



# GLIMPSE IN THE WORLD OF DEAF PEOPLE: DEAFNESS AND DEAF EDUCATION

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## ABSTRACT

This paper works on the definition of deafness, and who is considered as deaf. The first part of the work talks about the causes of deafness, distinguishing the congenital causes from the acquired causes. Then, the paper analyses the various impacts of hearing loss in the life of deaf people. The second part of the work discusses the issue of deaf education, emphasising the use of sign language as the key means for the development of deaf children literacy skills. The problem raised in this paper is the lack of appropriate knowledge of the mass population on the notion of special education and the needs of persons living with a handicap, especially deaf people, and the paper ends up discussing the issue of special education for deaf learners.

## KEYWORDS

World of Deaf People, Deafness and Deaf Education

## INTRODUCTION

The condition of persons with special needs round the world has always been stigmatized, especially in developing countries where basic equipments and education that fit their needs is lacking. This paper focuses on the situation of deaf people in developing countries, specifically in Cameroon. The problem raised here concerns the real condition of deaf persons, which is skewed by taboos and myths. Despite the contemporary process of inclusion promoted by international societies and organizations, hearing or “normal” people keep consider deaf persons as “mumu”, that is, non-speaking dumb individuals who are not capable of reasoning. One may think that hearing people completely ignore the real condition of deaf people and how to path their education. This study aims at depicting the world of deaf people by defining what deafness is and who is considered as a deaf on one side; and on the other side, discussing the problem of deaf education with the focus on sign language and literacy skills. Literature review, participating classroom observation, and informal interviews of deaf students and the teachers of the deaf constitute the methods used to carry out the study. In the first part of the work, the findings are descriptive, depicting what deafness is, who is deaf, what the causes

of deafness are, and what the impacts of hearing loss on deaf people are. In the second part, the findings discuss the issue of deaf education and literacy skills, with a focus on the bilingual American Sign Language (ASL) / English as instructional language. Before going any further, let us remind that the word “deaf” used along the way stands for persons with hearing loss; they might be hard-of-hearing or profound deaf.

### Situating the Problem

Due to the lack of knowledge and ignorance, the situation of persons with special needs is considered as a mystical condition, a taboo which is stuck in the mind of “normal people” in Sub-Saharan Africa. The society still believes that people with special needs, especially deaf people, suffer from a mystical incurable disease that invalids them. Yet, the real issue that these people actually face is the lack of early intervention and the non-consideration of the special education they need to get the same chance to succeed in the life as “normal people”. Despite the effort made by international institutions and conventions to promote the rights of people with special need, the situation of persons with special need in developing countries remains critical. Educating the general public appears a panacea that might cure the mind of “normal people” and help them reconsidering the situation of persons with special needs, especially the deaf, the target population of this study.

Considering the frustrations that deaf people encounter in the current African society, it appears that their real condition is skewed by myths and taboos. Despite the contemporary process of inclusion promoted by international societies and organizations, “normal” people keep consider deaf persons as “mumu”, that is, non-speaking dumb individuals who are not capable of reasoning. Not to make a quick conclusion, one may think that hearing people completely ignore the real condition of deaf people and how to path their education. After all, the problem will be articulated throughout this study as follows:

- The definition of deafness;
- The causes of deafness;
- The impacts of hearing loss on deaf people?
- The development of literacy skills in the deaf learners.

### Objective

This study aims at depicting the world of deaf people by defining what deafness is, its causes and impact in deaf person’s life on one side, and on the other side, discussing the problem of deaf education with the focus on sign language and literacy skills. The problems will be identified at three different levels, namely: the description of what deafness is, the causes of deafness, the impact of hearing loss on an individual, and the development of deaf learner literacy. Bringing up answers to the research questions (RQ) below will constitute the body of the work.

RQ1: What is deafness?

RQ2: what are the causes of deafness?

RQ3: What are the impacts of hearing loss on deaf people?

RQ4: How can special education be implemented for the development of literacy skills in the deaf learners?

### Methodology

Deaf people constitute a really small size, 5% of the world's population<sup>1</sup>, that is, 360 million people (328 million adults and 32 million children). Approximately one-third of people over 65 years of age are affected by disabling hearing loss. The prevalence in this age group is greatest in South Asia, Asia Pacific and sub-Saharan Africa. Society's view of the deaf is an outgrowth of more general beliefs about people with differences; for example, “normal” versus, “handicapped”. The pathological/clinical view takes the behaviours and values of the majority as the “standard” or “norm” and then focuses on how disabled people deviate from the norm (Gallimore, 2000).

The fieldwork for this research is conducted at ESEDA (the specialised school for students with hearing loss) located in Yaoundé, Cameroon; and at ASD (the American School for the Deaf) in Connecticut (USA). The samples for this study are drawn from the population of twenty high school students (ten boys and ten girls, age range between 12 to 20) and twenty five teachers (hearing and Deaf), all from both ASD and ESEDA. They are selected randomly to complete a spontaneous writing test (see Part II). The writing test is administered to the students by the teachers who normally served those students, and it is administered during regular class. The writing topic “Write a thank you card for the volunteering Teacher Assistant”, is the teachers’ initiative; and the students’ written texts are handed over to the researcher without been edited. The selected teachers are interviewed about their ASL skill, their teaching experience, and the language they use for instructional conversation.

The present work is carried out in the field of language and special education. The fieldwork is conducted through literature review in libraries, participating classroom observation (see the observation chart in Appendix 1), formal and informal interviews of the deaf students and the teachers of the deaf. To avoid missing data when participating in class activities, a video camera on tripod-mounted was used to record routine and natural occurring events in the classrooms. The formal interview involves the researcher, working through a set of previously elaborated questions, asked verbally to the sample teachers, as part of the survey. All the respondents are exposed to the same set of questions (see Appendix 2). As the informal interview involves the interviewer informally asking open-ended questions about a topic and allowing the respondent to respond freely and in depth (Calvet& Dumont, 1999), it is use to help generate more valid information and allows for probing of deeper meanings.

In the first part of the work, the findings are descriptive, depicting what deafness is, what the causes of deafness are, and what the impacts of hearing loss on deaf people are. In the second part, the findings discuss the issue of deaf education and literacy skills, with a focus on the bilingual American Sign Language (ASL) / English as instructional language.

### What is Deafness?

The use of the word “deaf” is often confusing and inconsistent. Who do we mean when we refer to “deaf person”? Braden (1994:21) defines deaf people “as individuals with bilateral, mixed, or sensorineural hearing impairments that are severe to profound [...]”. For the media centre of the World Health Organisation (WHO), the most accurate and common definition of deafness is the one used in the audiological field: “A person who is not able to hear as well as someone with normal hearing – hearing thresholds of 25 dB or better in both ears – is said to have hearing loss.” (Fact sheet n° 300, updated March 2015)

While some experts deplore the abusive use of the word “deaf”, arguing that hardly anyone is really completely deaf, because there is usually some residual hearing left; other experts have come with the term “hearing-impaired”, used to describe people with any degree of hearing loss, from mild to profound, including those who are deaf and those who are hard of hearing. But many individuals who are deaf or hard-of-hearing belonging to the American Deaf community or not, prefer the terms “deaf” and “hard-of-hearing”, because they consider them to be more positive than the term “hearing impaired”, which implies a deficit or that something is wrong that makes a person less than whole. The term “hard-of-hearing” refers to people with hearing loss ranging from mild to severe. They usually communicate through spoken language and they can benefit from hearing aids, cochlear implants and other assistive devices as well as captioning. People with more significant hearing losses may benefit from cochlear implants.

However, because the word “deaf” is firmly entrenched in popular usage, and need not imply there is no hearing at all, we will use it throughout this study in accordance with the following definition from Freeman et al (1981), quoting Moores, 1978:5:

*A deaf person is one whose hearing is disabled to an extent ... that precludes the understanding of speech through the ear alone, without or with the use of a hearing aid. A hard-of-hearing person is one whose hearing is disabled to an extent ... that makes difficult, but does not preclude, the understanding of speech through ear alone, without or with a hearing aid.*

Here below are definitions of two other terms namely; prelingual deafness and postlingual deafness from Moores (1978), useful to know and that might be encountered in this study:

*Prelingual deafness refers to the condition of persons whose deafness was present at birth or occurred at an age prior to the development of speech and language. Postlingual deafness refers to the condition of persons whose deafness occurred at an age following the spontaneous acquisition of speech and language. (p. 7)*

Following the popular view, deaf people mostly have profound hearing loss, which implies very little or no hearing, they often use sign language for communication. Hearing loss may be mild, moderate, severe or profound. It can affect one ear or both ears, and leads to difficulties in hearing conversational speech or loud sounds.

## **CAUSES OF DEAFNESS**

According to the fact sheet N° 300 of the World Health Organisation (WHO, 2015), hearing loss may result from genetic causes, complications at birth, certain infectious diseases, chronic ear infections, the use of particular drugs, exposure to excessive noise and ageing. The causes of hearing loss and deafness can be divided into congenital causes and acquired causes.

### ***Congenital causes***

Congenital causes may lead to hearing loss being present at birth or acquired soon after birth. Hearing loss can be caused by hereditary and non-hereditary genetic factors or by certain complications during pregnancy and childbirth, including:

- maternal rubella, syphilis or certain other infections during pregnancy;
- low birth weight;
- birth asphyxia (a lack of oxygen at the time of birth);
- inappropriate use of particular drugs during pregnancy, such as aminoglycosides, cytotoxic drugs, antimalarial drugs and diuretics;
- Severe jaundice in the neonatal period, which can damage the hearing nerve in a new-born infant.

### ***Acquired causes***

Acquired causes may lead to hearing loss at any age, such as:

- infectious diseases such as meningitis, measles and mumps;
- chronic ear infections;
- collection of fluid in the ear (otitis media);
- use of particular drugs, such as some antibiotic and antimalarial medicines;
- injury to the head or ear;
- excessive noise, including occupational noise such as that from machinery and explosions, and recreational noise such as that from personal audio devices, concerts, nightclubs, bars and sporting events;
- ageing, in particular due to degeneration of sensory cells;
- Wax or foreign bodies blocking the ear canal.

Among children, chronic otitis media is the leading cause of hearing loss.

## **IMPACT OF HEARING LOSS**

Following the same sheet fact from the WHO (2015) mentioned above, the impact of deafness can be grouped into three types: functional impact, social and emotional impact and economic impact.

### ***Functional impact***

One of the main impacts of hearing loss is on the individual's ability to communicate with others, spoken language development being often delayed in children with deafness. Further, hearing loss and ear diseases such as otitis media can have a significantly adverse effect on the academic performance of children. However, when opportunities are provided for people with hearing loss to communicate, they can participate on an equal basis with others. The communication may be through spoken/-written language or through sign language.

### ***Social and emotional impact***

Limited access to services and exclusion from communication can have a significant impact on everyday life, causing feelings of loneliness, isolation and frustration, particularly among older people with hearing loss. If a person with congenital deafness has not been given the opportunity to learn sign language as a child, he or she may feel excluded from social interaction.

### ***Economic impact***

In developing countries as Cameroon, children with hearing loss and deafness rarely receive any schooling. Adults with hearing loss also have a much higher unemployment rate. Among those who are employed, a higher percentage of people with hearing loss are in the lower grades of employment compared with the general workforce. Improving access to education and vocational rehabilitation services, and raising awareness especially among employers about the needs of people with hearing loss, would decrease unemployment rates among this group.

## **EDUCATING DEAF CHILDREN: SIGN LANGUAGE AND LITERACY SKILLS**

Historically, general opinion has viewed deaf people as people suffering from a “medical-pathological problem” and they have prohibited the acceptance of sign language and Deaf culture for the deaf students education (Gallimore, 2000; Lane, 1992; Lane, Hoffmeister, & Bahan, 1996; Woodward, 1982), believing that the deaf signing children will not be able to communicate in the society. Researchers in the field of sign language and English literacy have proved otherwise. A primary tenet underlying American Sign Language/English bilingual education for deaf students is that early access to a visual language, developed in conjunction with language planning principles, provides a foundation for literacy in English (Gallimore, 2000; Mounty et al, 2014).

### **Foundations of Language Development**

The two important variables in the development of deaf children are parental attitudes toward hearing loss and the quality of parent-child communication (Marschark et al, 2002). These dimensions are related. Parents who are more accepting of their children’s hearing loss and more proactive in their child-rearing practices are more likely to be flexible and persistent in seeking ways to communicate effectively.

Studies have demonstrated that hearing mothers produce comparable amounts of speech to deaf and hearing children, regardless of whether they are also using sign language in a total communication (TC) format. Hearing mothers also modify their spoken language to deaf children in much the same way as they do with hearing children (Gallaway & Woll, 1994). The problem is that young deaf children are unable to benefit from spoken language in any way comparable to hearing children. For deaf children to acquire language, it needs to be unambiguous and visible to them on the lips, faces, and/or hands of their communication partners (Marschark et al., 2002).

When acquiring sign language naturally as a first language, deaf children of deaf parents pass through all of the stages typical of spoken language acquisition (Meier & Newport, 1990). But can hearing parents and others learn sign language well enough to promote its natural development? A variety of investigations has provided important insights into both language development of deaf children and the way in which different language-learning environments can influence development in other domains. The available evidence indicates that, on average, deaf children who learn sign language as preschoolers show better academic achievement and social adjustment during the school years and they have superior gains in English literacy (Calderon & Greenberg, 1997; Daniels, 1993; Gregory et al., 1997; Notoya et al., 1994; Strong & Prinz, 1997). Thus, the important factor for learning is not the ability to speak, but the ability to communicate through language, whatever its form, from an early age.

### **Development of Writing Skills**

Analytical approach studies carried out prior to 1970 found that as students grew older they used more clauses and there was greater complexity in the clauses they used (McAnally, Rose, & Quigley, 1994); the grammatical structure of sentences also increased in complexity. More recent studies of writing have focused on the processes students use during writing classes: prewriting, writing, and revision (Appanah, 2007; McAnally, Rose, & Quigley, 1994; Sperling & Freedman, 2001). The existing published literature shows a

similar shift in how teachers approach writing instruction, shifting from the product approach to the process approach (Graves, 1983; Hillerich, 1985; Sperling & Freedman, 2001).

Many theoretical studies have focused on the composing process of writing. Because working with words is really working with thoughts, and writing is putting thoughts on paper (Calkins, 1994), these studies examined what goes on in the mind as people write (Sperling & Freedman, 2001). Those previous studies suggested that students' thinking is developed during the composing process as they ask themselves questions about what they are going to write and expand their ideas. This process of asking questions generates an internal dialogue between writers and what they have written. Writers thus become readers of their own drafts. The revision phase of the composing process is posited to have a tremendous impact on developing students as writers because it leads them to go back to their draft and revise it.

Hillerich (1985) says that the basic purpose of writing is to communicate. However, writing depends on the spoken form of the language; therefore the development of written language skills is dependent on oral language skills. This presents a challenge to deaf students who do not hear spoken English and communicate visually using sign language. If speech and sign are equated, deaf students should be able to write as well as hearing students. However, the structures of English speech and ASL signing are very different; therefore, deaf students' visual language is dissimilar to the written language they need to master. Since profoundly deaf students do not naturally acquire spoken English skills, they face a special challenge to acquiring English skills (Gallimore, 2000; Gormley & Sarachan-Deily, 1987; Isaacson, 1996; Mayer & Akamatsu, 2000; Paul, 1998).

### **Characteristics of Deaf Student Writing**

Prior to the 1960s, researchers studying the writing of deaf students focused on the products of deaf student writing (Kretschmer & Kretschmer, 1984). Writing samples were analyzed for students' use of vocabulary, grammar (syntax, use of pronouns), and mechanics (punctuation, capitalization). When their writing was compared to that of hearing students, deaf students' writing samples were found to include fewer grammatical components such as nouns and verbs (Musselman & Szanto, 1998; Paul, 1998). Research analyzing the products of deaf student writing reveals a lack of internalization by deaf children of the grammatical rules underlying the use of English (Paul, 1998). Many studies have found that the grammatical level of the typical deaf 18 year old is similar to that of the typical hearing 10 year old (Marschark, Lang, & Albertini, 2002; Yoshinaga-Itano & Snyder, 1985).

In their study, Yoshinaga-Itano and Snyder (1985) explored the relationship between form and meaning in the writing of deaf students. Form referred to the structure of the writing while meaning referred to the clarity of the message. They found that hearing students generated more content than their deaf peers. In other words, hearing students' writing included more details than that of the deaf students. They therefore found a relationship between the structure of deaf students' writing and the clarity of message their writing conveyed. The explanation these researchers gave for this relationship was that deaf students did not have sufficient syntax to express their ideas.

A study conducted in Ontario by Musselman and Szanto (1998) stated that deaf students possess low written language skills. Although there was no significant difference in the written language of students who used sign language compared to auditory oral deaf learners, it appeared that signer deaf students had more difficulty expanding on their ideas. Evidence of this difficulty would be perceived by the use of fewer words and fewer difficult words in their writing expression. Results of that study also showed that deaf students experience difficulty with English vocabulary and syntax, and they have concluded that deaf students' ability to write is hindered by their limited knowledge of language form which includes the knowledge of the grammatical components of written English.

Below are the writing performances of a sample of twenty deaf students used to assess the quality education that fit their needs.

**Writing performances of ASD student sample**

**Student 1:** “It africabeautiful? Pozs it havehouses and buildings? Are the people friedly? Do they have parades? I wald like to go to see africa.”

**Student 2:** “Thanks much help for us in math solve will they understand. How problem tax help how learning will improve.”

**Student 3:** “Thank you for help our English and Math in the class. I hope you have become teacher ASL sign to your children in the class. you are great ASL sign. We will miss you leave.”

**Student 4:** “Thank you for helping me with math and nice to talk with you in lunch. You are really nice person. Our class of 2017 will have two hundred anniversary and I will graduate in June.”

**Student 5:** “Thank you for teach us English and Math. You funny, cool and humorous. You are good teacher.”

**Student 6:** “Thank you for help us lots. We wish you good lucky for college. We hope you keep work hard and success in the future.”

**Student 7:** “Thank you. I am feeling better I understand how to do math you explained math. I happy to learn math every day.”

**Student 8:** “Thank you for help me and I do not need more help now I can do class work by myself. Will you come to see us in graduation for class of 2017?”

**Student 9:** “for everything you do, it means so much to me! I will miss you so much. We wish you the best of luck. We hope you will come to our graduation for class of 2017 who are graduating in June.”

**Student 10:** “I miss you so much sweet wonderful lady thank you may God blessing you and keep you safe.”

**Table 1. Summarizing the Lexical Deviations Observed in Performances of the ASD Sample**

<b>Students Deviations</b>	<b>Student 1</b>	<b>Student 2</b>	<b>Student 3</b>	<b>Student 4</b>	<b>Student 6</b>	<b>Student 7</b>	<b>Total</b>
<b>Concrete nouns</b>	1 Houses	0	2 teacher ASL Children	1 a ... person	1 for college	0	<b>5</b>
<b>Abstract nouns</b>	0	0	1 Math	0	1 success	1 math	<b>3</b>
<b>State verbs</b>	2 It wald	0	0	0	0	0	<b>2</b>
<b>Action verbs</b>	2 Pozs see	0	0	0	0	0	<b>2</b>
<b>Qualitative adjectives</b>	2 Beatiful Friedly	0	0	1 nice	1 lucky	0	<b>4</b>
<b>Quantitative adjectives</b>	0	0	0	0	0	0	<b>0</b>
<b>Adverbs of manner</b>	0	0	0	0	0	0	<b>0</b>
<b>Adverbs of frequency</b>	0	0	0	0	0	0	<b>0</b>
<b>Adverbs of degree</b>	0	1 much	0	0	0	0	<b>1</b>
<b>Adverbs of time</b>	0	0	0	0	0	0	<b>0</b>
<b>Total</b>	<b>7</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>	

### **Assessment of the Lexical Performances of the ASD Sample**

The students' performances are assessed based on the linguistic features analysed. That is, attention is paid to the deviations noted on nouns, verbs, adjectives, and adverbs retrieved from the essays written by the sample students. Focus will be on the most recurrent deviations as well as the least; we shall also examine both the best and the worst students.

On concrete nouns, ASD sample recorded a total number of 5 deviations. That figure represents the highest number of deviations among the other linguistic features analysed. After the concrete nouns in which the students scored most deviations, come the qualifying adjectives with a total of 4 deviations made by the whole group of students. Qualifying adjectives are followed in the rank by the abstract nouns which display a total of 3 deviations. Linguistic features with minor occurrence of deviations include state verbs and action verb, with a total of 2 deviations each. No deviation has been noticed related to the other linguistic features such as the quantifying adjectives, adverbs of manner, adverbs of frequency, and adverbs of time. But 1 deviation has been noticed at the level of adverbs of degree.

Concerning the students' individual work, four out of the ten did not make any lexical deviation (student 5, student 8, student 9, and student 10). In a general view, the number of lexical deviations made by the ASD sample students tends to be very low. They range between three and one. Indeed, student 3 and student 6 realised a total of 3 lexical deviations each; student 4 got 2 deviations, and student 2 and student 7 made only one deviation each. However, student 1 has made a total number of 7 lexical deviations, which is very high compared to the general tendency. Analysis and comments will be made in the discussion section, coupled to the detailed causes of the deviations.



**Table 2. Summarizing the Morpho-syntactic Deviations Observed in Performances of the ASD Sample**

Students Deviations	Stud 1	Stud 2	Stud 3	Stud 4	Stud 5	Stud 6	Stud 7	Stud 8	Stud 9	Stud 10	Total
<b>Noun inflexion</b>	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Verb inflexion</b>	0	1 “help for”- <i>for helping</i>	1 “for help”- <i>for helping</i>	0	1 “for teach”	2 “for help” “keep work”	0	1 “for help”	0	0	<b>6</b>
<b>Capitalisation</b>	1 <u>Africa</u>	0	1 <u>you</u>	1 “math”	0	0	0	0	1 “for”	1 (.)“thank you”	<b>5</b>
<b>Punctuation</b>	0	0	0	0	0	0	1 “...feeling better I understand...”	2 “Thank you...myself”	0	3	<b>6</b>
<b>Word order</b>	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Word omission</b>	0	0	2 Teacher ASL Miss you leave	2 ...really nice person ...nice to talk	2 “you funny” “You are good teacher	1 “help us lots”	0	0	0	0	<b>7</b>
<b>misuse of prepositions</b>	0	0	0	1 “in” – <i>during</i>	0	0	0	1 “in” - <i>during</i>	0	0	<b>2</b>
<b>Misuse of articles</b>	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Misuse of verb tenses</b>	0	0	1 “You have come” – <i>you will come</i>	0	0	1 “...success in the future”	1 “I am feeling better”	0	2 “...you do” – <i>you have done</i> “...who are graduating in June.”	1 “may God blessing you”	<b>6</b>

<b>Incorrect morphology of words</b>	4 “It”- <i>is</i> “Pozs”- <i>does</i> “they”- <i>they</i> “wald”- <i>would</i>	1 “math”- <i>Maths</i>	1 “our” - <i>us</i>	1 “math”	0	1 “good lucky”	3 “math” “math” “math”	0	1 “for” - <i>of</i>	0	<b>12</b>
<b>Total</b>	<b>5</b>	<b>2</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>5</b>	

### **Assessment of the Morpho-syntactic Performances of the ASD Sample**

The parameters or criteria used to label the students' deviations have been selected from the morpho-syntactic features which generally challenge deaf students when they write. Those features include: the noun inflexion, the verb inflexion, the adjective inflexion (for French language), the appropriate use of capital letters, punctuation, order of words in the sentence, word omission, misuse of prepositions, misuse of articles, misuse of appropriate verb tense, and incorrect morphology of words. Let us start by assessing the performances of ASD students.

Half of the ASD sample recorded a total of 5 morpho-syntactic deviations each (that is students 1, 4, 6, 7, and 10); two students (student 8 and student 9) showed 4 deviations each; and student 5 displayed a total of 3 morpho-syntactic deviations. In the same way, student 2 scored a total of 2 deviations, which represent the lowest number of morpho-syntactic deviations over the group, while student 3 recorded the highest score: he made 6 morpho-syntactic deviations. The origin of the morpho-syntactic deviations made by the ASD sample is diverse, incorrect morphology of words comes out to be the main morpho-syntactic feature where ASD students mostly face difficulties. They all displayed a total of 12 deviations.

Verb inflexion, misuse of verb tense, punctuation and capitalisation are other the morpho-syntactic features which ASD students struggle to manipulate. They registered a total of 6 deviations on verb inflexion, 6 deviations on incorrect use of verb tense, 6 deviations on the wrong use of punctuation, and 5 deviations that have to do with the misuse of capitalisation. Concerning the misuse of prepositions, only two students (student 4 and student 8) made 1 mistake each. Nevertheless, all of them have been excellent at the level of noun inflexion, the use of articles, and the order of words in the sentence; they did not show any weakness when manipulating those above named morpho-syntactic features. Sometimes, when they write, they struggle with the structure of the sentence because sign language and spoken language are structurally different, though a few sentences may look similar.

### **Writing performances of ESEDA student sample**

**Student1:** "Merci travail sur l'éducation les enfant sourd. On veut reussi."

**Student2:** "L'éducation de les enfant sourd difficile. Merci de travaillé pour l'éducation de les enfants sourd."

**Student3:** "Merci pour le travail avec les enfants sourd. Les gens ne s'occupe pas de les enfant sourd ici au cameroun."

**Student4:** "C'est dur ecrire les enfant sourd aprendretout les jours."

**Student5:** "L'école enfant sourd pas beacou. il faut aidé les enfant sourd."

**Student6:** "Merci de apprendre avec nous. je suis content"

**Student7:** "Vous ête gentil merci venu voir nous. pas bien les gens comprends pas les sourd."

**Student8:** "L'école des sourd est bien. On est content étudié. jeveu bon travail."

**Student9:** "Les gens pas comprendre sourd. Je suis triste. maismaitenan je suis contente tu viens avec nous."

**Student10 :** "L'école c'est bien il faut eduqué les enfant sourd."

**Table 3. Summarizing the Lexical Deviations Observed in Performances of the ESEDA Sample**

Students Deviations	Student 1	Student 2	Student 4	Student 5	Student 8	Student 9	Student 10	Total
<b>Concrete nouns</b>	1 les enfant	0	0	0	1 ecole	0	1 ecole	<b>3</b>
<b>Abstract nouns</b>	1 education	1 education	0	0	0	0	0	<b>2</b>
<b>State verbs</b>	0	0	0	0	0	0	0	<b>1</b>
<b>Action verbs</b>	1 Travail	0	2 Ecrire aprendre	0	0	0	0	<b>4</b>
<b>Qualitative adjectives</b>	0	0	1 Dur	0	0	0	0	<b>1</b>
<b>Quantitative adjectives</b>	0	0	0	1 beacou	0	0	0	<b>1</b>
<b>Adverbs of manner</b>	0	0	0	0	0	0	0	<b>0</b>
<b>Adverbs of frequency</b>	0	0	0	0	0	0	0	<b>0</b>
<b>Adverbs of degree</b>	0	0	0	0	0	0	0	<b>0</b>
<b>Adverbs of time</b>	0	0	0	0	0	1 maitenan	0	<b>1</b>
<b>Total</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	

### Assessment of the Lexical Performances of the ESEDA Sample

The students' performances are assessed based on the linguistic features analysed. That is, attention is paid to the deviations noted on nouns, verbs, adjectives, and adverbs retrieved from the essays written by the sample students. Focus will be on the most recurrent deviations as well as the least; we shall also examine both the best and the worst students.

The highest number of the deviations related to the linguistic features made by the sample students from ESEDA is perceptible at the level of concrete nouns and action verbs. The total group of students realised 3 deviations on concrete nouns and 3 deviations on actions verbs. In the second position, comes the number of deviations observed at the level of abstract nouns, where the entire group of students recorded a number a 2 deviations. The students did not make any mistake on adverbs, except the one student 9 who made one on a single adverb of time. For the case of the other linguistic features such as state verbs, qualifiers and quantifiers, the students registered only 1 deviation for each feature.

Concerning the students' individual performances, five of them made only 1 lexical deviation in the whole written language test. Three of them (student 3, student 6, and student 7) did not make any lexical deviation; and two of them (student 1 and student 4) realised a total of 3 lexical deviations each. The two were born profound deaf from hearing parents. They live at home, in an environment where family members barely sign, and mostly communicate with them using gesture and speech. Yet, those two students have zero aural/oral skill and they use a hearing aid once a week (as their classmates), for the speech therapy class. Discussion of the above assessment will be made in the next section.

<b>Students</b>	<b>Stud 1</b>	<b>Stud 2</b>	<b>Stud 3</b>	<b>Stud 4</b>	<b>Stud 5</b>	<b>Stud 6</b>	<b>Stud 7</b>	<b>Stud 8</b>	<b>Stud 9</b>	<b>Stud 10</b>	<b>Total</b>
<b>Deviations</b>											
<b>Noun inflexion</b>	1 enfant	1 enfant	1 enfant	1 enfant	1 enfant	0	0	0	0	0	<b>5</b>
<b>Verb inflexion</b>	1 reussi	1 travaillé	1 occupe	0	1 Aidé	0	2 ête comprends	2 Etudié jeveu	2 Comprendre tu vient	1 educué	<b>11</b>
<b>Adjective inflexion</b>	1 sourd	2 sourd sourd	1 sourd	2 sourd tout	1 sourd	0	1 gentil	1 sourd	1 sourd	1 sourd	<b>12</b>
<b>Capitalisation</b>	1 on	0	0	1 ..ecrire (.) les	1 Il	1 je	1 pas	1 je	2 je mais	0	<b>8</b>
<b>Punctuation</b>	0	0	0	1 ..ecrire (.) les	0	1 ( <i>final stop</i> )	1 gentil merci	0	0	1 c'est bien il faut	<b>4</b>
<b>Word order</b>	0	0	0	0	0	0	1 voir nous	0	1 pas comprendre	0	<b>2</b>
<b>Word omission</b>	1 Merci travail	1 Sourd... difficile	0	1 durecrire	2 école enfant sourd pas beacou	0	3 merci venu pas bien gens comprends pas	2 content étudié veu bon travail	2 Les gens pas comprendre contente tu vient	0	<b>12</b>
<b>misuse of prepositions</b>	1 sur	0	0	0	0	0	0	0	0	0	<b>1</b>
<b>Misuse of articles</b>	1 les	2 de les de les	1 de les	0	0	1 de	0	0	0	0	<b>5</b>
<b>Misuse of verb tenses</b>	0	0	0	1 aprendre	0	0	0	0	0	0	<b>1</b>
<b>Incorrect morphology of words</b>	2 travail reussi	1 education	0	2 dur aprendre	1 beacou	0	0	1 veu	1 maitenan	1 ecole	<b>9</b>
<b>Total</b>	<b>9</b>	<b>8</b>	<b>4</b>	<b>9</b>	<b>7</b>	<b>3</b>	<b>10</b>	<b>7</b>	<b>9</b>	<b>4</b>	

### **Assessment of the Morpho-syntactic Performances of the ESEDA Sample**

The parameters used to label the students' deviations have been selected from the morpho-syntactic features which generally challenge deaf students when they write. Those features include: the noun inflexion, the verb inflexion, the adjective inflexion (for French language), the appropriate use of capital letters, punctuation, order of words in the sentence, word omission, misuse of prepositions, misuse of articles, misuse of appropriate verb tense, and incorrect morphology of words. Let us start by assessing the performances of ASD students.

ESEDA students made a lot more morpho-syntactic deviations than their ASD peers, in their essays. The highest number of deviations recorded among the individual works is 10, performed by student 7. Three students also made a higher number of deviations close to that one above. They are student 1, student 4, and student 9 who made 9 deviations each, from different morpho-syntactic features. The students with the fewest number of deviations are student 6 who made 3 morpho-syntactic mistakes, and students 3 and 10 who recorded 4 mistakes each. There is a considerable difference between the above three best performances considering their increasing order. In other words, what could be described as "good performances" comparatively to the previous ones, are the performances of student 2, student 5, and student 8 who displayed respectively 8, 7, and 7 morpho-syntactic deviations. Altogether, the worst performances are made by student 7, student 1, student 4, and student 9 as mentioned at the beginning of this sub-section.

Unlike the performances of the ASD students where the highest number of morpho-syntactic deviations was recorded at the level of incorrect morphology of words, the major deviations of ESEDA sample have to do with words omission, adjective inflexion, and verb inflexion. The students registered respectively 12, 12, and 11 deviations when manipulating the above named morpho-syntactic features. Fewer deviations comparatively to the precedent ones are observed at the level of incorrect morphology of words and capitalisation. The whole group recorded a total of 9 and 8 deviations respectively. They showed least weaknesses at the level of verb tense, misuse of prepositions, and order of words in the sentence; statistics show 1, 1, and 2 total numbers of deviations at those respective points. As a final analysis, the ESEDA sample performances in punctuation, misuse of articles, and noun inflexion could be described as mediocre, with a respective total of 4, 5, and 5 deviations.

After exposing the linguistic weaknesses of deaf learners, let us discuss the remedial strategies.

### **II.4. Remedial Strategies for the Promotion of Deaf Learners' Literacy Skills**

While education for deaf children all over the world in general is on the process of development, studies show that it has not shown significant improvement since the learners complete their studies semi-illiterate (Adoyo, 2004). Here are some suggested remedial solutions to the linguistic weaknesses of deaf learners.

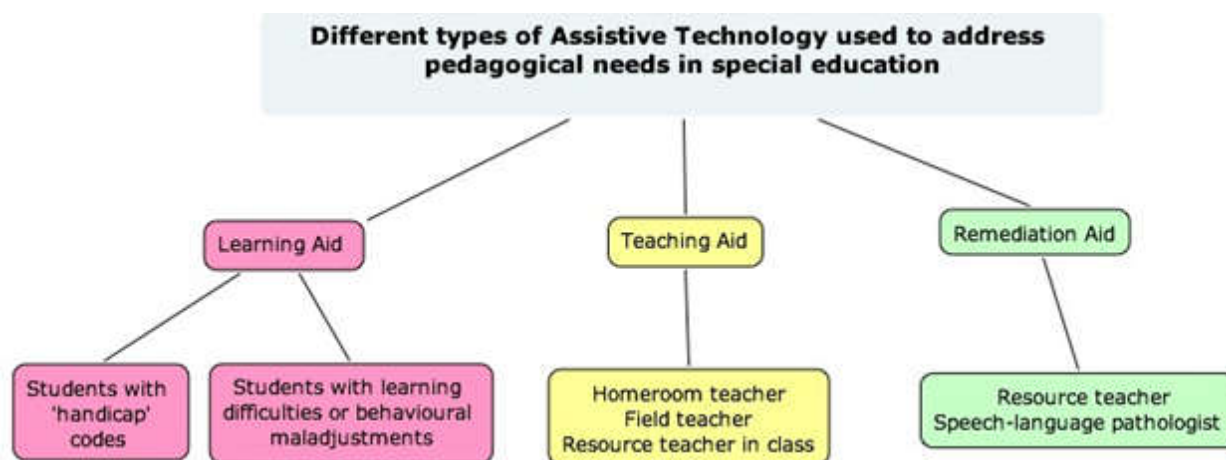
- **Suggestions to Solve the Lexical and Pragmatic Weaknesses**

Reading may be the most important brain exercise for deaf students to put an end to the lexical and pragmatic weaknesses the majority of them face. Regular reading is the best way for deaf learners to learn new words every day. It is through reading that the deaf children's incidental learning is more likely to occur; then more they read, more they learn new vocabulary, and develop their lexis. If deaf learners develop regular reading habits and the curiosity of finding out and comprehend the meaning of new words very often, they will show fewer orthographic and pragmatic weaknesses. Consequently, deaf students will produce texts with meanings parallel to what they use to read. In other words, they will write better and more understandable texts, which follow the conventions of the respective L2. Schools and parents should equally provide deaf children with as many books as possible, in diverse topics like magazines, newspapers, cartoons, school books, etc), Parents and teachers should also pay attention to the content of the books the children are exposed.

Technology is the second means to use to help deaf learners improve their lexical and pragmatic performances, because instant access to information has revolutionized how students learn today. To support both teaching and learning, technology infuses classrooms with digital learning tools, such as hearing devices, computers and

other hand held devices. Technology equally expands course offerings, experiences, and learning materials; it supports learning twenty four hours a day, seven days a week; and builds 21st century skills. Considering the case of hearing devices<sup>2</sup>, some deaf students benefit a lot from them. [Musselman and Szanto \(1998\)](#) found that students using auditory/oral communication perform better than students who used only sign language. From the test of written language Musselman and Szanto administered to a sample of deaf students, they came out with the results showing that the overall writing quotient of the aural/oral students was slightly below the test average, whereas the quotient of the signing students was full of standard deviations and critically below the test average. Interestingly enough, a similar remark was made at American School for the Deaf (ASD, where the research was conducted), where it was noticed that the written speech of students with high auditory ability (noted here as HAA) was a little bit different and better than the one of the students with less or no aural/oral ability (LAA). HAA students were able to make common simple SVC English sentence structure, with no article or verb omission, unlike their LAA peers. With the help of hearing technology, more than half of elementary school students at ASD were capable of oral speech, and many of them were doing great in written language. The ASD's classrooms were equipped with FM speakers connected to microphones that teachers used, and which amplified the teacher's voice to make it more accessible to the ears of the students wearing the hearing device. Each classroom's speaker was set so that the students with hearing devices would hear only the voice of the teacher in whose classroom they were, that way avoiding interference with the neighbouring classrooms.

However, some students with special needs must have access to dedicated technological aids or assistive technology that is more appropriate to address specific needs such as physical or sensory needs, needs in terms of school or social maladjustments or needs linked to the acquisition of competencies. This assistive technology is called learning aid. Thus, there are three categories of technological aids related to special education: Learning aids, Teaching aids and Remediation aids. The graph below illustrates them.



**Graph 5. Diagram showing the types of educational assistive technology.** (Rethrieved from *Majeu 2016*)

- **Suggestion to solve the morphosyntactic and the Pragmatic weaknesses**

The morphosyntactic deviations are the real bête noire that corrupts the written production of many deaf students. From fieldwork investigations, it appears that the signing system or the teaching approach used for instructional conversations plays an important role in the kind of output language that the deaf learners produce when writing. Research have demonstrated that as more than 90% of deaf children are born to hearing parents (Mitchell, 2004), they often arrive at preschool with no or very little language competency, relying mostly on vision and gesture to communicate. That is, the children's ability to engage in extended discourse with their teachers and peers when starting preschool is likely severely impoverished (Harris, 2010:10). What therefore should be the most appropriate language to instruct deaf learners and help them to

achieve better academic performances in general and better written language in particular? The interest in this study lies on the deaf students who have English as second language.

- **How ASL Supports Learning of English Language**

Some may ask how ASL can support developing written language skills, in this case, English language. Early studies in the 1960s and 1970s showed deaf children with deaf parents consistently achieved two or more grade levels above deaf children with hearing parents (Brasel & Quigley, 1977; Corson, 1973; Meadow, 1968). When the deaf parents expose their deaf children to sign language as L1, the deaf children acquire that language at the same rate and with the same milestones as hearing children acquire spoken language from hearing parents. Deaf children from deaf parents frequently exhibit academic skills beyond those of same-age deaf peers with hearing parents. Further, Brasel and Quigley (1977) found that signing deaf children with deaf parents performed significantly better on all tests of English syntax and reading abilities when compared with orally trained deaf children with hearing parents. Different explanations were offered for why deaf children of deaf parents outperformed deaf children of hearing parents in academics. Among those explanations, Brasel and Quigley state that the reason deaf children of deaf parents had superior English reading and writing abilities is because during their first few years of life, they have early and quality language input which is ASL.

Since then, additional research studies have shown a significant correlation between ASL proficiency and English proficiency (Hoffmeister, 2000; Mayberry, et al., 2002; Singleton, et al., 2004; Strong & Prinz, 2000). In a sample of seventy-eight deaf students, Hoffmeister found that deaf students with more ASL exposure scored higher on sophisticated ASL measures than deaf students with limited ASL exposure. The deaf students with intensive ASL exposure also had a positive correlation with Stanford Achievement Test<sup>3</sup>(SAT) reading results. Unlike other ASL-English correlational studies, Hoffmeister emphasized that the ASL tests in his study did not evaluate ASL conversational skills, but evaluated sophisticated knowledge of ASL lexical and morphological rules; thereby, tapping language skills that are more related to the language of schooling and reading. Hoffmeister's findings of this positive relationship between sophisticated knowledge of ASL and reading scores is commensurate with Vygotsky's sociocultural theory of cognitive and language development. The results of Hoffmeister's study also support the conclusion that possession of sophisticated knowledge of sign language is associated with opportunities to engage in higher-order discourse with other more sophisticated users of SL. Such results suggest cognitively challenging discourse may play a role in developing advanced SL skills which, in turn, supports English skill development.

Further, certain proponents of ASL/English bilingualism agreed that ASL should be the primary language for most, if not all, students who are deaf because it provides full accessibility in a language's rich environment (Grosjean, 2008; Johnson et al., 1989; Mahshie, 1995; Nover, 1995). Support of this belief was based on four major points gleaned from the literature on the acquisition of ASL by deaf children and adolescents. The four points are stated as follow:

- ✓ ASL can be acquired naturally because it presents an adequate visual-motor feedback system similar to the auditory-articulatory loop of spoken language users (Circourel & Boese, 1972).
- ✓ ASL is the preferred language of use by deaf adults in most communicative situations (Reagan, 1985, 1990; Wilbur, 1987).
- ✓ Children acquire ASL in a manner similar to that of hearing children learning a spoken language (Newport & Meier, 1985; Petitto & Marentette, 1991).
- ✓ ASL and other sign languages are suited to the cognitive processing capacity of deaf individuals' brains (Bellugi, 1991; Poizner, Klima, & Bellugi, 1987).

In a general view, SL acquisition as L1 is said to enhance the learning process of English as L2 and contributes to the development of English literacy. Taking this perspective, educators and researchers have suggested that ASL should be considered the first or primary language base for deaf children because:

- SL is accessible and easily learned by deaf children,
- SL provides linguistic access to curricular material,
- SL is an effective tool for peer/peer and adult/child interaction, and



- SL facilitates normal social and emotional development (Gallimore, 2000; Johnson et al., 1989; Nover & Andrews, 1998; Philip & Small, 1990; Stone, 1995).

Finally, ASL appears to be the language that will create such a communicative environment for deaf students. When teachers create an environment in which a child experiences full accessibility with those wishing to communicate with him/her and with whom he/she wishes to communicate, that in essence is creating a true communicative environment and a better language development. For the reason that ASL is the deaf child's primary language, it will be used first for the instruction a "new concept" and to describe content, to help students get the "big picture" as a whole as well as checking their prior knowledge. Then the teachers would demonstrate the strategies of bridging what the students already learned and their language to a written text, using both ASL and English. Students would attempt to comprehend the concept through the English print only.

### **Conclusion**

The purpose of this paper was to bring up an insight into the world of deaf people by defining what deafness is and its causes and consequences on one side; and on the other side, discussing the problem of deaf education with the focus on sign language and literacy skills. The study was carried out through the use of different research methods and instruments like Literature review, participating classroom observation, and informal interviews. The first part of the work, the notion of deafness and its causes and consequences were depicted; and the second part displayed the linguistic weaknesses encountered by deaf learners followed by the remedial strategies for the promotion of literacy skills. In a fast world where things and habits change minute after minute, it is high time for the mass population of Sub-Saharan Africa to change their view on people with special need. The society ought to pay much more attention to the respect of the rights of persons with special need, stake holders should invest much more funds for the development and the promotion of special education, and families have to quit the old fashion mentality that relegates people with special need to the level of useless humans with mystical incurable disease, and finally provide them the correct education they need to be independent.

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