education to draw distinction among the various groups of individuals with hearing related problems. This is to help resolve the identity problem which this group of special needs learners find themselves. It is up to policy makers to decide if cochlear implanted persons can still be considered among the sub-set Deaf and hard of hearing. This issue is also essential for census purpose and data. As well as for policy and planning.

Czech Republic should jettison the continuous use of the terms “hearing impairment” and “hearing disability” in reference to Deaf learners. Czech education systems and policy makers should key into the World Health Organization’s (WHO, 2015) approved and recommended terminologies of “hearing loss” and “deaf or hard of hearing”. What this imply
for policy purpose is the need to foster uniformity in professional term usages and locution. Furthermore, policy makers in the Czech Republic and perhaps Europe, should draw distinction between bilingual education and bilingualism as an aspect of linguistics study. At the moment, any use of the term “bilingual” is thought to relate to the linguistic field. It should be known that there is bilingual methodology in education and there is bilingual studies in linguistics arts. Both are two distinct courses of study which have different goals. Perhaps understudying Finland’s Content and Language Integrated Learning (CLIL) approach in education will create better understanding about language issues which are core pedagogical variables and distinct from language studies which are related to linguistic arts.

Nigeria on its part, should come to terms with facts about sign language. There is an urgent need to produce literatures and create video clips in sign language to broach discussion about teaching strategies in Deaf education. The Federal Ministry of Education (FME) need to set up a committee to review the existing policy statement which recommends total communication as official means of educating Deaf learners. Government should become aware of the contrasts between sign language and total communication, and of the linguistic significance of sign language. The committee should identify methods that would most effectively help to achieve bilingualism in Deaf learners in compliance with the recommendation in the National Policy on Education (NPE: 3) that Nigerian children should be bilingual. Sign language and not total communication can help achieve that goal and give Deaf learners access to the curriculum.

6.2 Recommendations for Further Studies

Based upon above stated implications for policy actions and other observations from this study, some recommendations for related research in bilingual deaf education in inclusive programmes are hereby proposed:

1. This study found that the acquisition and development of a strong first language by Deaf learners provide a basis for functioning in a second language (the language of instruction) which in turn leads to enhanced academic achievement in Deaf learners in inclusive and special school programmes. It would be beneficial to Nigeria’s
education for researches to be conducted on alternative methods of achieving bilingualism in Deaf learners apart from the seven strategies this study discussed.

2. Given that technology is accessible these days than it was twenty years ago, and is readily available to students, a research project examining the roles of technology in literacy development of Deaf learners would make a great reading. It would aid the development of literacy skills in Deaf students towards academic achievements and of the use of English language in independent situations.

3. This study found that in inclusive education, there is the tendency among some teachers to skew attention to hearing students to the detriment of Deaf learners. However, in some programmes, the reverse can be the case. Teachers spend more time trying to get Deaf learners into the lesson that less time and effort is devoted to hearing students. A curriculum model which provide for a balanced curriculum while maintaining the principles of accommodation and modification would be a helpful research area, as it would go a long way to providing a new lease of life to those teachers who lack the know how about concurrent approaches to the curriculum in inclusive programmes.

4. It was further found from this study that the development of sign languages across the cultures was the result of cultural and social belief systems and attitudes about deafness and the deaf. Legal rights and educational considerations for deaf persons also inform the type of sign system each country, culture and civilization adopts. Research is overdue on assessing the linguistic relevance of total communication as a teaching method and the methodology involved in using that strategy in teaching Deaf learners.
This presented dissertation examines the learning outcomes for Deaf and hard of hearing learners’ when taught using bilingual educational methodologies. The study was conducted over a period of four months within Masryk University, and in two inclusive educational programmes in Nigeria located south of the Niger Delta. There were four parts in this dissertation, consisting of an introductory, theoretical, empirical and concluding parts.

The introductory part of the dissertation served as the prologue to the study. It made a case for the rationale behind the choice of the topic. It also outlined the salient issues in each chapter of the dissertation. The theoretical section presented research and literature concepts drawn from various sources, and which are related to the dissertation’s background circumstances, problem statement, and the purposes the study is expected to accomplish upon completion. Chapter one of the dissertation presented the research questions and operational definition of related terms. The chapter gave an overview of the education system in Nigeria and timelined the earliest development of Deaf education within the country. It discussed inclusive education from the roots of the ideology, making bold distinction between the frequently used terms “inclusion” and “inclusive education”. It was believed in this dissertation that the terms deserve such scrutiny because they are sometimes used incorrectly in some literatures and materials. It was anticipated that this could spur further discussion among professionals and create broader understanding that would help entrench best practices in inclusive education programmes. Chapter two discussed the relevance of a strong first language (L1) for the Deaf if they are to be taught curriculum contents in a second language (L2). A good first language (L1) competency is necessary to predicting successful outcomes in second language (L2). The chapter further provided an analytical discussion showing that sign language is a minority language which does not represent English or any other language. It contrasted the sign languages used in Nigeria to those used in the U.S, and the Czech Republic. Methodological strategies in using both first and second languages in teaching was presented in the concluding part of chapter two.

The empirical part of the dissertation cuts through chapter three through five. The chapters presented results from the field activities conducted in the study and discussed them to
answer the research questions which propelled this study. Chapter three furnished report of outcomes from the micro study on language threshold level of sign language users. The experiment produced a new test kit for sign language assessment evaluation. The instrument has both internal and external validity and was validated before it was used as a test battery. The reliability of the instrument was verified using an inter-rater reliability analysis. Chapter four presented a demographic overview of the study areas and described the procedures used to collect data for the study. The result from the study shows the percentage rate of achievements on both students and teachers in the application of bilingual educational strategies in the teaching and learning process. Chapter five summarized data from results obtained from observations, experimentation and diagnostic assessments. It made recommendations for improving the capacity of teachers who work with Deaf and hard of hearing learners and for maintaining positive achievements outcomes in deaf learners.

Chapter six concludes the study with a list of policy implications aimed at bettering opportunities for Deaf learners in inclusive education placements. Finally, areas for further research studies were proposed to create a synergic relationship in bilingual Deaf education with related areas.


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<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKSG</td>
<td>Akwa Ibom State Government</td>
</tr>
<tr>
<td>ALDs</td>
<td>Assistive Listening Devices</td>
</tr>
<tr>
<td>ASHA</td>
<td>American Speech-Language and Hearing Association</td>
</tr>
<tr>
<td>ASNIE</td>
<td>Agency for Special Needs and Inclusive Education</td>
</tr>
<tr>
<td>ASL</td>
<td>American Sign Language</td>
</tr>
<tr>
<td>ASL-PA</td>
<td>American Sign Language Proficiency Assessment</td>
</tr>
<tr>
<td>ASL-PI</td>
<td>American Sign Language Proficiency Interview</td>
</tr>
<tr>
<td>ASL-SRT</td>
<td>American Sign Language-Sentence Reproduction Test</td>
</tr>
<tr>
<td>ASNIE</td>
<td>European Agency for Special Needs and Inclusive Education</td>
</tr>
<tr>
<td>BBC</td>
<td>British Broadcasting Corporation</td>
</tr>
<tr>
<td>BICS</td>
<td>Basic Interpersonal Communication Skill</td>
</tr>
<tr>
<td>CALP</td>
<td>Cognitive Academic Language Proficiency</td>
</tr>
<tr>
<td>CEASD</td>
<td>Conference of Educational Administrators of Schools and Programs for the Deaf</td>
</tr>
<tr>
<td>CH-SL</td>
<td>Chinese Sign Language</td>
</tr>
<tr>
<td>CI</td>
<td>Cochlear Implant</td>
</tr>
<tr>
<td>CIA</td>
<td>Central Intelligence Agency</td>
</tr>
<tr>
<td>CLIL</td>
<td>Content and Language Integrated Learning</td>
</tr>
<tr>
<td>CMDC</td>
<td>Christian Mission for the Deaf Church</td>
</tr>
<tr>
<td>CSL</td>
<td>Czech Sign Language</td>
</tr>
<tr>
<td>CUP</td>
<td>Common Underlying Profeciency</td>
</tr>
<tr>
<td>CVS</td>
<td>Coefficient Variation Statistics</td>
</tr>
<tr>
<td>DFCC</td>
<td>Deafness and Family Communication Center</td>
</tr>
<tr>
<td>DVD</td>
<td>Digital Video Disc</td>
</tr>
<tr>
<td>EFA</td>
<td>Education for All</td>
</tr>
<tr>
<td>ERDC</td>
<td>Educational Research and Development Council</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>EUD</td>
<td>European Union of the Deaf</td>
</tr>
<tr>
<td>FinSL</td>
<td>Finland Sign Language</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>IEP</td>
<td>Individualized Educational Plan</td>
</tr>
<tr>
<td>IFHoHP</td>
<td>International Federation of Hard of Hearing People</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>ISCED</td>
<td>International Standard Classification of Education</td>
</tr>
<tr>
<td>IIE</td>
<td>Institute for Information on Education</td>
</tr>
<tr>
<td>L1</td>
<td>First Language</td>
</tr>
<tr>
<td>L2</td>
<td>Second Language</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Area</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
</tr>
<tr>
<td>MHM</td>
<td>Movement-Hold-Model</td>
</tr>
<tr>
<td>NAD</td>
<td>National Association of the Deaf</td>
</tr>
<tr>
<td>NMS</td>
<td>Non-Manual Signs</td>
</tr>
<tr>
<td>NPE</td>
<td>National Policy on Education</td>
</tr>
<tr>
<td>NPIE</td>
<td>National Policy on Inclusive Education</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization of Economic Cooperation and Development</td>
</tr>
<tr>
<td>PSD</td>
<td>Plateau School for the Deaf</td>
</tr>
<tr>
<td>SAT</td>
<td>Stanford Achievement Test</td>
</tr>
<tr>
<td>SCPI</td>
<td>Sign Communication Proficiency Interview</td>
</tr>
<tr>
<td>SEE1</td>
<td>Signing Exact English</td>
</tr>
<tr>
<td>SEP</td>
<td>School Education Programme</td>
</tr>
<tr>
<td>SL</td>
<td>Sign Language</td>
</tr>
<tr>
<td>SLA</td>
<td>Sign Language Assessment</td>
</tr>
<tr>
<td>SLAI</td>
<td>Sign Language Assessment Inventory</td>
</tr>
<tr>
<td>SSC</td>
<td>Scottish Sensory Centre</td>
</tr>
<tr>
<td>SUP</td>
<td>Separate Underlying Proficiency</td>
</tr>
<tr>
<td>TOAL3</td>
<td>Test of Adolescent and Adult Language-Third Edition</td>
</tr>
<tr>
<td>TPL</td>
<td>Threshold Proficiency Level</td>
</tr>
<tr>
<td>UBE</td>
<td>Universal Basic Education</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNCRC</td>
<td>United Nations Convention on the Rights of the Child</td>
</tr>
<tr>
<td>UNDHR</td>
<td>United Nations Declaration of Human Rights</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Education Scientific and Cultural Organization</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations International Children Educational Fund</td>
</tr>
<tr>
<td>WFD</td>
<td>World Federation of the Deaf</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
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Appendix 1: Sign Language Assessment Toolkits

Masaryk University, Brno

Sign Language Assessment Inventory (SLAI)

Rating form for sign language expressive skill

Name: ___________________________ Date: _______________________

<table>
<thead>
<tr>
<th>Points</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills to be Assessed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluidity of sign Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to express thoughts in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>clear, coherent manner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correct use of role shifts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate use of classifiers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of Non-Manual Signs (NMS)</td>
<td></td>
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<td></td>
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<td>T o t a l</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name of assessor(s): [ ] Date assessed:

1. _____________________________

2. _____________________________

3. _____________________________

Garding system

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>17 – 20</td>
</tr>
<tr>
<td>B</td>
<td>14 – 16</td>
</tr>
<tr>
<td>C</td>
<td>13 – 10</td>
</tr>
<tr>
<td>D</td>
<td>07 – 09</td>
</tr>
<tr>
<td>F</td>
<td>00 – 06</td>
</tr>
</tbody>
</table>

Comments (if any):

________________________________________________________________________

________________________________________________________________________

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## Appendix 2: Sign Language Assessment Inventory (SLAI)

### Sign Language Assessment Inventory (SLAI)

#### Rubric for the evaluation of sign language expressive skill

<table>
<thead>
<tr>
<th>Skill domain</th>
<th>(1) Rudimentary</th>
<th>(2) Fair</th>
<th>(3) Good</th>
<th>(4) Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluidity of sign communication</td>
<td>Signer is able to communicate in sign language but lack the fluidity of natural approach to do so. Is able to fingerspell words and use numbers, but uses slow, jerky, and coarse method. He/she ruminates before making a sign expression. Generally pauses after each sign then thinking about what next to say. Lacks self-confidence and is tensed and scared. Signs are boring.</td>
<td>Has an improved fingerspelling and numerical ability, but does ruminate around words before making the next sign. Has an intermediate fluidity because he/she sometimes pauses before signing the next word. Knows the basic structures of sign language semantic.</td>
<td>Demonstrate accurate handshape, location, movement and orientation. Is enthusiastic and signs smoothly. Pauses under appropriate circumstances. Has above average speed in using fingerspelling and numbers.</td>
<td>Signs naturally and with the right flow. Fingerspelling is neither too fast, nor slow. Exhibits proper modulation.</td>
</tr>
<tr>
<td>Ability to express thoughts in clear, coherent manner</td>
<td>Have difficulty expressing thoughts and ideas in sign language. Expressions not clearly understood. Repetitions due to loss of idea. Letter substitution while fingerspelling. Signs made are not coherent due to insufficient vocabulary.</td>
<td>Is slow in signing and fingerspelling. Most signs made follow spoken language sentence pattern. Uses more fingerspelling for words that have signs. Sign expressions uses some form of sign language linguistics.</td>
<td>Signer knows what he/she wants to say and can express self as clearly as possible. Is able to demonstrate accurate use of sign language semantics to convey meaning. Good with lexical signs and lotus. Does not mimic signs, but keep thing natural and to the situation.</td>
<td>Signer expresses self effortlessly and accurately. Applies the rules of sign language to convey meaning.</td>
</tr>
<tr>
<td><strong>Correct use of role shifts</strong></td>
<td>Has problem assuming the role of a character in a narrative. Provides his/her narration in a single and straight way.</td>
<td>Uses minimal amount of role shifts to represent characters. Sometimes uses role shift, but more often does not.</td>
<td>Observable use of role shifts. Uses role shifts appropriately to represent characters.</td>
<td>Demonstrate excellent understanding about the use of role shift in narratives and descriptions. Applies them appropriately in the right situations.</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Appropriate use of classifiers</strong></td>
<td>No observable use of classifiers. Classifiers were somewhat used, but wrongly applied. Substituted classifiers with other forms of verb.</td>
<td>Some classifiers were used but not in all situations that would have been suitable.</td>
<td>Signer demonstrate good understanding about the functions of classifiers in sign language linguistics. Applies classifiers appropriately in his/her conversations.</td>
<td>Signer has an excellent command of classifier variances in descriptive and expressive conversation and communication. Uses them appropriately and according to situations</td>
</tr>
<tr>
<td><strong>Use of Non-Manual Signs (NMS)</strong></td>
<td>NMS are rarely used. Signer glosses his/her signs with spoken equivalence of the signed phrases. Maintains a straight face in almost all situations. No body movements.</td>
<td>Minimal use of NMS. Some facial expressions and body movements are artificially induced. Exhibits some awkward moments with NMS.</td>
<td>Signer uses NMS moderately and in accordance with natural situations. Uses it to reinforce his/her points. Does not overly exaggerate its use to distort its application.</td>
<td>Good use of NMS that synchronize with intended expressions. Suitable and appropriate to situations expressed.</td>
</tr>
</tbody>
</table>
Czech translation of the rubrc:

Sign Language Assessment Inventory (SLAI)

Inventář hodnocení znakového jazyka

Rubric for the evaluation of expressive sign language skill

<table>
<thead>
<tr>
<th>Hodnotící škála</th>
<th>(1) Základní</th>
<th>(2) Uspokojivý</th>
<th>(3) Dobrý</th>
<th>(4) Velmi dobrý</th>
</tr>
</thead>
<tbody>
<tr>
<td>(souvislé) z důvodu nedostatečné znakové slovní zásoby.</td>
<td>patrná určitá forma/část lingvistiky znakového jazyka.</td>
<td>Nepoužívá mimické znaky, ale zůstává přirozený přiměřeně situaci.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prokazuje excelentní pochopení využívání změny roli ve vyprávění a popisu. Používá je vhodně ve správných situacích.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Znakující prokazuje skvělou znalost rozmanitosti klasifikátorů v popisné I expresivní konverzaci a komunikaci. Využívá je vhodně a přiměřeně situaci.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimální využití NMZ. Některé obličejové výrazy a pohyby jsou uměle vyvolány. Vykažuje také některé “trapné” momenty při využití NMZ.</td>
<td>Dobré využití NMZ synchronizováno se zamýšleným vyjádřením. Vhodně využité k vyjádření situace.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Step 1: Use 5 minutes to establish rapport with the testee. Have him/her feel relaxed and explain to him/her the test procedures. Get the testee to know that the test will be done in conversational manner. It will be videotaped and reviewed by the tester and graded. The testee can ask questions or let the tester know if he/she has any peculiar needs or phobia.

Step 2: Engage the testee in a mock assessment session by enacting a test procedure with him/her. This could take no more than one minute. The aim of the mock test is to help the testee acclimatize to the proper test and eliminate any stress or fear he/she may have.

Step 3: Inform the testee that you will now commence with the test and it will be videotaped. He/she may sign into the camera or otherwise. There is no hard or fast rule about that.

Step 4: Prompt the test by welcoming the testee and asking him/her some basic questions. Avoid questions that will elicit only a yes or no response. Ask questions that would give him/her a no holds barred opportunity to make responses. Try as much as you can, to keep the session informal and relaxed as possible.

Step 5: At the end of the test, thank the testee. Inform him/her that the tape of the test will be reviewed, and the result will be made available no later than three days.

Step 6: In case the testee is not satisfied with the test result, he/she has a right to request from the HOD through writing, for another examiner to review and re-grade the test. The result of the score is final.
Czech translation:

Průvodce testem

Pro Inventář hodnocení znakového jazyka

Instrukce pro zkoušejícího


About me and my family

My name is Bunmi Akinluyi, and I am twelve years old. I go to C.M.S. Grammar School in Bariga. I live in Igbobi, a suburb of Lagos.

I live with my father, my mother, my younger brother Dele, and my baby sister, Ayo. Dele is nine and Ayo is two and a half. She is quite small, but she talks a lot already. My aunt Bola and her eight year old son Ojo also live with us. Dele and Ojo go to Igbobi Primary School.

My father is a train driver. He works for the Nigeria Railway Corporation. He is away from home quite often because he has to drive trains to Kaduna. My mother is a nurse. She works at a hospital not far from our home. Sometimes she has to work at night, but Aunty Bola is always here to look after us. My aunt is married to a soldier, Uncle Olu, but he is often away from home.

My favourite hobbies are reading, and playing volleyball. I am also very interested in music. I like Sunny Ade and reggae, but I do not like disco music. The thing I enjoy most of all is talking with my friends.
Appendix 5: Programme of Events for the Bilingual Education Workshop for Teachers

Programme of Events for the Bilingual Education Workshop for Teachers

Workshop on Bilingual Education for Teachers and Stakeholders in the Education of Deaf and Hard of Hearing Learners in Akwa Ibom State

Date: Monday October 17, 2016

Venue: Community Primary School, Uyo.

Programme schedule

9.00am  Members of associations of the deaf, and students of special Education University of Uyo arrive

9.30am  Teachers and staff members of the Special Education Centre, Uyo; St. Louises Special School, Ikot Ekpene; and Daughters of Charity Primary School arrive

9.50am  Members of USAID, AKTV, and staff members of PPSE, Uyo arrive

9.55am  Director PPSE, Ministry of Education, Uyo, arrive

10.00am  Hon. Commissioner of Education, Ministry of Education, Uyo, and his entourage arrives and are seated

10.00am  National Pledge by students of St. Louises Special School

10.02am  Opening remarks by the Hon. Commissioner of Education

10.10am  Welcome address by the Director PPSE, Ministry of Education, Uyo

10.15am  Brief remark by Mr. Godwin Irokaba

10.18am  Hon. Commissioner of Education and his entourage departs
10.20am  Director PPSE declares workshop open and provide words of encouragement to the participants

10.22am  Director PPSE and some of his team members depart

10.30am  Workshop MC: Mrs. Emily Ekot introduces the presenter Mr. Godwin Irokaba

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**Workshop Presentations**

10.30am  **Bilingual/Bicultural education within the context of inclusive Education of deaf and hard of hearing learners**

11.00am  Tea Break

11.30am  **Reasons for the poor cognitive development in deaf children**

1.00pm   Lunch Break

1.30pm   **Cummin’s Theory of Common Underlying Proficiency (CUP): Implications in educating deaf children**

2.30pm   Short break

2.40pm   **Strategies in bilingual education methodologies**

3.40pm   End of workshop and vote of thanks by the Principal Special Education Centre, Uyo

Thank you for your attendance

Signed:

**GODWIN IROKABA.**
Lesson Plan in Bilingual Methodology

Name of school: Inclusive Special School for the Deaf
Class: Junior Secondary 1 - 3
No. on roll: 33 students
Gender: Males and Females
Subject: English Language
Topic: Family and Friends
Unit: One
Date: 13th October, 2016
Duration: One hour

General Objectives: As a result of instruction, students should:
1. Know the characters in the story “family and friends”
2. Understand the meaning of the new vocabularies in the story
3. Perceive that English sentences have corresponding pattern of expression in sign language
4. Recognize that sign language expressions have equivalent semantical construction and grammatical order which does not follow English language word for word.

Criterion referenced objective: At the end of the lesson, students will be able to:
1. Respond to the evaluation questions with at least 90% accuracy following teacher’s presentation of the lesson in translation method in bilingual educational methodology
2. Write their answers in English sentences and must be comprehensible as possible
3. Participate robustly in the lesson by asking questions, giving feedback, and solving intuitive problems that may be present.

Entry Behaviour/background Knowledge: Students have been using different sign approaches in reading and communication but have erroneously been made to believe that the word for word system of communication which they are used to is what is called sign language.

Instructional aids: English reader text book; chalk board; teacher; students; Linguistics of American Sign Language DVD
LESSON PRESENTATION

<table>
<thead>
<tr>
<th>Teacher’s instructional activities</th>
<th>Bilingual strategy</th>
<th>Students learning activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step One:</strong> Researcher welcome students to the combined instructional arrangement and inform them about why we are having a group class between students in JSS 1 – 3. Let them know that this arrangement is just temporary. That it will last for only one hour. The purpose of this joint teaching arrangement is for research activity. Thank students for accepting to attend the combined session with the researcher.</td>
<td>Preview (in first language (L1))</td>
<td>Students acknowledge teacher’s explanation by nodding, smiling, guessing what kind of activity the researcher plan to have with them.</td>
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<tr>
<td><strong>Step Two:</strong> Researcher introduce himself by name and explain that he is a Doctoral research student from Masaryk University, in the Czech Republic. Researcher explain to the students where Czech Republic can be found in the map. Researcher further explain that he is majoring in Deaf education and is interested to assess a phenomenon that involves teaching Deaf students in bilingual method.</td>
<td>Preview (in first language (L1))</td>
<td>Students ask among themselves if some of them have met the researcher before?</td>
</tr>
<tr>
<td><strong>Step Three:</strong> Researcher request to know each of the students by name.</td>
<td>Preview (in sign language (L1))</td>
<td>Students introduce themselves by name (by word form and by sign).</td>
</tr>
<tr>
<td><strong>Step Four:</strong> After introducing selves, researcher writes the subject name and activity on the board namely, “English Language” “Reading Comprehension”. Researcher then ask the students if we could all read the inscriptions together?</td>
<td>Preview (in both languages (L1 &amp; 2))</td>
<td>Students read the written inscriptions with the researcher.</td>
</tr>
<tr>
<td><strong>Step Five:</strong> Having done the reading, researcher asked students if they know what they are expected to do in a reading comprehension activity?</td>
<td>Preview (in first language (L1))</td>
<td>Majority of the students don’t know what reading comprehension activity entails. Students merely nod their head when they see the sign “comprehension”. They assume the researcher was asking if they understand him because the signs for “comprehension” and “understand” are the same.</td>
</tr>
</tbody>
</table>
Step Six: researcher explain to the students the meaning of the phrase “reading comprehension”. Researcher tells students that we are going to read a passage from their English reader book 1 and thereafter, they would answer questions about the reading in their workbook. Researcher then write on the board the topic of the planned reading activity, namely, “Family and Friends”.

Step Seven: Researcher ask students who their friends are in the school. Researcher also asked students if they reside with their family members or whether they live with relatives or friends? Researcher also ask students how many they are in their family?

Step Eight: Researcher then pre attempt a reading comprehension exercise by telling the class about his family. He began like this: My name is Godwin. I am from Abia State in Nigeria. I came from a family of nine children, five males and four females. Dad is late. Mom live in the village. All my siblings live in Jos, capital of Plateau State, Nigeria. I am married with a son.

This done, researcher then ask students the following ‘oral’ questions:

1. What is my name?
2. Where do I come from?
3. How many siblings do I have? How many males? How many females?
4. Where is my dad?
5. Where does my mom live?
6. Where do my siblings live?

Step Nine: Researcher commend students for the intuition with which they understood his story and the excellence with which they responded to the questions. Researcher inform students that this is going to be exactly what we shall do from the reading and their responses will be written down in their work books for the researcher to score.
<table>
<thead>
<tr>
<th>Step Ten:</th>
<th>Researcher encourage students to volunteer themselves to come and stand in front of the class and read the passage from the English reader. Researcher impressed by the sea of hands that willingly want to read the passage for the class. Researcher select one of the most senior students to lead the task.</th>
<th>View (in the second language (L2))</th>
<th>Students enthusiastically indicate willingness to read the passage. The selected student then stand in front of the class and read the passage.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step Eleven:</td>
<td>as student read, researcher jot on the board new vocabularies which the read wasn’t familiar with their signs.</td>
<td>View (in the second language (L2))</td>
<td>A student lead in reading the passage and others who know the signs for the new words provide it as the teacher write those words on the board.</td>
</tr>
<tr>
<td>Step Twelve:</td>
<td>Researcher and students review the new vocabularies. Students who know the sign for each of the words as the researcher points to them raise up their hands and the researcher select any of them to tell us the signs. Thereafter, researcher explain the meaning of each of the words.</td>
<td>View</td>
<td>Students review the “new words” with the researcher and they also attempt to provide the correct sign for each of the words before the research confirms and explain their meanings.</td>
</tr>
<tr>
<td>Step Thirteen:</td>
<td>Having reviewed all the “new words” from the reading, researcher ask students if they have questions or need any further explanation regarding anything that was discussed today.</td>
<td>View</td>
<td>Students ask questions and rise additional issues that need clarification.</td>
</tr>
<tr>
<td>Step Fourteen:</td>
<td>Finally, researcher inform students that he will now read the passage in sign language using bilingual methodology called translation method. After the reading, no explanation will be made, but questions will be written on the board which the students will answer in their workbooks. The researcher will score their responses thereafter.</td>
<td>Review (in both languages)</td>
<td>Students get ready to assimilate the story in the passage by bringing out their workbooks and keeping their pens ready to jot down any important information that would help them when the questions are asked.</td>
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<tr>
<td>Step Fifteen:</td>
<td>Researcher read the passage in sign language using the literal and free translation methods in bilingual methodology. In so doing, researcher ensure that the original meaning and concepts in the story are retained and expounded.</td>
<td>Review (Literal and free translation of the story in sign language)</td>
<td>Students answer the comprehension questions and pass it for scoring.</td>
</tr>
</tbody>
</table>
**Evaluation:** Answer the following questions to the best of your knowledge:

1. Bunmi Akindele and her family live in………….?  
2. Why is Bunmi’s often not at home?  
3. Bunmi’s school name is……………  
   a. Special Education Centre, Uyo  
   b. C.M.S grammar school, Bariga, Lagos  
   c. Methodist grammar school, Ibadan  
4. What does Bunmi enjoy doing most?  

*** Researcher review the questions in both literal and free translation methods before students proceeded to answer them.

**Conclusion:** Researcher move round the class while students are writing their answers to the questions. Researcher score the responses of any student who beckons to him to have completed his/her answers. At the end of the exercise, researcher compile the scores for comparison.
Appendix 7: Letters of Introduction

Letters of Introduction

September 15th, 2016

Honourable Commissioner of Education,
Ministry of Education,
Uyo,
Akwa Ibom State,
Nigeria.

Your Honourable,

DOCTORAL STUDENT ON FIELD TRIP

Godwin Irokaba is a final year Doctoral student of Special Education in Masaryk University, Brno – Czech Republic. He is conducting an experimental study on the: “Use of Bilingual Educational Approach in Enhancing Academic Achievement of Deaf and Hard of Hearing Learners”. This study require testing some principles of bilingual education with Junior Secondary School (JSS) deaf students in Nigeria. His choice of Akwa Ibom is informed by the availability of two schools for the deaf within vicinity of each other, which offer the prospect of working with a sizeable number of samples.

The duration of the field experiment is one month (September 19 – October 17, 2016). He will cap his activity with a workshop for teachers and service providers to deaf and hard of hearing learners on the use of bilingual methodology as an instructional strategy in Special Education.

The Department of Special Education, Masaryk University, wishes to request the support and cooperation of the Ministry of Education under your able oversight in ensuring a hitch-free field experience for Mr. Irokaba.

Many thanks.

prof. PhDr. Marie Vitková, CSc.
Head: Department of Special Education
Chairman of the Departmental Board of Special Education
September 15th, 2016

The Head Teacher,
Special Education Centre,
Uyo,
Akwa Ibom State,
Nigeria.

Dear Sir/Madam,

INTRODUCING MR. GODWIN IROKABA

Masaryk University student, Mr. Godwin Irokaba, is a final year Doctoral student of Special Education. He is conducting an experimental study on the: “Use of Bilingual Educational Approach in Enhancing Academic Achievement of Deaf and Hard of Hearing Learners” with Junior Secondary School (JSS) deaf students. His choice of Akwa Ibom is informed by the availability of two schools for the deaf which offer the prospect of working with a sizeable number of samples. One of these is your school.

The duration of his field experiment is one month (September 19 – October 17, 2016).

The Department of Special Education, Masaryk University, wishes to request your kind support and assistance at ensuring a hitch-free field experience for Mr. Irokaba.

Sincerely,

prof. PhDr. Marie Vítková, CSc.
Head: Department of Special Education
Chairman of the Departmental Board of Special Education