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Sign Language Education in Primary School
“Case of deaf and hard-of-hearing pupils in Ain Temouchent, Algeria”

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Dedication

*I humbly dedicate my graduation to my dearest father **Boualem**, my unwavering source of hope, who has been my hero in moments of vulnerability and uncertainty, his selflessness and sacrifices in devoting his life to ensuring that our success shines, to the man who has tirelessly worked to ensure that we become better than him.*

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Bendaho Chaima

Dedication

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Abstract

The teaching of deaf pupils in Algeria, particularly in Ain Temouchent, is a topic that is shrouded in a veil of mystery and obscurity. Hearing-impaired pupils are among the most sensible members of society, as they face unique challenges in communication and access to information, making it crucial to provide them with the necessary resources and assistance to foster their academic and personal growth.

Despite the authorities' efforts, there is still a lack of comprehensive education for hearing-impaired pupils, from primary schools to the university level. The objective of this investigation is to understand the current situation of teaching sign language to deaf children and to raise awareness of its importance.

To address the challenges faced by deaf pupils, our investigation offers solutions and recommendations such as developing a comprehensive curriculum, providing teacher training, increasing access to educational institutions, promoting the use of sign language in the community, providing resources from books and dictionaries, and involving the authorities. By implementing these measures, we can ensure that deaf students receive a comprehensive education that equips them with the skills and knowledge they need to succeed.

Table of Contents

Dedication	I
Acknowledgments	III
Abstract.....	IV
Table of Contents	V
List of Tables	VII
List of Figures.....	VIII
List of Acronyms:.....	IX
General introduction.....	1
Chapter one: Literature review	5
1.1 Introduction:.....	5
1.2 An Overview of Sign Language:	5
1.2.1 The History of Sign Language:	6
1.2.2 Sign Language Documentation:.....	7
1.3 Wrong Assumptions about Sign Language:	8
1.3.1 Hand Gestures and Sign Language:	9
1.4 Various Sign Languages around the World:	9
1.5 Spoken Language Meaning:.....	11
1.6 Sign Language Acquisition in Children with Hearing Disabilities:.....	13
1.6.1 Understanding the Process of the Acquisition and its Importance:	13
1.6.2 The Main Factors that Influence the Acquisition of Sign Language:.....	14
1.7 Key Features of Sign Language “Phonology, Phonetics, and Syntax”:	15
1.7.1 Parameters of Sign Language:	16
1.8 Hearing Impairments:	18
1.8.1 Different Levels of Hearing Loss:	19
1.9 Deaf Community and Education in Algeria:	20
1.10 Conclusion:	21
Chapter Two: Research Methodology, and Data Collection.....	23
2.1 Introduction:.....	23
2.2 Research Methodology:	23
2.3 Case Study:	24
2.3.1 Scope of the Investigation (Research Site):.....	24
2.3.2 Participants of the Study:.....	25
2.3.3 Sample Population:	26
2.4 Research Instruments:.....	28
2.4.1 Classroom Observation:	28

2.4.2 Teachers' Interview:	29
2.4.3 Speech Therapist Interview:	29
2.5 Data Collection Procedures:.....	30
2.6 The Objective of the Whole Study	31
2.7 Limitations:.....	31
2.8 Conclusion:	31
Chapter Three: Data Analysis, Practical Implications and Recommendations	34
3.1 Introduction:.....	34
3.2 Classroom Observation Analysis:.....	34
3.2.1 Speech Therapists Interview Analysis:	37
3.2.2 Teachers' Interview Analysis:.....	41
3.3 Classroom Observation Interpretation:.....	53
3.3.1 Teacher's Interpretations of the Results:.....	54
3.4 Suggestions and Recommendations:	57
3.5 Conclusion:	59
General Conclusion.....	61
Bibliography:	65
Appendices	73
Appendix 01: The Approval Letter to carry out the Study of this Investigation.	74
Appendix 02: Adapted: The Planning of the Hearing-Impaired School (2022, 2023)	75
Appendix 03: Teacher's Interview Guide.	75
Appendix 04: Speech Therapists' Interview Guide.	78
Appendix 05: Examination report Auditory Evoked Potentials P.E.A / A.S.S.R / O.E.A.T	79
Appendix 06: "The Algerian Sign Language Dictionary".....	81

List of Tables:

Table 1.1: The ten most commonly spoken Sign Languages around the World, and their Number of Native Speakers.....	10
Table 2.1: “General Class Size by Levels (2022, 2023)”.....	11
Table 3.2: Teacher’s Comments on their Training and if it was effective when they started Teaching.....	43
Table 3.3: Teacher’s Comments on whether their Training was Specialized only for Hearing Impaired Students or in General.....	44
Table 3.4: Some of the Strategies Adopted by Teachers to learn Sign Language.....	45
Table 3.5: The Educational Background of the Teachers.....	48
Table 3.6: The Challenges that face the Teachers and how they overcome them.....	50

List of Figures:

Figure 1.1: The Five Components of Signs in Sign Languages.....18

Figure 1.2: How Cochlear Implants Work.....19

Figure 2.1: The School of Hearing-Impaired Pupils (2022, 2023).....25

Figure 3.1: Pictures of the Preschool Stage, 2nd year (2022; 2023).....36

Figure 3.2: Teacher’s responses on whether they receive a comprehensive training in Sign Language or not.41

Figure 3.3: Teacher’s Training Duration.....42

Figure 3.4: Teacher’s responses on whether the Training was effective or not.....43

Figure 3.5: Answers of whether the School provides the Teachers & Pupils with the needed equipment.....46

Figure 3.6: Teacher’s Opinion about the Educational Curriculum for Deaf Children.....47

Figure 3.7: Responses about the Importance of using Technology in the Classroom.....49

List of Acronyms:

SL:	Sign Language
FinSL:	Finnish Sign Language
FinSSL:	Finnish-Swedish Sign Language
ASD:	American School for the Deaf
LSF:	French Sign Language
ASL:	American Sign Language
AOA:	Age of Acquisition
DODA:	Deaf family of deaf children
CODA:	Children of deaf adults
KODA:	Kids of deaf adults
FNSA:	Federation Nationale Des Sourds d'Algerie
LSA:	Algerian Sign Language
AJSL:	Algerian Jewish Sign Language
SLP:	Speech-Language Pathologist

General Introduction

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Historically, it has been believed that those who are deaf or hard of hearing are incapable of verbal communication. Later advancements in psychology and linguistics denied this theory, demonstrating that hearing loss is not the only factor limiting verbal abilities. The approach to education for deaf and hard-of-hearing persons has changed in several countries as a result of the rise of specialized schools and institutions designed to meet their unique needs.

Education for deaf and hard-of-hearing pupils in Ain Temouchent, Algeria is a complex and challenging area of special education. These pupils have unique needs and requirements that must be addressed in order to provide them with a high-quality education. Especially in the most important years of the acquisition which is the primary or the elementary stage, that has the biggest role in shaping the children's minds toward their learning, communicating, and living in general. The education system in Ain Temouchent, Algeria has struggled to meet the needs of deaf and hard-of-hearing pupils due to a variety of factors, including a shortage of specialized teachers, limited access to resources, communications barriers, and the same curriculum designed for the regular schools with hearing pupils.

Despite these challenges, efforts have been made to improve the provision of education for deaf and hard-of-hearing pupils. However, there is still much work to be done to ensure that these students have equal access to education and the opportunity to reach their full potential, just like the other hearing pupils.

The D/HH students have two stages to complete their education in Ain Temouchent at the special school for hearing impaired students where the study was conducted. The first stage is to attend a primary school that is specifically designed to educate students with hearing loss, although there were only one such school. Once they complete the primary education stage, they receive a certificate using the same exam format and methodology as hearing pupils. The following phase involves attending a typical middle

General introduction

school to learn under the instruction of qualified teachers. It appears that neither high schools nor even universities are home to the future hearing-impaired pupils of this country.

The primary hearing-impaired school in Ain Temouchent has six classes, including two preschool classes. The teaching in this stage is specialized; while pupils in grades (1, 3, 4, and 5) follow the same curriculum and use the same books as regular schools.

We present the following research questions in an effort to accomplish this objective:

- What is the state of the educational curriculum provided for deaf and hard-of-hearing pupils in special schools in Ain Temouchent, Algeria?
- How do teachers and pupils in special schools for the deaf address the challenges that arise during the teaching and learning process?

The following hypotheses have been developed in an attempt to provide reasonable and appropriate responses to the given questions:

- The state of education for deaf and hard-of-hearing pupils in special schools in Ain Temouchent, Algeria may be challenging due to limited access to resources and specialized teachers, which could potentially obstacle to their academic and social progress.
- Teachers who are competent in educating deaf children in special schools require specialized training in areas such as sign language, visual aids, assistive technology, and classroom management techniques. Additional training in areas such as deaf culture, and communication strategies.
- Teachers and pupils in hearing-impaired schools may face challenges related to communication barriers, such as difficulties with sign language interpretation, lack of specialized training, and the use of assistive technology. They may overcome these challenges by utilizing visual aids, incorporating interactive

General introduction

teaching methods, and providing individualized attention and support to ensure effective communication.

The significance of this study lies in its potential to contribute to the development of effective strategies to support the education and inclusion of deaf and hard-of-hearing pupils in Ain Temouchent, Algeria. By gaining a deeper understanding of the challenges faced by both pupils and teachers and the attitudes toward special education.

To address this need, this study aims to investigate the current state of teacher training in special education. Moreover, it will focus on the experiences of deaf and hard-of-hearing pupils. The study will employ methods and qualitative approaches such as including, interviews, and classroom observations, to gather data from teachers, speech therapists, and pupils. The results of this study will be used to develop recommendations for improving teacher-training programs, new resources from books and dictionaries, and an adequate curriculum that fits the D/HH needs.

No matter what one's abilities are, everyone should have access to education, as it is a fundamental human right. Effective education for pupils who are deaf or hard of hearing depends heavily on teacher training in special education. We can encourage more social inclusion and equity in education as well as make sure that all children have the opportunity to succeed both academically and socially by addressing the difficulties that these pupils experience and by offering specialized training for teachers.

Chapter One:

Literature Review

Chapter 1: “Exploring the world of Sign Language and Education for the Deaf pupils in Algeria”

Chapter one: Literature review

1.1 Introduction:

The capability for language use is among the most distinguishing characteristics that separate humans from other creatures. Sign language is often shrouded in mystery and misunderstanding, leading to misconceptions about the deaf and hard-of-hearing language. Language can take many forms; it can be spoken, written, heard, or signed. The way information is communicated in SL and spoken language differs. On the contemporary globe, there are numerous spoken languages, while others are sign languages.

In this chapter, we aim to clear the dust and provide a comprehensive overview of sign language and its vital role in human communication. From its rich history to the different forms used around the world, we will explore the fascinating world of sign language along with deaf people's education in Algeria.

Ultimately, our goal is to promote a greater understanding and highlight the importance of ensuring equal access to education for all members of society.

1.2 An Overview of Sign Language:

The individual can communicate and express himself in many ways without the use of a voice or even trying to speak; if someone wants to say "yes" nodding the head is enough. Moreover, shaking the head "no" meaning "no" and even expressing anger can happen just by grinding the teeth together or raising the eyebrows. All these movements have their own meaning and message. Facial expressions are used to convey different messages and feelings. Every facial expression holds a message: smiling, scowling, confusion..., etc. The messages of hands, faces, and bodies are natural and obvious, and we perceive them with our eyes. If we add to these movements conventional, established, and agreed-upon movements, we get a better understanding of sign language as the main means of communication for deaf people. Gestures in sign

language are what words represent in the language. Instead of listening, through which we acquire meanings. In this vein :

Sign language is one of the methods of communication, which is defined as a set of visual symbols or gestures that are used systematically for words, concepts, or ideas of language. They are expressed through sign language by representing a relationship between the sign and its meaning in spoken (Hanafy& El-Saadoun, 2014, p.75).

“Sign language plays a vital role in the cultural identity and community of deaf individuals, and is recognized as a natural and legitimate language by the linguistic and scientific communities ". (Mitchell and Karchmer, 2004, p. 1). This shows that persons who have hearing loss are a part of society and have the same rights as everyone else to express themselves, to share their ideas, feelings, and thoughts, and to take part in all facets of economic, social, political, and cultural life.

1.2.1 The History of Sign Language:

From the beginning of time until now, people have always used their hands to communicate to some extent (Irene. D, 2009), prehistorically people used sign language unconsciously over time, which developed naturally among tribe members in order to have a successful hunt. They used to be silent and only communicated through gestures; however, as time passed, languages were combined, mixed, and developed in accordance with the human diversity in different areas, giving rise to each region's own distinctive variation of a particular language. According to Klima (1979), "The study of sign language provides a unique perspective on language as a human phenomenon. Sign languages have evolved over time, just like spoken languages, and they share many of the same properties and features"; furthermore, this claims that Man has always found a power to express his viewpoints, feelings, and ideas from the beginning of humankind.

1.2.2 Sign Language Documentation:

Linguists have had a hard time tracing the history of sign language because there is not enough written evidence. Despite this, there is evidence indicating that sign language has existed at least since the fourth century BC. "Sign language is as old as the race itself, and its earliest history is equally obscure," claimed (W. C. Stokoe, Jr, 2005, p. 3).

Since the American School for the Deaf (ASD) was established in Hartford, Connecticut, in the 17th century, sign language has a long history. Robert Recorde is credited with establishing the equals sign as a linguistic symbol. Robert Recorde is the author of the equals sign. Recorde was educated at Oxford and Cambridge Universities before being born in England and receiving his degree from each institution. His invention of the equals sign and other mathematical symbols was his greatest accomplishment. It was 1558 when he passed away.

Although the deaf were often persecuted, sign language did not develop until the 16th century when the Benedictine monk Pedro de Leon developed a sign language to enable him to communicate during a vow of silence. Juan Pablo Bonet, a Spanish linguist, wrote a dictionary of signs and an alphabet in 1620.

Despite the fact that different sign languages have evolved in different regions. Historically little is known about each of them. Some believe that the gestures that preceded language communication came from the mouths of prehistoric humans, while others believe that language came directly from the mouths of early humans. Sign language is believed to have originated before Christ and during the Renaissance. In other words, the Great Plains Indians used an elaborate system of sign language. The development of various theories on the sign system has facilitated communication between indigenous peoples. It is not known if they have reached the stage of official recognition. Deaf people were denied citizenship, religious rights, and the right to be free from poverty in the ancient Greeks.

Additionally, all the deserved credit and praise goes to the French educator Charles-Michel de L'Épée for building the first public school for the deaf in the 18th century and for creating a system of sign language that was based on French grammar

and vocabulary. His contributions laid the groundwork for the French Sign Language (LSF), which is still widely used today in France.

Another influential person in the history of the development of SL education is Thomas Hopkins Gallaudet, an American educator who helped establish the country's first permanent school for the deaf in 1817 and is another significant player in the development of sign language instruction. When Gallaudet visited Europe to study more about deaf education, he encountered a deaf instructor named Laurent Clerc who spoke and signed in a manner that would later become known as American Sign Language (ASL). Clerc was returned to the country by Gallaudet, and the two worked to build the American School for the Deaf, where they taught ASL to the students.

1.3 Wrong Assumptions about Sign Language:

Although sign language is used by those who are unable to talk due to physical limitations, including those who are deaf, it is commonly described as deaf communication, which is not entirely accurate, because parents of deaf children should learn it to facilitate communication, as should children with autism and language delays; however, it could also be found among members of the police, between soldiers, in loud and long-distance places, because SL relies on using hands. According to Dr. Marilyn Daniels:

Sign language is a powerful tool that can be used to bridge the gap between the hearing and the deaf. But sign language is not only for the deaf". It can be used by hearing parents to communicate with their babies before they can speak (Dr.Marilyn Daniels, 1994; 1).

Additionally, sign language is not just for the deaf, according to Tracy G. Maurer (2008). It is for everyone who wants to communicate effectively in a visual way. In his book *Sign With Your Baby*, published in 2002, Dr. Joseph Garcia also explains how to communicate with infants before they can speak. It is incorrect to believe that sign language is only used by those who are deaf. A universal language is

sign language. Children who are taught sign language by their parents receive a gift that will last a lifetime.

Likewise, just like there is no global spoken language, it has been established that not all deaf persons utilize the same sign language. According to Harrington (2006) and Harrington & Hamrick (2010), there are more than 271 lists of all known sign languages. Each one is unique and reflects the cultural characteristics of the region in which it originated. For instance, in Finland both the FinSL and the FinSSL are used as SLs (Hoyer, 2004).

1.3.1 Hand Gestures and Sign Language:

It should also be noted that signs in sign language are not gestures. A gesture is a hand movement that simply follows what the speaker is saying; it has no primary meaning like hand movements in sign language. Hand gestures show the meaning of words, objects, and actions. According to Simpson's (2011) research, sign languages are not at all equivalent to symbolic gestures. However, sign language contains features, syntax, and organization much like any other spoken language. "Sign languages are not mere gestures or pantomimes, but are complete languages with their own syntax, morphology, and phonology" (Emmorey, 2002, 3).

Numerous studies show that sign languages' form and meaning components are organized linguistically in a way that adheres to the fundamental recursion and hierarchical patterning rules that govern all human languages (Chomsky, 1965). When created with speech, gestures lack these qualities since they primarily rely on the spoken language system (e.g., de Ruiter, 2000).

1.4 Various Sign Languages around the World:

As Johnston and Schembri (2007) cited, sign language variation is influenced by factors such as geography, culture, and contact with other signing communities.

Unfortunately, little research has been done on this topic as surprisingly no official consensus worldwide takes sign language into account when

Chapter One: Literature Review

measuring the languages spoken by individuals and families. However, it was observed that there are 80 million deaf users of sign language, but this obviously includes hearing people who learn sign languages, such as parents, partners of deaf people, and teachers.

These "80 million" speakers are not evenly dispersed among the more than 300 sign languages; on the contrary, they are all very different from one another. Additionally, sign language uses a wide variety of hand motions and visual cues. There are numerous varieties and types of sign language. The ten most popular sign languages and the number of native speakers are listed in the table below:

Table 1.1: The ten most commonly spoken sign languages around the world, and their number of native speakers

Sign Languages	N° of Native Speakers
Indo-Pakistani Sign Language	6,300,000
Indonesian Sign Language	900,000
Russian Sign Language	715,000
Brazilian Sign Language	600,000
Spanish Sign Language	523,000
Egyptian Sign Language	474,000
American Sign Language	459,850
Persian Sign Language	325,000

Chapter One: Literature Review

Turkish Sign Language	300,000
Japanese Sign Language	126,000

Source: adapted from Sign Station 2023.

<https://signstation.org/how-many-sign-languages-are-there/>

1.5 Spoken Language Meaning:

From a linguistic point of view, spoken language is a form of communication in which people use their mouths to produce recognizable sounds; these sounds come from a large dictionary of sound sequences with an agreed-upon meaning. These sound sequences are called words, each of which represents one or more objects or concepts; shared grammar and syntax allow the speaker to convert these words into speech that listeners can understand.

Besides that, Giles (2019) described spoken language as a primary means of communication for humans and described its importance for social interaction and building relationships with people. Moreover, according to Chomsky, all-natural languages, in either spoken or written form, are languages in the sense of his definition, each natural language has a finite number of sounds in it, and although there may be infinitely many distinct sentences in the language, each sentence can represent as a finite sequence of these sounds (or letters).

Table 1.2: The Difference between Spoken Language and Non- Spoken Language:

Aspects	Spoken Language	Sign Language
Unique language	No.	Yes.
Grammar	Expressed through sound-based signifiers.	Represented through hand movements, syntax, and

Chapter One: Literature Review

		facial expressions.
Mode of communication	Vocal tracts.	Gestures and facial expressions.
Structural components	Both have grammar, vocabulary, discourse, and structures because they are languages.	Both have complex structural components that can be used to communicate meaning.
Use of space	Limited.	Takes advantage of space and spatial relations.
Conveying meaning	Sound-based signifiers.	Hand movements, syntax, and facial expression.
Ambiguity in communication	Pronouns can be ambiguous.	No ambiguity in assigning pronouns.

Thus, a new study published in Theoretical Linguistics shows that sign language is better at conveying certain ideas to the listener. The study, led by linguist Philippe Schlenker, lasted eight years and focused on American and French sign languages. The essence of the research is that sign language reveals the structure and limitations of spoken language and phrases with lexical ambiguity included, for instance: Ayan was described as a good person by John. But who in this statement is the good guy? Actually, since the pronoun "he" is so ambiguous, it may be either John or Ayan. Other research has examined the precise mechanisms by which the brain interprets spoken language, including the silent factors that give pronouns names. However, this ambiguity is unnecessary in sign language. Instead, it can assign "he" to John or Ayan and change how "he" is displayed in the space based on how the statement is signed (using the fingers).

1.6 Sign Language Acquisition in Children with Hearing Disabilities:

The process through which people learn and acquire sign language as their first or second language is referred to as sign language acquisition. Although the priority is on visual input rather than auditory, this process is comparable to learning spoken language. Through interaction with proficient signers and exposure to a diverse linguistic environment, young children can learn sign language as effortlessly as hearing children learn spoken language.

“Babies can manipulate their little hands long before they can manipulate their mouths to articulate words. Babies understand natural gestural signs” (Irene. D, 2009; 90), by exposure to a community of signers or through formal education in sign language, learning sign language can also happen later in life. Since William Stokoe's analysis of American sign language's phonological structure stated that "the sign languages used by the deaf have achieved recognition as fully-fledged human languages" (Stokoe et al 1965).

1.6.1 Understanding the Process of the Acquisition and its Importance:

Sign language is a galaxy that holds various languages around the world used by hard-of-hearing people to properly interact with the rest of society. Despite the fact that some people refuse to accept sign language as a complete, real language, numerous linguists, scientists, and researchers prove them wrong (Baker et al, 2016); even Siple and Fischer (1991), stated that "Sign languages are complete, natural languages that are used by deaf people all over the world. They have their own grammar, syntax, and vocabulary, and are not simply a visual representation of spoken language".

Education can be a challenging and varied experience, particularly for deaf pupils. The educational system presents many deaf students with special difficulties and obstacles, but they also have the capacity to succeed academically and reach their objectives just as the rest, because they are not brain damaged; they only lack in hearing. Deaf students' education is a complicated topic that calls for consideration of communication, social inclusion, and support (materially and morally).

In keeping with this idea, deaf children can develop to their full potential and become valuable contributors to society with the right support, encouragement, equipment, and assistance.

1.6.2 The Main Factors that Influence the Acquisition of Sign Language:

Some of the elements that influence SL acquisition are as follows: age at onset of deafness, degree of hearing loss, medical history, linguistic background, age of the acquisition (AOA), quality and quantity, and the social environment of the deaf community. (Cited in I. Backer & Woll. B, 2008; 04).

"Early exposure to sign language is essential for the development of language skills in deaf children." (Mayberry, Lock, & Kazmi, 2002; 202). Through interaction with competent signers and exposure to a rich linguistic environment, children who are introduced to sign language at a young age can learn it as effortlessly as hearing children learn the spoken language (Newport, 2019). After all, the acquisition of sign language can also occur later in life, through immersion in a signing community or formal instructions in sign language, but it will never be the same as acquiring it since childhood.

Moreover, "The attitudes of hearing people towards sign language and the deaf community can impact the availability of language resources and access to language for deaf children" (Foster & Kinuthia, 2003; 47). It is essential for the parents of deaf children to engage their kids with the deaf community. As Sharon G. Webber, an expert in sign language acquisition, stated: "Being around other deaf people, attending events, and interacting with people in the deaf community is the most efficient way to pick up sign language." Webber (2019), in this manner, individuals can acquire the language's intricacies, such as grammar, syntax, and cultural background.

According to Rachel Sutton-Spence, a deaf studies professor, "You don't learn sign language by remembering a set of signs. You learn it by

engaging with fluent signers and utilizing it in real-life circumstances" (Sutton-Spence, 2018).

Along the same lines, media can also have an impact on the acquisition of sign language. Watching sign language movies or TV shows, reading sign language books or articles, and listening to sign language podcasts or radio programs can all assist learners in learning it. As Sutton-Spence explained, "The more exposure you have to sign language, the more you will learn" (Sutton-Spence, 2018).

Another aspect that can influence sign language acquisition is the quality and quantity of spoken input. "Language acquisition is a complex process that depends on a range of factors, including the quality and quantity of language input" (Meier, 2007; 56). Hence, children, who receive rich and varied language input from a variety of sign language users learn the language faster and have a wider vocabulary than those who have inadequate language input. "Deaf children who have access to rich and varied language input tend to develop a more extensive vocabulary than those who have limited input" (Pettito & Marentette, 1991; 162). Especially children who are born into a "Deaf family" (DODA), are the ones with primacy in acquiring SL, likewise, the hearing Children of deaf parents (CODAs) or (KODAs) learn sign language to communicate with their parents as well as spoken language to communicate with the outside world. According to Humphries, Padden, and O'Rourke (2018), "CODAs are often bicultural and bilingual, with fluency in both spoken and sign language". Unlike children born to hearing parents, they may not have access to language input during the critical period for language acquisition, which can lead to delays in language development.

1.7 Key Features of Sign Language “Phonology, Phonetics, and Syntax”:

In language, phonology is the study of the organization of speech sounds which means that in spoken language the articulators in speech are lips, teeth, tongue, throat, and larynx; however, in sign language, the phonology takes another aspect that is how the signed words are formed, and the articulators are shaped by the hands, face, body,

arms, and head in order to create a communication. Simpson (2011) clarified that sign language has its own phonology, morphology, and syntax.

“Sign languages have a different structure and grammar from spoken languages, with unique features such as classifiers and non-manual marks “(Sutton-Spence & Woll, 1999; 01).

1.7.1 Parameters of Sign Language:

Linguists have seen signs as consisting of simultaneous combinations of hand shape configuration, a location where the sign is articulated, and movement, either a path through signing space or an internal movement of the joints in the hand. Each is understood to be part of the phonology because changing one of these parameters can create a minimal pair. (Simpson, 2011; 360–361).

When Liddell (2003) spoke about sign language, he said that it has its own parameters that include hand shape, movement, location, palm orientation, and non-manual markers.

In spoken language, the smallest units are phonemes, while in sign language they are called parameters. Each of them is explained below and followed by an example to highlight their importance:

1. Hand shape: Using the term "hand shape." It is common to use the letters in which the hand is placed to define its shape in order to convey a particular sign. There are many signs and hand shapes used in different languages throughout the world. According to Valli and Lucas (2000), the hand form is the most crucial aspect of sign language and has the power to entirely modify the meaning of a sign. Furthermore, Donnelly asserts that "the shape of the hands when making signs can change the meaning of the word or expression." (2011; Donnelly; 1). The words "school" and "impossible," for instance, have different hand forms in ASL despite sharing the same place, movement, and palm orientation.

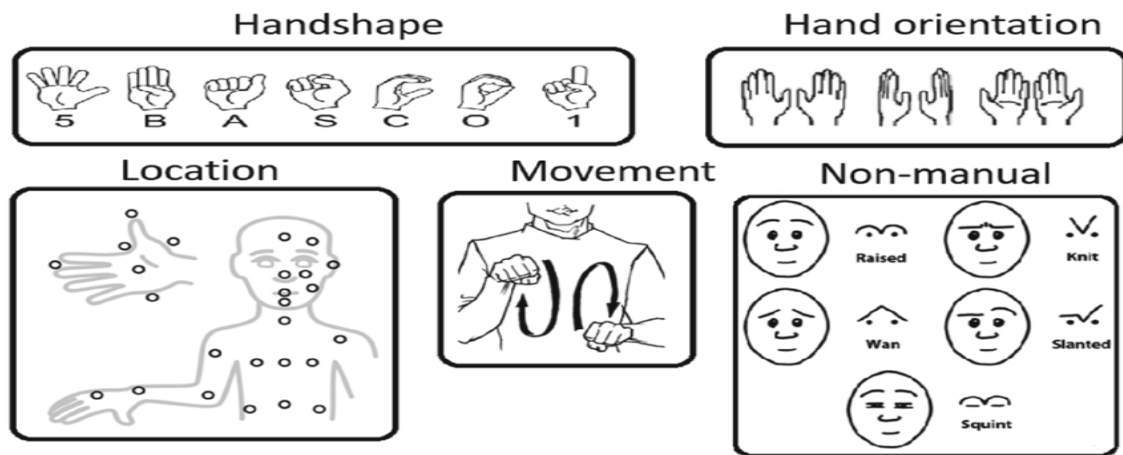
2. Movement: The shifting of position within the physical space during the creation of a symbol. A sign can move in a variety of ways, including circles, up and down, forward, backward, and wriggling. Movement is important because it transmits concepts effectively, and incorrect movements can convey alternative meanings. (Donnelly, 2011; 4). As Sutton and Woll (1999) demonstrated, this type of parameter can indicate aspects such as the direction, speed, and intensity of the movement, to illustrate what is said, here is an example of British Sign Language (BSL), the sign for the word ‘eat’ involves moving the hands to the mouth and closing the fingers together.

3. Location: The sign area relates to where the hands are held during the signing. They can be against the head or other parts of the body, depending on what you are saying (Donnelly, 2011; 3). Wilcox, S (2000) mentions that location refers to the place on or near the body where a sign is produced and different locations can be used to distinguish between signs with similar hand shapes. ASL words such as ‘apple’ and ‘onion’ have the same parameters, but they have different locations which result in a different meaning.

4. Palm Orientation: refers to which way the hands are facing, and where the hands and the face can alter meanings (Donnelly, 2011; 2). More precisely, it refers to which direction the palm is facing for a particular sign. Such as toward the signer, away from, up and down, facing you, facing away from you. For example, in ASL, the sign for ‘doctor’ uses a flat hand with the palm facing downward, while the word ‘nurse’ uses a flat hand with the palm facing upward.

5. Non-manual Markers: facial expression plays a role in adding emotion when communicating (Donnelly, 2011; 5). It refers to the use of facial expressions or body movements in order to convey or affect the meaning of a specific sign. Not all signs use non-manual signals. An example would be if someone asked a question, his eyebrows would be crinkled low on his brow.

Figure 1.1: The Five Components of Signs in Sign Languages



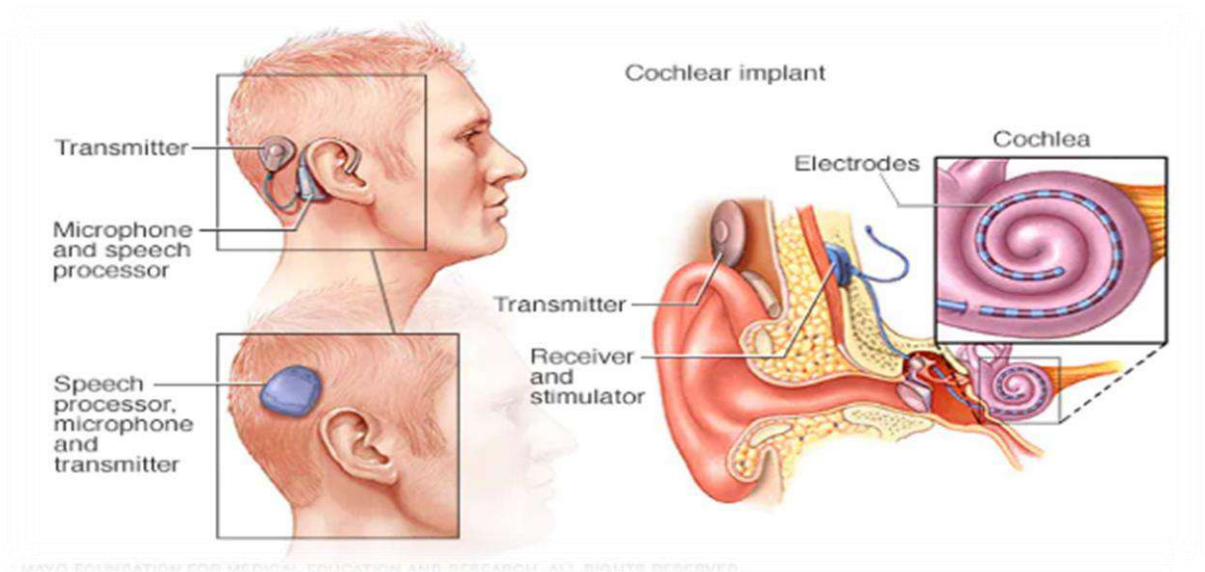
Source: Adapted from Journal of Physics: Conference Series. Titled “Recognition of deaf gestures based on bio-inspired neural network (M G Grif, A V Kugaevskikh)

1.8 Hearing Impairments:

Hearing impairment refers to a variety of hearing-related conditions that limit an individual's ability to detect or understand sounds. According to Bess and Humes (2018), "Hearing loss is a condition in which an individual has less capacity to hear sounds when compared to people with normal hearing." Hearing loss can be caused by a variety of factors, including genes, exposure to loud noise, infections, and aging.

Hearing impairment can have significant impacts on an individual's life, including difficulties in communication, social interactions, and academic and employment opportunities. According to Palmer and Mulla (2018), "Hearing impairment can result in social isolation, decreased quality of life, and increased risk for depression and cognitive decline".

Figure 1.2: How Cochlear Implants Work.



Source: Mayo Clinic. Cochlear implants. Retrieved May 25, 2023, from

<https://www.mayoclinic.org/tests-procedures/cochlear-implants/about/pac-20385021>

1.8.1 Different Levels of Hearing Loss:

Hearing loss is a condition that impairs a person's ability to detect and understand sounds. The severity of hearing loss is classified into degrees based on the degree of hearing impairment. Bess and Humes (2018) state that "hearing loss is generally classified as mild, moderate, severe, or profound, depending on the degree of hearing impairment."

- **Mild hearing loss:** refers to difficulty hearing soft sounds or distant speech, which can lead to challenges in understanding speech in noisy environments or from a distance (American Speech-Language-Hearing Association, 2021; 2).
- **Moderate hearing loss:** limited or hard hearing abilities at normal levels, and may require hearing aids or assistive technology according to the World Health Organization (2021).

- **Severe hearing loss:** They may need to rely on sign language or other forms of visual communication to communicate effectively," according to Bess and Humes (2018).
- **Profound hearing loss:** a complete inability to hear sounds, cochlear implants, and assistive technology are necessary.

1.9 Deaf Community and Education in Algeria:

The deaf community in Algeria is represented by the Federation Nationale Des Sourds d'Algerie (FNSA), which is the national federation of Deaf Algerians. FNSA is responsible for advocating for the rights of deaf people, promoting deaf culture and sign language, and providing support to the deaf community.

French Catholic fathers established the first deaf school in Algiers in 1972. Although the government has indicated that it will provide deaf students with sufficient education. Despite there being roughly 220,000 deaf people in the country. Yet, Algerian sign language is not used in education

The Algerian government in 2007 recognized (LSA) under the law on the protection and promotion of persons with disabilities. This lack of recognition and support for LSA poses a significant barrier to the deaf community's participation in society. FNSA works to promote the use and recognition of LSA and to ensure that the needs and rights of the deaf community are considered.

In addition to LSA, there is also Algerian Jewish Sign Language (AJSL), which is a village sign language originally from Ghardaïa. While AJSL is now used in Palestine and possibly France, it appears to be moribund, and there is a need for efforts to preserve and document this language (Lanesman & Meir 2012)

1.10 Conclusion:

To put it briefly, the current chapter provided a comprehensive overview of sign language, pupils with hearing impairments, and deaf education in Algeria, using evidence from researchers and linguists to strengthen the understanding of the process of this research paper. It also addresses some incorrect assumptions and opinions about sign language, which is one of the main purposes of this section is to break the ice of ignorance and acknowledge its importance as a natural language, not only for deaf people specifically but for the sake of the whole humanity.

**Chapter Two:
Research
Methodology, and
Data Collection**

Chapter Two: Research Methodology, and Data Collection

2.1 Introduction:

This chapter is concerned with the practical aspects of the current investigation. First of all, it gives a brief description of the methodology on which the research is based; furthermore, it introduces the participants involved in this research work, including teachers, speech therapists, and pupils, of course, because without them there would not be such a special education for deaf children. This is followed by a concrete description of the instruments used in the data-gathering phase, which consists of different research tools employed in this study, including direct classroom observation and interviews. Then, data obtained would be conducted both quantitatively and qualitatively. In addition, it explains the role of each participant in the hearing-impaired school in Ain Temouchent; furthermore, it discusses the sample size and the procedures used by the researchers in order to achieve the present study.

2.2 Research Methodology:

Research methodology is a way to systematically solve the research problem. It may be understood as the science of studying how research is done scientifically. (C.R. Kothari, 2004; 8). Moreover, it is defined as a set of procedures, techniques, and methods that are used in a research study of the data collection process, and it is selected based on the type of research being conducted. The research relies on the mixed method which combines both quantitative and qualitative. O'Donoghue and Punch (2003) cited that mixed methodology is a strategy of validating data from several sources in order to obtain regular and accurate results; in other words, it is a method used to obtain consistent and correct conclusions.

2.3 Case Study:

This study falls into a case study design. A good definition is given by Creswell (2003): a case study is when the researcher tries to discover deeply a program, a process, or an individual. On the other hand, Zainal (2007; 1–4) defines a case study, within a specific context, as a process that enables a researcher to examine the data directly in an in-depth investigation of an individual, group, institution, or phenomenon.

The principle of this investigation is to analyze and examine the situation of sign language in the special school of Ain Temouchent, to investigate how the teachers and specialists deal with deaf students, and, to examine the effectiveness of the system and the curriculum used in this school. In addition to the kind of training that teachers should have to be competent in teaching sign language in order to make the pupils satisfied and understood. The teachers of deaf pupils will also provide the researchers with the data needed in order to answer all the questions and hypotheses.

2.3.1 Scope of the Investigation (Research Site):

“A research site is defined as a place where a research is carried out” (Mazouz. N, 2021; 51). The researchers fulfilled the study in the school of hearing-impaired children El Mudjahed Miloudi Mohammed El Amine 2019-1932; however, the date of the opening was on April, 10th, 1932, it is located in Hai Moulay Mustapha, Targa route, Ain Temouchent. This school contains means of communication such as: Phone number, fax, Facebook page (مدرسة الأطفال المعاقين سمعيا), and an e-mail (www.auditifhandicape.@gmail.com). Furthermore, it provides the pupils with an internal and external system, with a space area of the school considered about 5275/M2. In the same context, the architecture of the school, the classes, and the equipment (Blackboard, hallways, playground, tables, chairs, canteen...) are no different from the normal other schools.

Figure 2.2: The School of Hearing-Impaired Pupils (2022, 2023)



Source: Adapted

2.3.2 Participants of the Study:

In order to accomplish this study, which is based on the elementary school of hearing-impaired pupils, the essential targets are of course the teachers of that school, pupils, pedagogical staff members, the educational assistant's crew, and some other specialists that encompass the field of deaf education in all the aspects. Besides, the contributions of the two speech therapists doctors in Ain Temouchent (one of them works in the school).

The researchers were able to conduct this study, share some information, and throw a glimpse into the value of this education and its effective role on their linguistic progress, their assimilation, their learning process, and their silent life journey in general, including of course the obstacles and challenges they encounter in their academic and personal lives. Taking into consideration that without those children with hearing impairment, there would be no such buildings as special schools or special education programs. All the thanks to them.

Plus, the teacher should create an environment that is welcoming and inclusive of deaf children, because they take the biggest part in forming them; however, he should have an understanding of deaf culture, and his pupil's knowledge, in order to be a part of their unique world, especially when educating them. He must have the capability to communicate effectively with his pupils and their families. This includes being aware of the linguistic and cultural diversity of the deaf community. By doing so, teachers can identify any obstacles that deaf children may have faced from social isolation and communication barriers...etc., and the solutions that can be used to get through them. As a result, teachers in special education for the deaf will be able to provide better instruction in settings that are appropriate for deaf children and pave the path for them to live equally with hearing students within regular schools. Overall, deaf pupils can succeed academically and socially with the correct instruction and assistance from teachers.

In the case of educating deaf pupils in special schools, it is not only the teacher's duty; this stage also requires the sponsorship of a comprehensive educational team by being there for them in each step they take to facilitate their educational journey and to support both the teacher and the deaf pupils. Moreover, they should also stay in touch so that to deliver the necessary information to each other.

In this special school for deaf children, it is not solely the teacher's duty to cover all the necessary components of successful learning and higher education; rather, a team plays a major role in fulfilling this mission (both psychologically and educationally). (See Appendix 02). They are mentioned as follows: (Head specialist nanny, psychologist & pedagogy specialist, social assistant, clinical psychologist..., etc.)

2.3.3 Sample Population:

As previously stated, the only elementary school for hearing-impaired pupils in Ain Temouchent is the one that is located in Targa Road Hai Moulay Mustafa; it comprises six classes; however, the second year of primary school is not available due to the age and level of the students. Additionally, there are eight workshops such as afforestation, body movement, handwork, music, computer science, sport, hairdressing,

Chapter Two: Research Methodology, and Data Collection

and sewing. The total number of teachers in this school is eight, plus a sports teacher. The teachers in this school do not have the same grades; the two first teachers who are in charge of the preschool classes (stages 1 and 2) are specialist educators (male and female), while the rest of the teachers are working as trainers to be prepared and hired as teachers of special education. Besides that, the school consists of four offices: the office of the principal education officer, the office of the comptroller general and pedagogy, the pedagogical team offices (the clinical psychologist, speech therapist, social assistant, etc.), and an office of the head of accommodation and reception. Despite the small number of pupils and because there are no other deaf schools in Ain Temouchent, the sample was small in number and limited. Despite all this, the researchers asserted that they would obtain and not miss any kind of information about every participant in this school.

**Table 2.1: “General Class Size by Levels
(2022, 2023)”**

Class of	Number of pupils	Sex	
		Girls	Boys
Preschool class level-01	05	03	02
Preschool class level-02	08	04	04
1st-year primary	12	07	05
3rd-year primary	10	05	05
4th-year primary	07	03	04
5th-year primary	13	06	07
Total Number:		55	

2.4 Research Instruments:

Research instruments can be defined as any tools used by researchers in order to collect data and information. Kothari (2004) points out that there are several methods of collecting data, including questionnaires, interviews, and observation methods. In the current study, observations and interviews are used and conducted with teachers, therapists, specialists, and pedagogical advisors of the hearing-impaired children's school, and with the “orthophoniste”, the speech-language pathologist. Unfortunately, the deaf pupils were not interviewed, because of the difficulties faced by the researchers in understanding sign language; nevertheless, class observations were enough to obtain and gather information about them, and the observations were made just in two classes, as it is mentioned above; moreover, the teachers provided a huge amount of information about deaf pupils attitudes, learning, and teaching. The investigation relied on some relevant documents, such as the school program, timetables, and curriculum. However, the Algerian Sign Language Dictionary was not used in this study due to its numerous deficiencies and errors.

2.4.1 Classroom Observation:

Classroom observation is one of the data collection methods, which is referred to as observing both teachers' and pupils' performance and the atmosphere in the classroom; however, it is the second tool used in this study by the researchers. Halim et al. (2018) described classroom observation as the act of observing and evaluating what is happening in the classroom. As both the pupils and teachers were targeted in this research, and due to the pupils' deafness, communication with them was difficult. However, the act of observation allowed for gathering information about their attitudes, behaviors, and interactions in the classroom, in addition to the difficulties faced by teachers such as engaging in the lesson, communicating, and maintaining discipline. Furthermore, the chosen sample for this method of data collection is the first two classrooms of the preschool stage (مرحلة التطبيق). The first-year pronunciation classroom

consists of five pupils (three girls and two boys), while the second-year pronunciation classroom has eight pupils (four girls and four boys). The teaching session for both classes was extended from 8 a.m. to 12 p.m., and the process of observation takes 3 hours in each classroom; after all, the focus is on the learning and the assumptions of the pupils, the teaching, and the interaction of the teacher.

2.4.2 Teachers' Interview:

In order to conduct a comprehensive investigation and accomplish this study, the first instrument used was the teacher's interview. Actually, there are numerous methods to collect qualitative data; interviews and observation are among them. "Interviews can secure data that is not available in performance records or data that is difficult to obtain through written responses or observations" (Kvale, 1996). The design interview for this study is a structured interview; however, it addressed six teachers at the primary level of the hearing-impaired school in Ain Temouchent. The education consists of two parts. In special education and primary education, there are two teachers in preschool education, at the first and second levels of the pronunciation class (قسم) التطبيق; moreover, there are four teachers in the primary education, which contains all the grades except for the second grade, and they follow the program of the Algerian Ministry of National Education curriculum. (See Appendix 03)

2.4.3 Speech Therapist Interview:

The researchers in this interview used a type of designed interview called a semi-structured interview, which combines pieces of both structured and unstructured interviews. The interviewee in a semi-structured interview is free to come up with his own answer to the inquiry. Despite the fact that it is still regimented, the individual has a choice in how to react. "Semi-structured interviews incorporate both open-ended and more theoretically driven questions, eliciting data grounded in the experience of the participant as well as data guided by existing constructs in the particular discipline within which one is conducting research" (Anne Galletta & William E. Cross, 2013;45). Speech therapists, often known as speech-language pathologists or "speech pathologists," assist in evaluating and treating patients of all ages, from infants to adults,

who experience challenges with their speech, language, or swallowing. Schools and hospitals commonly carry out this job, physicians' offices, colleges and universities, rehabilitation centers, and long-term and residential healthcare facilities; it is conducted with two speech therapists, one of whom works in the school of hearing impairment and the other in private cabin practices. (See Appendix 04)

2.5 Data Collection Procedures:

To achieve this study, many steps were taken into consideration after the founding of the elementary school for hearing-impaired children in Ain Temouchent, located in Hai Moulay Mustapha, Targa route. In order to conduct this study, the first step was to meet with the English department of the university, Belhadj Bouchaib, where the headmaster of the English department was asked to write a permission letter for the researchers. The researchers then delivered the letter to the directorate of social activity, which is known in French as (La D.A.S.) "direction de l'action sociale Ain Témouchent" and in Arabic as مديرية النشاط الاجتماعي والتضامن لولاية عين تموشنت. It was about requesting the admission of researchers to pursue and facilitate the research task with the school for the hearing-impaired. (See Appendix 01). Upon approval of their demand, the deaf school's advisor provided the investigators with a schedule for their visit. Following that, dealing with the school took three weeks.

The researchers attended different classes while also meeting the team at the school, which included teachers, a speech therapist, a pedagogical advisor, psychologists, and, of course, deaf pupils. The researchers introduce themselves, explain the purpose of this study, and clarify what to expect from each of them. First, we started with the teachers and how they engage in teaching the program, following the curriculum, how many subjects they are teaching, and the challenges they encounter during the education process. Furthermore, the researchers asked their permission to start interviewing them and collecting data throughout the observation. However, each interview lasted approximately 20 minutes to make sure that the answers were clear and sufficient. Lastly, the researchers moved to the school team in an attempt to catch up, understand the role of each one of them in the school, and collect as much information as possible

2.6 The Objective of the Whole Study

This research opens the door to many ambiguous questions inside the researcher's mind and helps to answer and understand the nature of teaching and acquiring sign language to deaf children. Furthermore, the purpose is to analyze the educational situation of deaf pupils in Ain Temouchent and obtain different types of information while also recommending simple yet efficient solutions.

2.7 Limitations:

There are some limitations faced by the researchers. First, the paper procedures of the approval letter consume all their time since they do not live in the same area where the research was conducted. Additionally, only one school in Ain Temouchent exists where the study was carried out; there were no opportunities to gather more information, and the sample was limited and small. Secondly, there was only one dictionary of sign language, which is not available outside of the school, and due to its imperfections, the researchers were unable to use it. Besides that, the lack of understanding of sign language led to a lack of communication with deaf pupils.

2.8 Conclusion:

This chapter demonstrates the education of the elementary school of hearing-impaired pupils at Ain Temouchent; it also highlights the principle elements and methods employed in this research to enhance its impacts by providing a clear explanation of the research methodology, the sample size, and the data collection procedures; moreover, the researchers did not implement a questionnaire; instead, they designed a direct classroom observation and a structured interview with the targeted teachers and a semi-structured interview with the two speech therapists; therefore, mix method is obtained. Additionally, the following chapter of this research is devoted to analyzing, interpreting data, and discussing findings. It also offers practical implications and recommendations to enhance and raise awareness about the educational needs of deaf pupils.

Chapter Three:

**Data Analysis, Practical
Implications and
Recommendations**

Chapter Three: Data Analysis, Practical Implications and Recommendations

3.1 Introduction:

This study aims to explore the present situation of teaching sign language and the challenges confronted by teachers and deaf and hard-of-hearing individuals in Ain Temouchent. After collecting the needed data, the ultimate chapter will provide a whole analysis of teacher interviews, classroom observation, and speech therapists. In addition, this chapter will answer all the questions and hypotheses of the research, explain the results obtained, draw recommendations and clear the dust on some obstacles based on the data analyzed.

3.2 Classroom Observation Analysis:

The second tool that was applied in this investigation is the observation classroom, which is considered a direct method to gather more data because it gives the researcher the opportunity to record events at the time of their occurrence.

This tool was used in the hearing-impaired elementary school of Ain Temouchent, where there are six classes. Two preschool classes (pre-linguistic development in children who are deaf) and four classes of primary grades (grades 1, 3, 4, and 5). The investigators attended two classrooms in grade zero, the first year and the second year, which specialized in early speech and language development. "التطبيق" (la dèmutisation), the process of the observation took three hours in each classroom, and during each session, notes were taken. The situation of the class and the way pupils sit play a great role in motivating both teachers and pupils.

The class was carried out in small and tight rooms; even pupils were few in both classes. The number of pupils in both is 13, with different hearing loss levels ranging from moderate to profoundly deaf. Teachers rely on one structure of sitting, which is different from the other elementary schools and very organized, to pay attention to the pupils during studying. Pupils of the first year are five (three females and two males) aged between five and six years old, and pupils of the second year are eight (4 males and 4 females); however, there is a difference in ages between deaf pupils that ranges between 8 and 12 years old.

Chapter Three: Data Analysis, Practical Implications and Recommendations

The method followed by the teachers was the traditional method (grammar method); it was clear and obvious that sign language was used by both teachers and pupils; moreover, deaf pupils in this stage learn how to read and write the modern standard Arabic (MSA); in addition to that, pupils acquire the alphabet of sign language and its corresponding character in (MSA), for instance, the teacher would sign using gestures of the letter (ا,ب,ت... الخ), and spell it in Arabic using mouth movements, and then he moves to the next alphabets till he finishes all the listed Arabic alphabets; furthermore, teachers do also teach them mathematics (e.g., numbers, Geometric shapes: square, rectangle, triangle, lines: straight line, parallel line, and how to count).

The researchers could not apply the observation session to all classes because of the limited time. However, here are below some notes taken in both preschool grades in the first and second years:

- The first step when the pupils enter the classroom is for the teacher to greet them by using sign language and spoken language.
- Each morning, at the beginning of the lecture, the teacher chooses a pupil and asks him about the last day (yesterday), today, the month, the date, and the year. This is called “relative learning” or “special needs education”. As explained by the teacher, this step will help to make the pupil remember and distinguish between the present and the past. Also, the teacher will make a review of the weather conditions (cloudy, sunny, rainy, etc.) and take them out to see and feel with their own eyes.
- Only nine letters should be taught in the first year (ا, ب, ت, م, ن, ط, د, ق, ك), and the teacher use some techniques to make the acquisition easier for the pupils, such as using a pen to pronounce the alphabet (ك), and using the water to gargle in order to pronounce the letter (غ), and in the second year they should finish all the letters. In both grades, the program focuses only on spelling, reading, counting, memorizing and writing letters, and dictating, while the other subjects are taught in the next year, which is the first primary year.
- Each day, different subjects were taught according to the timetable. For example, on Thursday, the first course was a traditional one about discussion;

Chapter Three: Data Analysis, Practical Implications and Recommendations

the course objective was to enable the learners to talk about their daily activities, and describe people's houses, clothes, and work.

- Both teachers of preschool take a moment to look at the pupils' lesson books, if they have written all their lessons, and do their activities to make sure all students have interacted with them successfully during the lecture.
- In the middle of the classroom, the teacher provides them with activities such as hearing exercises. The teacher says a letter while covering his /her mouth, and the deaf pupils will try to discover it, then each one of them will write it on his or her whiteboard. What is noticed by the researchers is that this activity focuses on individual work because some students will not pay attention when the teacher is spelling the word. That is why the teacher relies on repetition to make sure that every child is following.
- If the pupils are not paying attention to his lessons, the teacher makes a remark, and at the end, he will stick a sticker in their copybook as a note for their parents, saying, for example, “Your child did not write the appropriate letter, or he/she was so slow, or he/she makes noises and disturbs the class.
- A mirror exercise is also included for pupils who face problems with spelling. The teacher writes the letter on the mirror, and the deaf child will try to spell this letter and, at the same time, see how his or her mouth is moving by looking at the teacher’s mouth movements. After this activity, the child will be able to memorize the letter.
- Due to the small number of pupils in both classrooms, there was no lack of understanding on the part of the pupils; the interaction and participation with the teachers were very good, as was the atmosphere in the class.
- The language used during the lecture is sign language. In addition, the teacher spent a lot of time on the board trying to explain each sentence.

Question 01: Give us a glimpse of the science of the speech therapist, and what are the problems that the specialist treats?

► According to the speech therapist, their answers were similar; they said that the speech therapist is a health professional, and a specialist in the correction of speech and language disorders. It prevents and supports written and oral communication disorders; it may also be required in terms of swallowing and oral facial motor skills; and they added that the speech therapist deals with the following difficulties:

- ◆ Oral and written language (Dysphasia, dyslexia, dysorthographia, stuttering, and speech delay).
- ◆ Communication (spectrum autistic, Asperger's syndrome, pragmatic and discursive skills).
- ◆ Oro-myo-facial functions.
- ◆ Cognitive activities related to speech and phonation (articulation, phonological disorders).
- ◆ Mathematical cognition (logic-mathematical delay).
- ◆ Voice disorders (dysphonia, rehabilitation after ENT surgery).

Question 02: What is the difference between the speech therapist and the otolaryngologist?

► The purpose of this question is to learn more and gain knowledge about the distinctions between these two disciplines (speech therapist and otolaryngologist). However, as they explained, the primary focus of a speech therapist is communication and language, while the primary focus of the (ENT) doctor is on the diagnosis and treatment of the head and neck region; moreover, if a person with hearing problems once goes to the speech therapist, the first thing to do is send him to the (ENT) doctor to pass the test called PEA ("Auditory Assessment Tests") (from the age of 5 and beneath),(see Appendix 05).

As a result, an individual may require treatment from both a speech therapist and an otolaryngologist to address their specific needs.

Question 03: What are the methods used in managing speech therapy?

► This inquiry aims to know the specific strategies used by the speech pathologist for the sake of managing speech therapy for people who suffer from hearing loss. As they said, the method applied for speech therapy is to begin first with an interview with the parents of the child or the patient directly if it is an adult, what is called the anamnesis, or we ask several questions to know the progress of the child's development since birth. After that, we must make the patient pass various tests that concern the child's disorder and also tests for cognitive functions, without forgetting to go through additional tests to eliminate all physical pathologies.

Question 04: How can hearing-impaired kids be helped to acquire language (spoken& written)?

► From their responses, they affirm that the best way to help them engage in learning language, whether it is spoken or written, is through some techniques, which are:

- ◆ Teaching facial movements (mouth and face).
- ◆ Teaching the breathing process.
- ◆ Teaching oral language from the movements of the lips and following back the exact phonetics of certain letters or words.

Question 05: What are some of the early signs that may indicate hearing loss in children?

► The speech therapists explained that some observations were made of the child after birth, such as deep sleep, not responding to their names when called, and before birth, such as having health issues or a fever while the mother is still carrying the child or some genetic factors they inherited from their parents.

Question 06: What is the role of speech therapy in helping children with hearing impairment overcome their language difficulties?

► Both of the therapists agreed on the importance of early diagnosis before 3 years, effective treatment plans, following the stages, attending informative speech therapy sessions, and parents and other primary caregivers should be involved in a child's language development because they can encourage language learning and foster linguistically stimulating situations at home.

Question 07: What are some speech disorders commonly found in children with hearing impairment?

► Hearing loss affects the linguistic development of a child, as there is a close relationship between hearing and speech. The ability to articulate is not fully developed without hearing the sound; hence, it produces the following disturbances, such as (stigmatism)

Question 08: What advice would you give to parents of children with hearing impairment, especially regarding learning and language acquisition?

► Both speech pathologists emphasize the crucial role of parents in any child's life, regardless of their situation, and in this case, the parents should be fully aware of hearing impairment, then pay attention to the stages of the child's development, and finally, make an early diagnosis.

Question 09: How does hearing loss affect a child's language development?

► As they explained, hearing loss may affect a child's language development by reducing their capacity to hear and interpret speech, resulting in language acquisition delays, limited vocabulary, and grammar difficulties.

3.2.2 Teachers' Interview Analysis:

In order to investigate this study in a deep manner, the first instrument used is a teacher's interview, because the nature of the current research work requires strongly including teachers during the process of data collection. Teachers involved in this investigation are teachers from the hearing impairment school located in Ain Temouchent. There are nine teachers in total (eight females and one male). The teacher's interview consists of 13 questions, ranging from open-ended to closed-ended. In order to provide the researcher with concrete and accurate explanations based on their knowledge and experience. Moreover, the questions were asked in Arabic and then translated into English.

Question 01: What motivates and inspires you to become a teacher of deaf pupils, and what is the most enjoyable thing in your job?

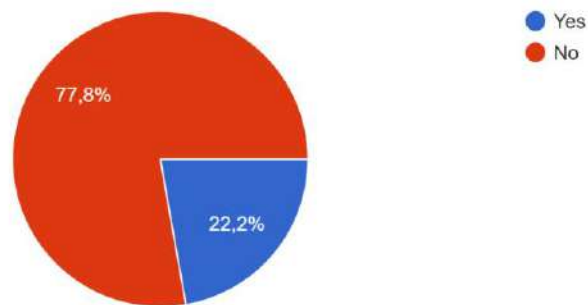
► The aim of the question is to reveal whether all participants' teachers are satisfied with teaching deaf D/H/H pupils. According to the results, the majority of teachers agreed that the only reason that led them to teach this kind of pupil is having a job and a stable income, while some affirm that they wanted something different and loved to spread knowledge and gain experience and find new ways to deliver the information.

Question 02: Have you received any kind of training in sign language?

Figure 3.2: Teacher's responses on whether they receive comprehensive training in sign language or not.

2- Have you received any kind of training in sign language?

9 réponses



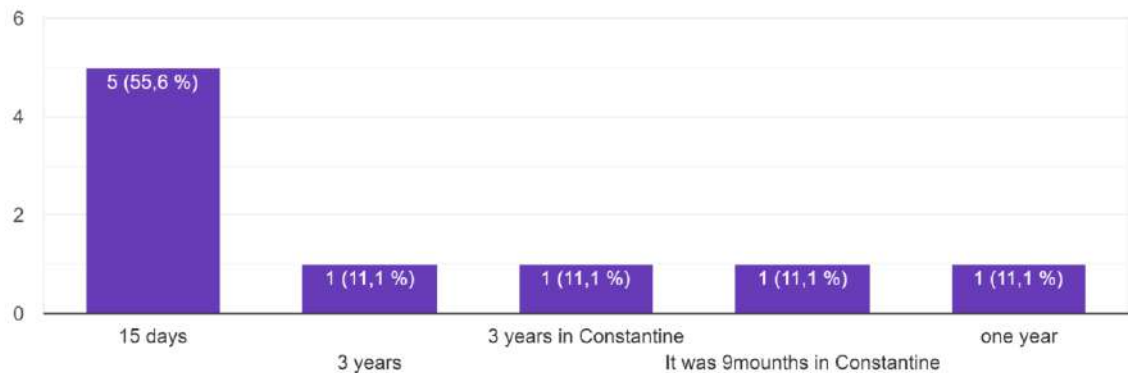
► The results of this study indicate that only two out of the nine sampled teachers (22.2%) said they had received comprehensive training. They confirm that they had three years of training in Constantine, but it did not focus on deaf students specifically; instead, it covered a variety of other disorders, including physical disabilities, Down syndrome, autism, etc. Meanwhile, 77.8%, or seven out of nine participants, said that they had not received any comprehensive training.

Question 03: What was the duration of your training process?

Figure 3.3: Teacher's training duration.

3- What was the duration of your training process?

9 réponses



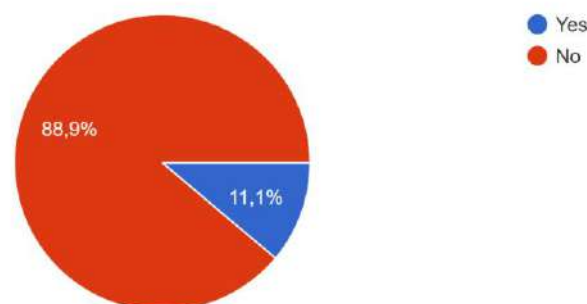
► The above diagram showed the duration of training of the targeted nine teachers in the school of deaf children. However, the results showed that the majority of them 55,6% have been trained for only 15 days; on the other hand, only one participant was trained for approximately 9 months in Constantine and the other one for one year, and did not complete the formation in one year, but it was divided; moreover, two of the participants were trained for around 3 years in Constantine, which is the only city that holds this kind of formations.

Question 04: Was the training effective, and did you find it helpful when you started teaching?

Figure 3.4: Teachers' responses whether the training was effective or not.

4- Was the training effective, and did you find it helpful when you started teaching?

9 réponses



► Most of the teachers (88.9%) agreed that the period of their training was insufficient and was not as effective as they desired, because it took only 15 days of training and they are still in the process and they still need a lot more knowledge and experience about all that is needed for the deaf pupils, while 11.1% of the teachers confirmed that the training was enough and that it helped them during their teaching journey and interacting with their pupils. Some of the respondent's answers are shown in the following table:

Table 3.2: Teachers' comments on their training and if it was effective when they started teaching.

Number of Cases	Answers and Comments
Case 1	it was not enough, because the training was not specifically intended for deaf children, instead, it was general
Case 2	No, because I'm still in the process of learning and doing formations
Case 3	Not at all, it was difficult to communicate, teach, and deliver the information because I have no knowledge of or proficiency in sign language. Moreover, the duration of the training was not enough to gather and know the deaf culture or their language at all
Case 4	Due to the training's brief duration, lack of sign language understanding, and other factors, I did not learn anything new or receive any useful assistance from it regarding this language (sign language).

Question 05: Have you received specialized training to teach children with hearing impairments, or in special education in general, such as for children with intellectual or physical disabilities, autism, or Down syndrome?

► The purpose of this question is to know the credibility and success of the training because if the training was directed only to the hearing-impaired pupils and deaf community culture, it would have been more useful for both the teacher and his students, and he would have excellent achievement and acceptable results. Furthermore, it can be very difficult for a person when others do not understand them. In the context of a teacher and student, if a student is not being understood by their teacher, it can be frustrating for both parties. It is important for the teacher to listen carefully to the student and ask clarifying questions if necessary. If the teacher is unable to answer the student's question, they should be honest about it and work with the student to find the answers together. The following answers were given by the participants:

Table 3.3: Teacher's comments on whether their training was specialized only for hearing-impaired students or in general.

Numbers of Cases	Arguments and Comments(Yes, No)
Case 1	No, it was not intended only for children with hearing impairment, but it generally included several other disorders
Case 2	No, it was for regular education just to work as a regular teacher, nothing general or special education
Case 3	To be honest, I did not receive any instruction focused on sign language or working with deaf children; instead, I entered a competition for educators, was chosen, and completed a 15-day training program. I have occasionally participated in training courses up until now.
Case 4	No, I did not receive a special education about deaf pupils, it was in general

Question 06: How did you learn sign language, and what resources did you use to enhance your acquisition of the language?

► The aim of this question is to point out the different sources used by teachers in order to enhance their abilities in learning sign language.

According to the lack of training, most teachers agree that when they started working in this school, they struggled to understand the child and knew nothing but a little about sign language. There are two old teachers who have specialized in Constantine City for three years (general). They said that the acquisition of sign language did not exist, and they receive training about different diseases such as autism, Down syndrome, blindness, and other disabilities. However, the only way to help them acquire sign language was through interaction with deaf people in school, and the experienced teachers and even the workers in the administration helped them get different information. Due to the investigator's input, there are no fields or subjects consisting of learning or teaching sign language in schools, private schools, or institutions in Algeria. Besides that, in Algeria, there is only one dictionary used by the hearing-impaired school, which unfortunately is not fully useful due to the number of misunderstandings in it and how complicated it is to use it, but the new teacher in the third year of the primary school still deals with it. Additionally, there was just one teacher who relied on the Internet in order to develop and learn sign language. Teachers, however, provided a variety of ways and methods by which they learned sign language and expanded their knowledge.

Table 3.4: Some of the strategies adopted by teachers to learn sign language.

Cases	Their Source of Learning SL
Case One	To be honest, interacting with my pupils is the reason that helps me to be fluent in sign language.
Case Two	Usually, I use electronic sources such as YouTube, and Google.

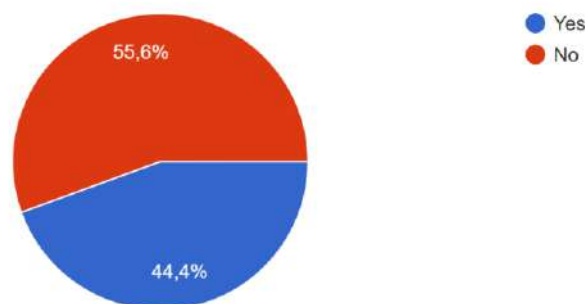
Chapter Three: Data Analysis, Practical Implications and Recommendations

Case Three	The dictionary provided by the school was a good source to enrich sign language vocabulary.
Case Four	The source of sign language that was helpful for me was the pupils. Spending time with them, you will naturally be part of their unique, beautiful language, and if you want to learn it, they will be more than happy to assist you.
Case Five	Truthfully, if I only relied on the training sessions, I would not get any farther in my communication with deaf kids. However, in order to accomplish my job, I relied on a variety of people, including the experienced teachers, and pupils, who teased me for using the wrong signals and were largely responsible for my improvement in sign language.

Question 07: Are there sufficient equipment and resources available in this school to aid in the learning process?

Figure 3.5: Answers of whether the school provides the teachers & pupils with the needed equipment.

7- Are there sufficient equipment and resources available in this school to aid in the learning process?
9 réponses



Chapter Three: Data Analysis, Practical Implications and Recommendations

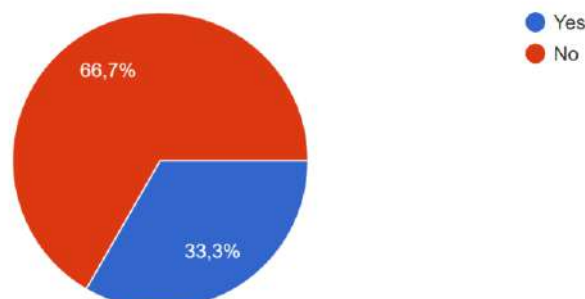
► The results of the answers were divided into two points of view: 44.4% of the participants said yes; meanwhile, 55.6%, which represent the majority, said no and gave some evidence to support or convince this issue, and some of their comments are:

- There are no textbooks, training rooms, or visual aids for conversation available.
- Visual aids are essential, especially in classrooms with students who have special needs, like hearing impairments. Some of these aids, like data-show, which is not offered at this school, help the students see the images with their eyes for better comprehension as they learn visually.
- Lack of simple pedagogical means such as pictures, conversations, and visual images, and lack of technological equipment.

Question 08: What is your opinion on the educational curriculum for teaching deaf children in Ain Temouchent? Is it beneficial?

Figure 3.6: Teacher's opinion about the educational curriculum for deaf children.

8- What is your opinion on the educational curriculum for teaching deaf children in Ain Temouchent?
Is it beneficial?
9 réponses



► When teachers were asked about the curriculum used in this school and whether it is beneficial for the pupils or not, 33.3% said yes; they did not encounter any troubles regarding the curriculum, while the others said yes, and their percentage, 66.7%, emphasized the existence of a defect in this curriculum and wished that they would fix it or renew it. Here are some of their comments and arguments:

◆ I see that it is not suitable for children with hearing disabilities and exceeds their abilities.

◆ In my honest opinion, this educational curriculum is not beneficial for this group of deaf children. As evidence, I can say that my students have difficulty acquiring and understanding the information; however, using the same curriculum as regular schools is not appropriate for deaf children, who require more care, understanding, and patience.

◆ As a teacher of English, there is no pre-linguistic development for this foreign language, and the curriculum is the same as the regular program in traditional schools. As the language is new to them, it makes it even more difficult for their learning acquisition.

Question 09: What kind of educational background or training have you received to prepare you for teaching children with hearing impairments?

► Only two of the participant's teachers, according to their statements during the interview, are certified in the field of educating deaf pupils; the other teachers are regular university graduates with different kinds of specialties. Some of their comments are listed below:

Table 3.5: The Educational Background of the Teachers.

Teachers Cases	Academic Degree/ Qualifications
Case 1	I have a diploma in English studies

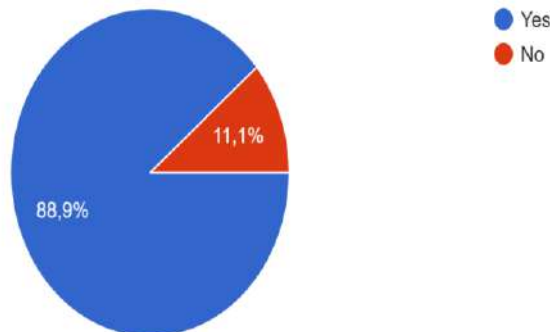
Chapter Three: Data Analysis, Practical Implications and Recommendations

Case 2	well, I am certified by the state as a teacher specializing in hearing disabilities
Case 3	I am not qualified in sign language; instead, I learned it while working as a teacher at this school for many years.
Case 4	well, I did not receive any kind of training but I gained it from years of experience while working as a teacher in this school

Question 10: Do you believe that using technology is necessary for educating deaf children?

Figure 3.7: Responses about the Importance of using Technology in the Classroom.

10- Do you believe that using technology is necessary in educating deaf children?
9 réponses



► In the chart, the investigators observed that 88.9%, which represents the majority, said yes; they confirm and insist on the importance of using technology in classes, while only 11.1%, which is only one person (a physical education teacher), said no. Some of the majority of candidates' responses are as follows:

Chapter Three: Data Analysis, Practical Implications and Recommendations

◆ Certainly, we live in the twenty-first century, and the use of technology is now required to keep up with development, particularly in the educational field. These technical devices, such as PCs and laptops, display videos, and communication tools such as texting and smartphones improve communication for this category of pupils.

◆ Data-show, computers, tablets, and visual aids are all important, and it is the least the school can provide

◆ Of course, it enhances learning abilities in a more professional manner that is appropriate for this sophisticated period and produces favorable outcomes for both students and teachers.

Question 11: What are some of the challenges that you have experienced while teaching children with hearing impairments, and what steps have you taken to overcome these challenges?

● As an attempt to find out the process of teaching and its difficulties, and as far as this study has shown, teachers of hearing-impaired pupils do face countless challenges, yet they adapt and adjust to find a way out of this dilemma, as the table below shows:

Table 3.6: The challenges that face the Teachers and how they overcome them.

Teachers Cases	Teacher's Challenges while Teaching Children with Hearing Impairments
Case 1	I faced challenges in teaching students with learning difficulties and had to put in extra effort to ensure that the information was conveyed accurately and that the lesson was fully understood," is a possible reformulation of the given sentence.
Case 2	Fatigue and burnout are what primarily affect me. Being tired physically and psychologically while working with deaf students can cause teachers to get exhausted and burn out.
Case 3	Some of the difficulties are the age disparity between pupils, which causes them frustration and problems with self-confidence,

Chapter Three: Data Analysis, Practical Implications and Recommendations

	Lack of required school documents, and most of the time, I make my own efforts
Case 4	Since there are no tools such as (pictures, or videos...), and each pupil has a varied level of understanding and input reception, I have to rely on individual work most of the time, and when it is group work I rely on the repetition method

Question 12: As a teacher of deaf children, what solutions and recommendations do you propose to improve and change the current status of teaching sign language in Ain Temouchent?

The purpose of this question is to learn about methods to help Ain Temouchent pupils who have hearing impairments receive a better education, to shed light on this population, and to hear the opinions and perspectives of the teachers. Moreover, here are some of their comments:

- ◆ I would love that more sign language courses should be done, besides providing schools for people with special disabilities, especially hearing disabilities, with what they lack from equipment and Awareness

- ◆ Intensive training courses must be taken, especially in the western part of the country(Ain Temouchent especially), because due to the fact that the study or training center responsible for educating and training teachers on teaching individuals with diverse disabilities is located solely in Constantine, long distances can hinder proper training and education for them.

- ◆ A teacher must encourage his pupils to participate by giving each pupil work to do and enriching the subject matter with visual aids like colorful charts, diagrams, and videos.

- ◆ Spreading awareness about this category of people (hard of hearing), and they must be integrated with other pupils who hear normally. This is in order to strengthen their

social relationships, make friends, and show that they are regular people, just like everyone else.

3.3 Classroom Observation Interpretation:

Classroom observation is a popular approach of research that focuses on how teaching or learning occurs in the classroom in order to get information about the learning needs.

The observation process was applied in both the first classrooms of articulation, which contain two classes (Pre-linguistic development in children who are deaf). The observation period between the sections was 6 hours which means 3 hours each, to collect the required information. What was noticed is that there were some commonly shared points between deaf pupils and teachers in both grades. In the first class, it was a small group of five. The teacher did not face any kind of problems when he was explaining, and his pupils were active. There was just one problem with a deaf girl who is profoundly deaf as stated by the teacher “Her pronunciation of the letters took me a whole month”, some of the reasons was her profound deafness. Indeed, we noticed that the girl improved her articulation when the teacher tested her.

Besides, there was a hearing machine that helps children with deep deafness, plus a mirror used by the teacher as a technique to help pupils to see themselves i.e.(lips shape) when they pronounce the letter; moreover, he provide them with some pictures to enable the learners to talk about their daily activities; however, sign language was the only means of communication. There are basic subjects that are taught at this stage such as pronunciation, simple math, letters, reading, writing, and spelling which only nine letters should be taught. We noticed that the nine letters were all written on the board, as the teacher said that we keep the letters written in order to make the pupils remember each letter and how to write it, this method is very important for a deaf child to remember.

Furthermore, in the second stage, was a teacher (female) who uses the same methodology in teaching and the same subjects taught as the first one, there was only one difference in teaching letters and numbers because the second year was a little more

advanced than the first year. The teacher resorts to completing the remaining letters and numbers; therefore, during observation, we discovered that the teacher uses noticeable effort in explaining and spelling words than the first year. In addition, in both sections, we observed that the ages of the deaf pupils differ extremely not like regular schools, in which the children's ages are normally compatible, and this is because the deaf child was not enrolled in school earlier.

Both classes shared the same points such as the structure of the setting, and timetable; also, both teachers uses the same methodology. The pupils were very energetic during the participation. The only method used in the courses was traditional teaching. Moreover, it have been noticed that no one could write a full correct sentence because they had poor hearing, so the teacher focused on one word and the individual work during the activity with the repetition.

All in all, what attracted our attention was that both teachers of preschool classes were very specialized and active, they did not face any complications concerning the way of explanation, unlike what we witnessed at other levels. Most of the teachers faced problems in delivering information to deaf pupils because of sign language barriers, lack of resources, and because they need technology devices to facilitate their teaching.

Finally, the classroom observation results confirm the hypothesis that teachers who are competent in educating deaf children are the ones who receive specialized training in sign language and they need to use technology to overcome these challenges.

3.3.1 Teacher's Interpretations of the Results:

The main purpose of the interview was to gather some information about teacher's training and experience, and to gain knowledge about teaching and learning sign language in the primary school of Ain Temouchent; however, teacher interview results provided important inputs and observations.

The first question as it is mentioned in the interview was about whether all participants' teachers are satisfied with teaching deaf D/H/H pupils; the result showed

Chapter Three: Data Analysis, Practical Implications and Recommendations

that the majority of them have no desirable choice with the job; however, it was more important to have a stable career.

In the second question, the researchers wanted to know if the teachers of deaf and hard of hearing received comprehensive training in sign language. However, the negative results showed that teachers who have been subjected to special training represent (22.2 %); this implies that those teachers are not well equipped to deal with deaf pupils. There were only two specialized teachers in the school who received comprehensive training and the duration of their training took 3 years, conversely, the rest of the teachers received only 15 days which is a short-term experience as it showed in the chart of the third question.

Moreover, the fourth question asked to understand if the training was effective. (88.9%) of the teachers were not satisfied with the period of their training. They believed that they had neither relevant training nor experience in sign language because they still need to gain more knowledge and experience about all that is needed for deaf pupils' education today. They assert that the only way that helped them to learn sign language was not the training in contrast, they acquired sign language from their pupils and the experienced teachers.

The aim of the fifth question was to know if the training was specialized and concerned only for the deaf and hard-of-hearing students, or if it combines all the different disorders. Unfortunately, the training was in general, because all teacher's comments deny that the training was directed only to the hearing-impaired pupils and deaf community.

The next question is about sources and strategies adopted to learn sign language. During the absence of comprehensive training, many teachers started to teach deaf pupils without understanding or mastering sign language and they improved themselves by getting information through different sources such as electronic resources, and interacting with their pupils and other experienced teachers, besides, their reliance on learning sign language was made of their own efforts and diligence.

Chapter Three: Data Analysis, Practical Implications and Recommendations

The seventh question was concerned with the availability of materials and equipment in the school, which is essential to help improve their learning process. Thus (44.4%) did not find a problem with the existence of the materials, because they teach in the same curriculum as the traditional schools; meanwhile, (55.6%) said that the school does not provide them with resources, plus there was a huge lack of books, limited dictionaries, and even classrooms, they claim that the materials were not always available in the school, which leads to many barriers and difficulties.

When we asked the teachers in question eight about their opinion on the educational curriculum whether is beneficial or not, the majority of the teachers (66.7%) said no, because the only curriculum used to teach deaf students is the same one used for regular schools, so according to them, it was not designed to fit their needs and it is not suitable for children with hearing disabilities. Hence, the authorities should change it and create another developed version to meet and facilitate deaf pupils' journey of learning.

The eleventh question was concerned with the importance of using technology devices during teaching deaf pupils, the main objective is to see if teachers are with the use of the technology inside classrooms or not. The results have revealed that (88.9%) of teachers support this idea, while (11.1%) did not pay much attention to the use of technology; therefore, the outcomes were expected because during teacher interviews the majority of them complains about facing many challenges; plus, deaf pupils need visual aids such as PowerPoint, videos, images ..., etc. According to them, books and whiteboards are not enough, so technology devices will surely decrease those problems.

Question number twelve and thirteen are the last in the teacher's interview. The objective was to address the challenges that the teachers have experienced and what solutions and recommendations they propose to improve the situation of teaching deaf and hard-of-hearing pupils in Ain Temouchent. In the twelfth question, the majority of the participants encountered several obstacles including communication difficulties with deaf pupils, the age disparity between pupils, and so on; however, the last question's purpose is to improve the methods used in the school and to help to receive a better

education. The majority of teachers gave advice such as doing many seminars to enhance the level of the teacher, additional sign language courses, also by bringing specialized teachers, and having patience and motivation to work with them. Eventually, every teacher's goal is for his students to acquire an excellent education that is appropriate for their particular circumstances.

3.4 Suggestions and Recommendations:

The researchers attempted to understand the difficulties that face both the pupils and the teachers, so here are some additional solutions and guidelines for a better education environment:

► The need for authorities to develop a new version of the Algerian sign language dictionary (See Appendix 06). For example, producing a CD or other digital resources can be a good method to increase (ASLD's) accessibility to the country's deaf population; schools, educational institutions, as well as deaf people and organizations around the nation, can all receive CDs. In particular, for those who do not have internet access or other ways to access digital resources, this can help to enhance access to the ASLD, in order to make the dictionary's use less ambiguous than it is today. In addition, increasing funding for the creation and maintenance of the ASLD will guarantee that it is always updated and available to all Algerians who are deaf.

► The Need for a Customized Curriculum that is specifically tailored to Deaf Education in order to ensure that it meets their unique needs so that they can acquire sign language successfully. This could include exploring new teaching strategies, incorporating technology into the classroom, and collaborating with deaf education experts and sign language teachers to develop comprehensive and culturally relevant curricula.

► Apply modern methods during teaching, because it is important to use modern visual aids and other materials to support learning and ensure that deaf pupils have access to assistive technology and devices, such as pictures, videos, Data shows, PowerPoint, etc.

Chapter Three: Data Analysis, Practical Implications and Recommendations

Therefore, developing and utilizing technology to support sign language communication can enhance accessibility and promote inclusion in various settings, including education and employment.

► Teachers who will work with deaf pupils must receive the appropriate specialized training, to enable students to receive a high-quality education that fits their specific needs. However, Building the capacity of sign language teachers in Algeria is essential to ensuring that quality sign language education is available for deaf and hard-of-hearing pupils. Future research could examine effective teacher training models and explore ways to improve the quality and accessibility of sign language teacher education programs.

► Teachers, speech therapists, or any member of the school that had a hand with deaf pupils, should talk to the parents, involve them, and meet them to learn as much as they can about their child's needs and education. This collaboration will indeed help to ensure that the pupil's needs are being met both at home and in the classroom, and can lead to better outcomes for the student over time.

► Teachers should be patient when teaching deaf and hard-of-hearing pupils and use presents or words of affirmation to encourage individual engagement.

► Teachers must be sensitive to deaf pupils' challenges, and emotional needs. Above that, they should take into consideration the classroom environment. For example, it may be helpful to arrange the seating plan to allow deaf pupils to see the teacher's face and lips clearly. The use of background music or other distracting noises should be minimized, and the room should be well-lit to support lip-reading and the use of sign language

► Providing employment opportunities for deaf and hard-of-hearing individuals to enhance their opportunities so that they can promote economic independence and social

Chapter Three: Data Analysis, Practical Implications and Recommendations

inclusion, and have a role in developing their country by becoming as useful as any ordinary individual here are some examples of individuals who have made significant contributions to their society: Raja Al Gurg, Wael Abbas, Thomas Edison..., etc

3.5 Conclusion:

In light of what has been addressed, the main goal of this section is to understand more about the deaf community in Ain Temouchent's educational system. The last chapter dealt with the practical aspect of the present investigation. It provides the results of data gathering and analysis through the use of different research instruments, starting with the classroom observation, the speech therapists' interview, and then the teacher's interview, which is followed by interpretations. This chapter has tried to test the three hypotheses, answer research questions, and reach the objectives that have been set in the general introduction. In the end, the investigators attempted to propose a set of solutions and recommendations to help and enhance the situation of teaching deaf pupils in the current school of Ain Temouchent.

General Conclusion

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In this dissertation, the difficulties associated with providing inclusive education to deaf students who use sign language as their primary form of communication were examined. It investigates how deaf pupils and teachers view sign language and identifies the key challenges that both the pupils and the teachers in a particular school for the hearing-impaired in Ain Temouchent confront, from the unspecialized curriculum that does not meet their needs to the lack of well-trained teachers in this specific category. The study will concentrate on how deaf youngsters can better access education by communicating in sign language and working with qualified teachers. The research aims to further the creation of effective solutions to support the education and inclusion of deaf students in schools.

Three chapters made up this study project; the first dealt with the theoretical part of it. It discussed various ideas related to the study's theme, including definitions of sign languages and, variations, origins and discoverers, as well as how children with hearing impairments could learn it and the various sign languages spoken throughout the world. This section aids the reader in understanding the keywords of sign language.

The second chapter dealt with the research methodology and the tools that have been selected to gather the data needed to reach our research objectives. It provides a detailed description of the research site and the chosen sample. The last chapter is concerned with data analysis collected from both teacher's and speech therapists' interviews and classroom observation, and a discussion of the main outcomes in order to test the validity of the hypotheses that have been proposed. The results of this study show that teachers at this school face a few challenges and obstacles. First, the findings revealed that most teachers had no training and that just two teachers in the school had obtained the right training in sign language in Constantine with three years of experience. The remaining teachers are typical graduates of colleges and universities that hold different specializations. Nonetheless, what is taught to deaf pupils is articulation vocabulary and letters, not sign language, because there is no subject or

General Conclusion

field called sign language. Teachers' interview results confirm the hypothesis that teaching deaf pupils holds difficulties and challenges, and mastering sign language is only possible through their interaction with deaf pupils. They also assume that teaching deaf pupils will be easier if the curriculum changes because non-hearing-impaired children should not be taught the same as hearing children; there is a difference in their level, so even methods and ways must be developed. On the other hand, during the classroom observation, there was no use of any technological devices.

During the interview, the teachers in the school mentioned the obstacles and barriers to overcoming this situation, such as the curriculum provided by the school, the lack of equipment and materials, and the absence of the use of technology. Furthermore, we have observed that they need resources and training in sign language. They suggested that the government must create specialist books and dictionaries for students who are deaf in order to provide them with full access to all the necessary knowledge, as well as provide a specialized teacher and an adequate school program. We recognize the primary goals of the teachers, and we believe that every deaf person should have these granted privileges.

Moreover, we have tried to propose some recommendations and solutions to reduce these problems; even parents' awareness of their deaf children contributes to developing their level of learning, as the language therapist cited. Also, we have stated other methods and tips that can help teachers develop their teaching process. By the end of the last chapter, limitations faced by the researcher during the process of conducting this research work are mentioned. The paper producers took a long period of time, and we faced some struggles when collecting data. First, there was no other opportunity with other hearing impairment schools because in Ain Temouchent there is only one school, so the sample was limited. Second, we do not master sign language. This causes a lack of communication with deaf pupils, so in the end, the pupils' interview has been canceled, and the researcher relied only on the interview and classroom observation in the process of data collection. The last problem we faced with the administration of the school was that taking evidence and pictures was definitely forbidden, and as researchers, we need some pictures and sources to enrich our study.

General Conclusion

We aim to open a window into the world of hearing loss. We want to understand the needs of both teachers and pupils. Sign language is not just gestures; it is a formal language that should be treated as important like other languages and taught like any other branch. The authorities should value deaf education, employ specialized teachers, and look after their needs in order to make deaf education successful so that they can carry on their studies to achieve academic goals and be able to see deaf teachers in the future.

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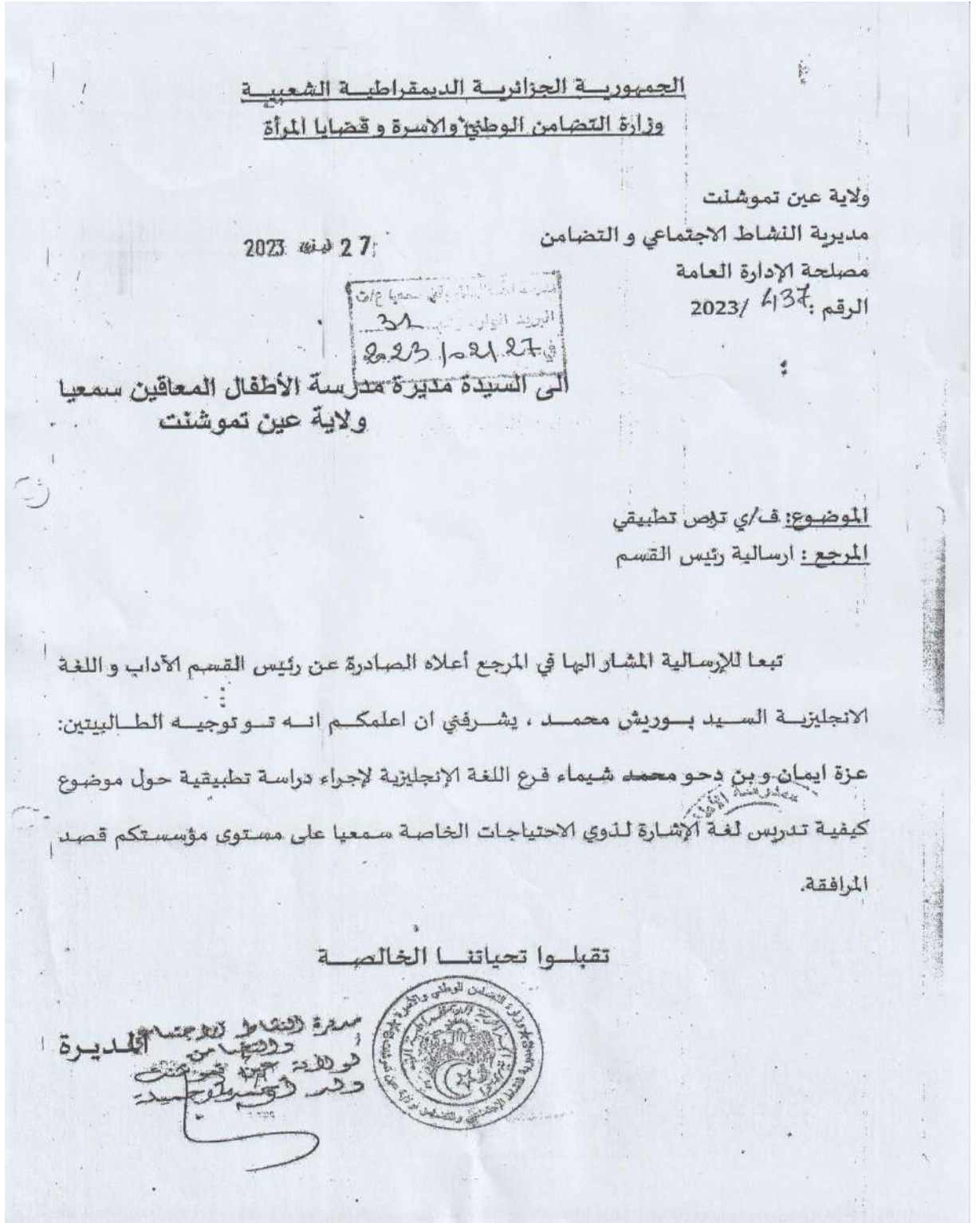
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Appendices

Appendix 01: The approval letter to carry out the study of this investigation.



Appendix 03: Teacher's Interview Guide

دليل المقابلة لمعلمي الأطفال ضعاف السمع (الصم والبكم)

الجنس:

سنوات الخبرة :

1- ما الذي ألهمك لتصبح معلماً للأطفال الصم؟ وما أكثر شيء تستمتع به في عملك؟

2- هل تلقيت تدريباً في لغة الإشارة؟

نعم
لا

3- هل يمكنك إخباري بالمدة (الوقت) التي استغرقها تدريبك؟

4- هل كان التدريب فعالاً وهل وجدته مفيداً عند بدئك بالتدريس؟

نعم
لا
لماذا

5- هل تلقيت تدريباً خاصاً للأطفال الذين يعانون من ضعف السمع أو كان بشكل عام على سبيل المثال (عقلي، جسدي، معاق، توحّد، متلازمة داون)

6- كيف تعلمت لغة الإشارة وما هي المصادر التي استخدمتها لتحسين اكتسابك لغة الإشارة؟

7- هل توجد جميع المعدات اللازمة لتسهيل عملية التعلم في هذه المدرسة؟

نعم
لا

إذا كانت الإجابة "لا"، فاذكر الأسباب والأمثلة

8- ما رأيك بالمنهج التربوي لتعليم الأطفال الصم في الجزائر

هل هو مفيد؟

نعم
لا

إذا كان الجواب لا ، يرجى تقديم اقتراحات

9- ما نوع التدريب أو المؤهلات التي لديك لتعليم الأطفال الصم؟

10- هل تعتقد أن استخدام التكنولوجيا في تعليم الأطفال الصم ضروري؟

نعم
لا

لماذا

11- ما هي التحديات التي واجهتها في تعليم الأطفال ذوي الإعاقة السمعية وكيف تغلبت عليها؟

12- كمدرس للأطفال الصم، ما الذي تقترحه كحلول وتوصيات لتحسين وتغيير الوضع الحالي لتدريس لغة الإشارة في عين تموشنت؟

شكرا لتعاونكم.

Appendix 04: Speech Therapists' Interview Guide.

دليل مقابلة معالجي النطق.

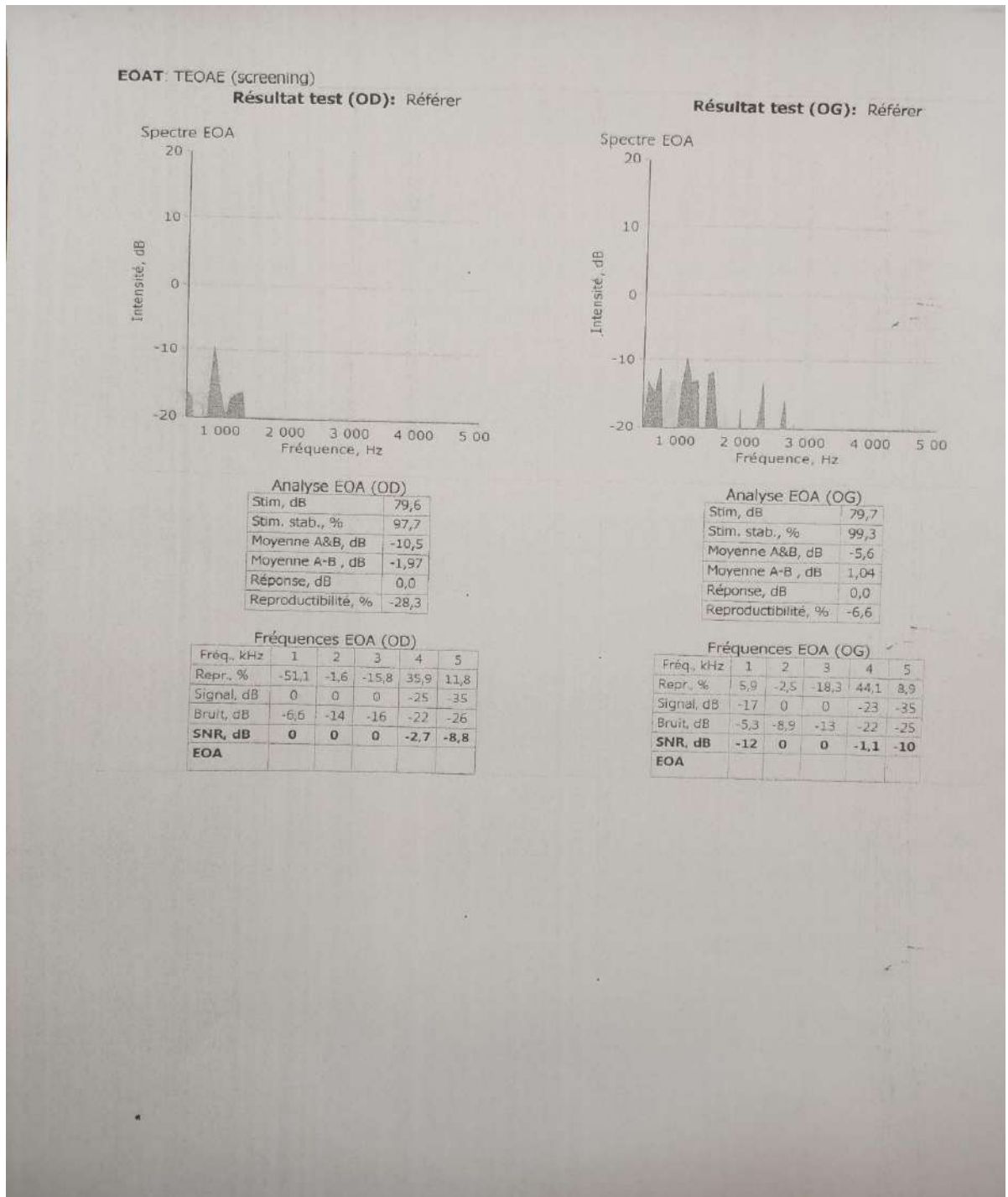
سنوات الخبرة:

- 1 - أعتنا لمحة عن علم الارطفونيا، وما هي المشاكل التي يعالجها المختص؟
- 2- ما هو الفرق بين علم الارطفونيا (معالج النطق) وطبيب الاذن والحنجرة والانف؟
- 3- ما هي الأساليب المتبعة في إدارة علاج النطق؟
- 4- كيف تساعد الأطفال المعاقين سمعيا على اكتساب اللغة (المنطوقة&المكتوبة)؟
- 5- ماهي بعض العلامات المبكرة التي يمكن ان تشير الى تلف السمع عند الأطفال؟
- 6- كيف يساهم التكفل الارطفوني في تجاوز المشكلات اللغوية التي يعاني منها الطفل الاصم؟
- 7- ماهي أنواع الاضطرابات النطق الخاصة بذوي الأطفال الصم؟
- 8 - ماهي النصائح التي توجهها لأولياء الأطفال ذوي الإعاقة السمعية خصوصا في مجال التعلم واكتساب اللغة؟
- 9- كيف يؤثر فقدان السمع على تطور الطفل من ناحية اللغة؟

شكرا لتعاونكم.

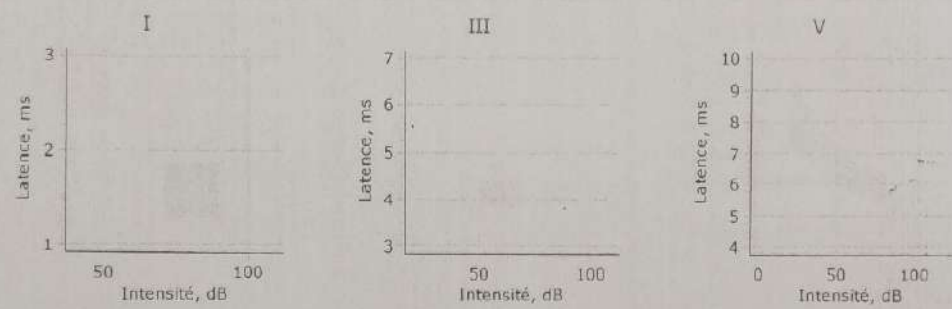
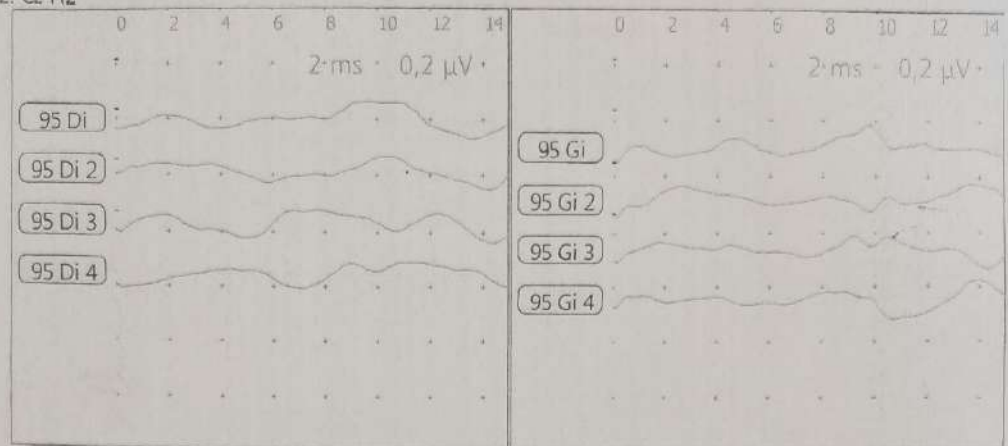
Appendix 05:

Examination report Auditory Evoked Potentials P.E.A / A.S.S.R / O.E.A.T



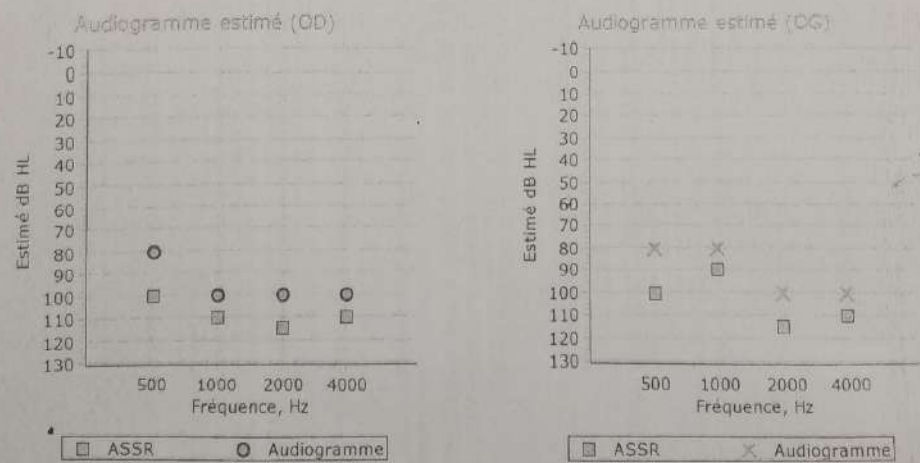
BAER: ABR 2 channels

- 1: Cz-M1
- 2: Cz-M2



Multi-ASSR: Child (90 Hz)

- 1: Cz-M1
- 2: Cz-M2



Appendix 06: “The Algerian Sign Language Dictionary”

