

# **Chapter One**

## **Introduction**

### **Background**

Speech disorder now becomes one of the problems we can noticeable in the society. This study investigates speech Disorders in six disorders.( cleft palate, dysfluency, hearing impairment, a Misarticulating, autistic children, brain injured and brain damage motor handy cap) and through such study it can rehabilitate those people and but trust on them to be active part of the societies and give them chance to act as normal people. Also we can change their own speech through a lot of practicing techniques and recorrecting place and manner of articulation, these techniques will cope with parents and teachers, they are given trust to be a member in a society, because most of them avoid contacting with people. In the modern countries government spend a lot of money and time for the rehabilitation of those people.

#### **1-1 Statement of the problem:-**

This study intends to investigate the problems of speech Disorders in children and adults who suffer from stuttering, apraxia of speech, dyslexia, nasality, aphasia and autistic children. The study seeks to describe practically the process of the treatments from assessment to fluency. Identify the challenges and opportunities facing the speech therapist.

#### **1-2 Objectives of the study: -**

The purpose of this study is to gain a great understanding of the speech Disorder and to help people after stroke to re acquire their speaking abilities, the cause of the anxiety and stress among the students who suffer from stuttering when they are talking to their colleague or when they are in an oral exam or presentation.

The goal of this study to get a better understanding of the role of speech Disorders and solve their speaking problems and let them speak fluently. Instead of avoiding people. Like in the cases of hearing impairment and stammering.

### **1-3 Questions of the study:-**

- 1-To what extent does speech disorder considers a problem?
- 2-What is the role of speech therapist?
- 3- What are the steps of correcting speech disorders?
- 4-Who is going to rehab speech therapist or medical doctor?

### **1-4 Hypotheses of the study: -**

- 1- Speech disorders or speech impediments are a type of communication disorder where 'normal' speech is disrupted. This can mean stuttering, lisps, dysfluency, aphasia, apraxia, Autism, Nasality. Anyone who is unable to speak due to a speech disorder is considered mute.
- 2- assessment for speech sound disorders typically includes case history .oral mechanism examination;

#### **hearing screening;**

speech sound assessment (single-word testing and connected speech sampling), including

- a. severity,
- b. intelligibility,
- c. stimulability,
- d. speech perception;

#### **spoken-language testing, including**

- e. receptive and expressive language assessment,
- f. phonological processing

- 3- The steps of correcting speech depend on the case itself.
  - 1- In some cases you need to start from stage of pre language. And this named receptive stage.
  - 2- Training organ of speech.

3- The third steps we will start with place of articulation and manner of articulation.

4- Who will practice speech rehabilitation?

These sciences are required to practice speech rehab you have to study. Linguistics, Anatomy, Physiology, Education, Psychology, Audiology, Human Communication Disorders.

#### **1-4 Significance of the study:-**

This research is important because it shows the base of speaking problems. Stating the methods of rehabbing and correcting. This rehab is practice logically according to the scientific steps. Also is one of the important rehab to examine the corrections of speaking problems.

#### **1-5 Methodology of the study:-**

The researcher is going to follow Longitudinal applied study. The location is Khartoum state and the population is comprised of all E.N.T clinic and hospitals. All hearing centers and schools. The sample size is thirty. The test will be analyzed statistically by using spss program.

#### **1-6 Limits of the study:-**

The target of this research is Khartoum state people, specifically pupils of basic level schools in Khartoum locality, E.N.T Hospitals and hearing centers plus autistic centers. Time limit 2015.

#### **1-7 Terms of the study :-**

1- **Apraxia:** A disorder of the nervous system, characterized by an inability to perform purposeful movements, but not accompanied by a loss of sensory function or paralysis.

- 2- **Dyslexia:** Any of various reading disorder associated with impairment of the ability to interpret spatial relationships or integrate auditory and visual information.
- 3- **Aphasia:** The loss of a previously held ability to speak or understand spoken or written language, due to disease or injury of the brain.
- 4- **Autistic:** A pervasive developmental disorder of children, characterized by impaired communication, excessive rigidity, and emotional detachment: now considered one of the autism spectrum disorders.
- 5- **Nasality:** pronounced with voice issuing through the nose, either partly, as in French nasal vowels, or entirely as in (m, n, or the ng of song).

## **Chapter Two**

### **Literature Review**

#### **Introduction:**

This article was published by ASHA (American association for Hearing and speech).

Posted on line 2001, web site. asha.com.

Speech rehab is the corrective or rehabilitative treatment of physical or cognitive disorders resulting in difficulty with verbal communication. This includes both speech (articulation, intonation, rate, intensity) and language (phonology, morphology, syntax, semantics, pragmatics, both receptive and expressive language, including reading and writing). Depending on the nature and severity of the disorder, common treatments may range from physical strengthening exercises, instructive or repetitive practice and drilling, to the use of audio-visual aids. Speech pathology, also termed speech-language pathology, is the study of disorders that affect a person's speech, language and swallowing. Speech-language pathologists (SLPs) address people's speech production and language needs through speech therapy in a variety of different contexts.

Speech and language therapists (SLTs), or Speech-Language Pathologists (SLPs) are allied health professionals. They work with children and adults who have difficulties with communication, or with eating, drinking and swallowing. (However, difficulties with eating and drinking may also fall under the scope of the occupational therapists profession.) Speech and language therapists work closely with parents and caregivers and other professionals, such as teachers, nurses, occupational therapists and doctors. Health Services employ most SLTs. Other therapists work for education services or charities. Some therapists work independently and treat patients privately. Speech and language therapists work in community health centers, hospital wards and outpatient departments, mainstream and special schools, day centers and in their clients' homes. Some now work in courtrooms, prisons and young offenders' institutions.

Employment of speech-language pathologists and audiologists is expected to grow much faster than the average for all occupations through the year 2010.

Federal legislation mandates the presence of speech, language, and hearing professionals in public schools. Also, a steady rise in the number of older adults with language, speech and hearing problems is increasing the demand for the services of speech-language pathologists and audiologists.

In the United States, Speech Language Pathology practice is regulated by the laws of the individual states. However, by 2006, minimal requirement to be a certified SLP member of the American Speech-Language Hearing Association were: a graduate degree in Speech-Language Pathology, which typically entails 2 years of post graduate work; a completed clinical fellowship year, which is generally employment for a year while supervised by a practicing SLP who is also ASHA certified; and passing the Praxis Series examination. The graduate degree work to acquire a Master's in Speech-Language Pathology is rigorous and demanding, requiring many hours of supervised clinical practical, and intensive didactic coursework in Medical Sciences, phonetics, linguistics, phonology, scientific methodology, and other subjects. Certification by ASHA is noted as carrying one's "C"s. It is noted after an SLP's name as: CCC-SLP. An aspiring speech therapist needs a Master's degree in Speech Pathology, 375 hours of supervised clinical experience, a passing grade on a national examination and at least nine months of postgraduate professional experience. With such a strong emphasis on education, practical experience, and licensure, entrants to this field must work long and hard.

## Speech Disorders and Language Disorders

A speech disorder refers to a problem with the actual production of sounds, whereas a language disorder refers to a difficulty understanding or putting words together to communicate ideas.

Speech disorders include:

- **Articulation disorders:** difficulties producing sounds in syllables or saying words incorrectly to the point that listeners can't understand what's being said.
- **Fluency disorders:** problems such as stuttering, in which the flow of speech is interrupted by abnormal stoppages, repetitions (st-st-stuttering), or prolonging sounds and syllables (sssstuttering).
- **Resonance or voice disorders:** problems with the pitch, volume, or quality of the voice that distract listeners from what's being said.

These types of disorders may also cause pain or discomfort for a child when speaking.

- **Dysphagia/oral feeding disorders:** these include difficulties with drooling, eating, and swallowing.

Language disorders can be either receptive or expressive:

- **Receptive disorders:** difficulties understanding or processing language.
- **Expressive disorders:** difficulty putting words together, limited vocabulary.

## The Speech-Language Pathology profession

Speech-Language Pathologists provide a wide range of services, mainly on an individual basis, but also as support for individuals, families, support groups, and providing information for the general public. Speech-language pathologists (SLPs) work to prevent, assess, diagnose, and treat speech, language, social communication, cognitive-communication, and swallowing disorders in children and adults.<sup>[3]</sup> Speech services begin with initial screening for communication and swallowing disorders and continue with assessment and diagnosis, consultation for the provision of advice regarding management, intervention and treatment, and provision counseling and other follow up services for these disorders. Services are provided in the following areas:

- Cognitive aspects of communication (e.g., attention, memory, problem solving, executive functions).
- speech (**phonation**, **articulation**, fluency, resonance, and **voice** including aeromechanical components of respiration);
- language (**phonology**, **morphology**, **syntax**, **semantics**, and pragmatic/social aspects of communication) including comprehension and expression in oral, written, graphic, and manual modalities; **language processing**; preliteracy and language-based literacy skills, phonological awareness.
- swallowing or other upper aero digestive functions such as infant feeding and aeromechanical events (evaluation of esophageal function is for the purpose of referral to medical professionals);

- Voice (hoarseness (dysphonia), poor vocal volume (hypophonia), abnormal (e.g. rough, breathy, strained) vocal quality. Research demonstrates voice therapy to be especially helpful with certain patient populations; individuals with Parkinson's disease often develop voice issues as a result of their disease.
- Sensory awareness related to communication, swallowing, or other upper aero digestive functions.

Speech, language, and swallowing disorders result from a variety of causes, such as a stroke, brain injury, hearing loss, developmental delay, a cleft palate, cerebral palsy, or emotional issues.

## **Multi-discipline collaboration**

Speech-Language Pathologists collaborate with other health care professionals often working as part of a multidisciplinary team, providing referrals to audiologists and others; providing information to health care professionals (including physicians, dentists, nurse practitioners, nurses, occupational therapists, dietitians), educators, behavior consultants (applied behavior analysis) and parents as dictated by the individual client's needs.

In relation to Auditory Processing Disorders collaborating in the assessment and providing intervention where there is evidence of speech, language, and/or other cognitive-communication disorders.

The treatment for patients with cleft lip and palate has an obvious interdisciplinary character. The speech therapy outcome is even better when the surgical treatment is performed earlier.

## **Working environments**

Speech-Language Pathologists work in a variety of clinical and educational settings. SLPs work in public and private hospitals, skilled nursing facilities (SNFs), long-term acute care (LTAC) facilities, hospice, and home healthcare. SLPs may also work as part of the support structure in the education system, working in both public and private schools, colleges, and universities. Some speech-language pathologists also work in community health, providing services at prisons and young offenders' institutions or providing expert testimony in applicable court cases.



Subsequent to the American Speech-Language-Hearing Association's (ASHA's) 2005 approval of the delivery of Speech-Language Pathology services via video conference, or telepractice, SLPs have begun delivering services via this service delivery method.

What is speech and language therapy?(London university institute of linguistics).

What do speech and language therapists do?

Speech and language therapists (SLTs) provide life-improving treatment, support and care for children and adults who have difficulties with communication, eating, drinking or swallowing.

SLTs assess and treat speech, language and communication problems in people of all ages to help them communicate better. They also assess, treat and develop personalized plans to support people who have eating and swallowing problems.

Using specialist skills, SLTs work directly with clients and their careers and provide them with tailored support. They also work closely with teachers and other health professionals, such as doctors, nurses, other allied health professionals and psychologists to develop individual treatment program.

## **Who benefits from speech and language therapy?**

Speech and language therapy benefits people of all ages, for example:

**Infants:** SLTs support premature babies and infants with conditions such as cerebral palsy, cleft palate and Down syndrome from very early in life who have difficulties with drinking, swallowing and early play and communication skills.

**Children:** SLTs support children with primary speech, language and communication difficulties, such as stammering, as well as speech, language and communication difficulties that are secondary to other conditions such as learning difficulties and hearing problems.

**Adults with learning difficulties:** SLTs support adults who have developmental conditions such as learning disabilities, autism and Down syndrome.

**Adults:** SLTs support adults with communication and/or swallowing difficulties as a result of medical conditions, such as stroke, head and neck cancer, Parkinson's disease and dementia.

### Where do speech and language therapists work?

Speech and language therapists work together with children, adults, families, careers and the wider workforce, to carry out assessments and plan personalized therapy programmes which meet each individual's communication and swallowing needs.

They work in wide variety of contexts and environments including:

Community health centers

**Hospital** wards and intensive care units

**Outpatient** departments

**Children's** centers, mainstream and special schools

**Assessment** units, day centers and nursing homes

**Clients'** homes

**Courtrooms**, prisons and young offenders' institutions

There are approximately 12,500 practicing SLTs in the UK. The National Health Service employs the majority of SLTs; however, increasing numbers work wholly or partly in education or for charities, while a number work independently and treat patients privately (as well as other areas).

either the total number of children with language delay declines in real terms across the age range, or that prevalence has been rising over recent years" (p.vii)

Primary delays are those where speech and language skills are delayed relative to other skills, usually in the absence of a known underlying cause. Secondary delays, which were excluded from Law's review of prevalence estimates, refer to cases in which speech and language skills are delayed to the same extent as other skills, often due to known causes or associated with other conditions such as learning disability, hearing loss, autism, cerebral palsy and cleft palate.

Speech language pathologists sometimes distinguish between the term "delay" and "disorder" with the latter referring to cases which do not follow normal development patterns, although this distinction is less frequently evident in the more recent literature. Other authors use the more general term "impairment" and may refer to the World Health Organization (WHO) 1980 international classification of impairment, disability and handicap or

WHO are later classifications relating to functioning, disabilities and health.<sup>23</sup>

**Speech** impairments are generally categorized as:

- **Articulation** (physical movements of mouth and throat involved in making speech sounds) or phonology (speech sounds and combinations of sounds);
- **Fluency** (stuttering or stammering); or
- **Voice** (characteristics and volume of sound produced through physical movement of the vocal folds and respiration).

**Language** impairments may be categorized into receptive (language comprehension or understanding), or expressive (language production) problems. Aspects of language include syntax (grammatical structures), morphology (aspect of grammar dealing with components of words), semantics (meaning of words or phrases) and pragmatics (context of language and use of language in social situations).

A systematic review of SLP services for children with primary speech or language delay or disorder concluded that such communication problems can have considerable negative effects on school achievement and can be associated with social, emotional and behavioral problems.<sup>4</sup> When untreated, 65% of expressive language problems identified in children at age 3 were found to persist to age four, and 38% persisted to age seven. Regardless of whether the expressive language delays were resolved or not, authors of the systematic review found that “between 41% and 75% of early expressive language-delayed children showed reading problems at 8 years of age” (p. 21).

Articulation errors may be more likely to resolve naturally than language problems, although there is some evidence to suggest that “underlying language difficulties may continue for children originally identified as having a speech delay” and that there may be an impact on literacy skills even after speech problems are resolved (p. 20).

A systematic review of randomized controlled trials of SLP interventions for children or adolescents concluded that SLP is effective for children with expressive phonological and expressive vocabulary difficulties.<sup>5</sup> There is less evidence of effectiveness for receptive language difficulties and the evidence is mixed for children with expressive syntax difficulties.

Speech and language therapy is a relatively new discipline. The profession was born some 50 years ago, uniting those working with mostly head injured soldiers returning from the Second World War. Interest in communication at that time was lead by neurologists, ear, nose, and throat surgeons, and many teachers. As in many other disciplines, the foundations of the profession were based on concern for those with the disorders and an empirical approach to remediation.

We undertook a literature review to establish the state of knowledge about the efficacy of speech and language therapy in major client groups and to identify important areas for research.<sup>1</sup> Not surprisingly, in view of the profession's youth, research has dealt more with the analysis and identification of speech and language disorders and the development of hypotheses underlying therapeutic programs than with evaluating their efficacy, relevance, and validity.

We wanted to take a systematic approach to reviewing the research, <sup>2</sup> but there are not enough controlled studies for us to confine ourselves to this approach. We therefore extended our review to studies displaying the state of knowledge and the main therapeutic challenges.

This review attempted to cover a broad range of published and grey literature and hence required interrogation of many different databases because the literature related to speech and language therapy appears in journals covering linguistics, psychology, social sciences, and education. Other reviews examining the efficacy of speech and language therapy have not reflected the wealth of literature because they have limited the search to Medline and associated medical databases.<sup>3</sup> the main findings of the review are summarized in the box.

### **1- Acquired dysphasia. (john.st. PhD of speech therapy).**

Four recent group studies of acquired dysphasia and all but one single case study show favorable effects of language treatment. Of the group studies, three were conducted in single clinical institutions with.

Childhood apraxia of speech (CAS) is a disorder that has been described and studied for more

Than four decades. Only in 2007 was there an official report released by a peer-reviewed source

Describing CAS and recognizing it as an official diagnosis (Ad Hoc Committee, 2007). CAS is most widely accepted as a motor speech disorder under speech sound disorders involving deficits in motor planning that affect ability to produce accurate speech sounds in children. Etiology can be either idiopathic or organic. The purpose of this literature review is to (1) discuss the factors contributing to the controversy around describing and diagnosing CAS, (2) explore a clinically relevant body of information pertaining to diagnosis of CAS, and (3) highlight current research that suggests intervention strategies should target CAS at various stages of development of the individual and the disorder.

## **2-DEFINING CHILDHOOD APRAXIA OF SPEECH (CAS).**

The term CAS encompasses three different forms of disorder. The first form involves children with apraxia who have known neurological etiologies such as trauma, infections, stroke, etc. The second type of etiology associated with apraxia of speech is a complex neurobehavioral disorder. Finally, apraxia of speech manifests in children with no other known neurological or behavioral disorders. In this latter population, its occurrence is considered an idiopathic neurogenic speech sound disorder. After reviewing 10 years of literature and compiling a list of 50 different definitions from the past last decade, the American Speech-Language-Hearing Association (ASHA) Ad Hoc Committee on Apraxia of Speech in Children (2007) proposed the following definition: Childhood apraxia of speech (CAS) is a neurological childhood (pediatric) speech sound disorder in which the precision and consistency of movements underlying speech are

Impaired in the absence of neuromuscular deficits (e.g., abnormal reflexes, abnormal

Tone). CAS may occur as a result of known neurological impairment, in association with

Complex neurobehavioral disorders of known or unknown origin, or as an idiopathic

neurogenic speech sound disorder. The core impairment in planning and/or Programming spatiotemporal parameters of movement sequences results in errors in

Speech sound production and prosody.

Not only does the term CAS cover this broad area of etiologies for apraxia of speech in

Children, there has also been a considerable amount of terminology dedicated to its diagnosis

That has evolved throughout the decades which the term CAS accommodates for as well. For

Instance, it was once described as a communication disorder characterized by little or no

3--intelligible speech and labeled as expressive aphasia (McGinnis, 1963; Myklebust, 1952). The

Description of childhood expressive aphasia was presented by Wilson (1964) as an inability to

Imitate non-speech motions, such as movement of the tongue, lips, and jaw; inability to imitate

Speech movements to form word sounds and words; very little or no expressive speech and

Language confined to one- and two-syllable utterances; intact receptive speech and language;

And all in the absence of facial and lingual paralysis. This is closer to how it is described today in

The literature. As such, it was also recognized that this description fits more for a motor

Planning and execution deficit such as apraxia rather than a deficit in central language

Functioning such as with aphasia. This important distinction supported a clearer approach to

Intervention, as an approach to intervention for language deficits looks very different than for

Motor or articulatory deficits.

Finally, terminology went through changes ranging from developmental apraxia of speech  
And developmental verbal dyspraxia to childhood apraxia of speech or CAS  
for two reasons:  
Childhood apraxia of speech best encompasses the three previously  
discussed clinical contexts  
For the disorder according to the American Speech-Language and Hearing  
Association (2007),  
And the term “developmental” was interpreted by service delivery  
administrators as a disorder  
That the people will eventually “grow-out-of”. This interpretation makes  
funding and  
Justification for services, outside of school-based or otherwise, difficult to  
obtain. Although  
developmental apraxia of speech (DAS) and the term dyspraxia are seen  
throughout the  
  
Literature, for the purposes of this report childhood apraxia of speech (CAS)  
will be used.

## **Previous studies:**

**Working with culturally and linguistically diverse students and their families:  
perceptions and practices of school speech–language therapists in the United  
States**

By: Christine A. Maul Article first published: 27 JUL 2015.

## **Keywords:**

- speech and language therapists;
- cross-cultural;
- cross-linguistic;
- school-aged children;
- family

Speech and language therapists (SLTs) working in schools worldwide strive to deliver evidence-based services to diverse populations of students. Many

suggestions have been made in the international professional literature regarding culturally competent delivery of speech and language services, but there has been limited qualitative investigation of practices school SLTs find to be most useful when modifying their approaches to meet the needs of culturally and linguistically diverse (CLD) students.

### **Similarities:**

To examine perceptions of nine school SLTs regarding modifications of usual practices when interacting with CLD students and their families; to compare reported practices with those suggested in professional literature; to draw clinical implications regarding the results; and to suggest future research to build a more extensive evidence base for culturally competent service delivery.

### **Differences:**

For this qualitative research study, nine school SLTs in a diverse region of the USA were recruited to participate in a semi-structured interview designed to answer the question: What dominant themes, if any, can be found in SLTs' descriptions of how they modify their approaches, if at all, when interacting with CLD students and their family members? While my research is linguodental study my sample size is thirty. From schools, hospital and ENT clinic

### **Findings:**

Analysis of data revealed the following themes: (1) language—a barrier and a bridge, (2) communicating through interpreters, (3) respect for cultural differences, and (4) positive experiences interacting with CLD family members. Participants reported making many modifications to their usual approaches that have been recommended as best practices in the international literature. However, some practices the SLTs reported to be effective were not emphasized or were not addressed at all in the literature. Practical implications of results are drawn and future research is suggested.

### **The function of repeating: The relation between word class and repetition type in developmental stuttering.**

Article first published: 24 JUL 2015 DOI: 10.1111/1460-6984.12189 by: Anthony P. Buhr<sup>\*</sup>, Robin M. Jones, Edward G. Conture and Ellen M. Kelly)

### **Keywords:**



- stuttering;
- phonological;
- developmental

### **Background:**

It is already known that preschool-age children who stutter (CWS) tend to stutter on function words at the beginning of sentences. It is also known that phonological errors potentially resulting in part-word repetitions tend to occur on content words. However, the precise relation between word class and repetition type in preschool-age stuttering is unknown.

### **Similarities:**

I will use this same technique to investigate repetitions associated with monosyllabic words in preschool-age CWS. Specifically, it was hypothesized that repetition type should vary according to word class in preschool-age CWS and children who do not stutter (CWNS).

### **Differences:**

I used different phonemes with thirty patients thirteen. While in this study preschool-age CWS and 15 preschool-age CWNS produced age-appropriate narratives, which were transcribed and coded for part-word repetitions (PWR) and whole-word repetitions (WWR) occurring on monosyllabic words. Each repetition type was also coded for word class (i.e., function versus content).

### **Findings:**

Results indicated that although CWS and CWNS were significantly more likely to produce PWR on content words, this tendency did not differ between the two talker groups. Further, CWS and CWNS did not differ in their tendencies to produce PWR versus WWR overall, but the tendency to produce repetitions on function words was significantly greater for CWS versus CWNS Findings are taken to suggest that repetitions of monosyllabic words in young children are not easily explained from the perspective of

phonological errors, but may instead be considered from an incremental planning of speech perspective.

## **Gestural abilities of children with specific language impairment**

this book was written by: Charlotte Wray<sup>1,\*</sup>, Courtenay Frazier Norbury<sup>1</sup> and Katie Alcock<sup>2</sup> Article first published online: 24 AUG 2015).

### **Keywords:**

- specific language impairment;
- gesture;
- children;
- motor control

### **Background**

Specific language impairment (SLI) is diagnosed when language is significantly below chronological age expectations in the absence of other developmental disorders, sensory impairments or global developmental delays. It has been suggested that gesture may enhance communication in children with SLI by providing an alternative means to convey words or extend utterances. However, gesture is a complex task that requires the integration of social, cognitive and motor skills, skills that some children with SLI may find challenging. In addition, there is reason to believe that language and gesture form an integrated system leading to the prediction that children with a SLI may also have difficulties with gestural communication.

### **Similarities:**

In exploring the link between language and gesture in children with poor language skills.

### **Findings:**

Fifteen children with SLI and 14 age-matched typically developing children (TD) participated in this study. The children completed measures of expressive and receptive vocabulary, non-verbal cognition, motor control, gesture comprehension and gesture production. TD children achieved significantly higher scores on measures of gesture production and gesture comprehension relative to children with SLI. Significant correlations

between both measures of vocabulary and both measures of gesture suggest a tight link between language and gesture.

The findings support the idea that gesture and language form one integrated communication system, rather than two separate communication modalities. This implies that children with SLI may have underlying deficits that impact not only on language but also on gesture production and comprehension

The difference between the first studies and my research every study concerns in one problem of speech disorder while is taking in my research all speech disorders in general.

# **Chapter Three**

## **Methodology**

### **Introduction:**

This chapter will explain the methodology of the study. It will describe the methods and technique adopted the instrument, the population, samples and procedures data of analysis.

- 1- Subject of the study.
- 2- Procedures and material.
- 3- Technique of the collecting data and approaches to the discussion of the result.

### **3-1 The methodology of the study.**

The researcher is going to follow experimental applied study. The location is Khartoum state and the population is comprised of all E.N.T clinic and hospitals. All hearing centers and schools. The sample size is thirty. The test will be analyzed statistically by using SPSS program.

### **3-2 Subjects:**

Thirty patients from schools and ENT clinic have been chosen randomly to re correct their speech disorder during the year 2015-2016. All of them are Sudanese children. Most of them they are not accepted in the schools due to their problems of speech. Some teachers think those childe will disturb other students.

The samples of the above mentioned subject share some important aspects such as:

- 1- Their average is between 4 to 35 years.
- 2- Twenty of them share DLD aspects (delayed language development).
- 3- Most of them face difficulty in receptive language.
- 4- Five of them have hearing impaired.

5- Five of them they have sever stuttering.

## **3.2 Instrument and procedures:**

### **3.2.1 Setting and Instruments:**

The pre test shows the problems of speech very clearly depend on the assessment. Which include Pre- language stage development (discrimination and auditory perception audio) sound system is used plus 3d TV to identify the voices of the environment, organs of speech exam, movement of the organs of speech, we use mirror.

### **3.2.2 Materials:**

Since this study attempts to investigate the speech disorders, the test was set to check the benefits of speech rehab (treatment plan).

Two types of materials were selected to achieve the objectives of the present study:

- 1- Voice test listening words and repeating behind the recorder. Include three phonemes (a, e, w) with long prolongation. First the phoneme alone second in the beginning of the word, third phoneme in ending of the word, lastly sound repeated in a sentence.
- 2- This part focuses on the bilabial sounds (p, b, m, w,).
- 3- This part focuses on the place of articulation and the manner of articulation.

### **3.3.1 Objectivity, reliability and validity.**

The test assesses the knowledge of speech rehabilitation, by speech correctionsit, or phonations. In order to rehab the speech disorder.

Prior to data collection, the interview will be pre-tested among a selected patient

Who is not a part of the study? The aim is to emphasize easy understanding.

The pre test assess the problem, all session is recorded to make comparison before and after rehab. All data is recoded in flash or micro SD.

### **3.3.2 Reliability:**

The data will be collected based on a one to one interview and practice. The interview will be divided into three month session. Every one month the progress going be measured, and it will be divided into three section up six section.

### **3-3-3 Validity:**

The validity of this research **will** measure through interview after six months of rehab in comparison of first visit (interview).

### **3-4 Procedures of data analysis:**

The data analysis will be collected through interview and it will be tabulated and treated statistically by the **SPSS** program. The result will prove the important of speech disorder rehabilitation.

## Chapter Four

### Data Analysis, Results and Discussion

#### Introduction:

This chapter Dedicate to the analysis and discussion of the study. The data collected by using test and assessment to a sample of 30 patients their age from four years up to thirty five, Thirty patients from schools and ENT clinic have been chosen randomly to re correct their speech disorder during the year 2015-2016. All of them are Sudanese children. Most of them they are not accepted in the schools due to their problems of speech. Some teachers think those childe will disturb other students. To investigate speech Disorders and rehabilitation.

The researcher used the statistical analysis to analyze the result.

#### Discussion of results

##### Analysis of the data related to the first hypothesis:

The patients, parents and teachers have positive attitudes towards speech rehabilitation.

#### *Hearing attention*

Table (4-1)

<i>Terms</i>	<i>Measurement</i>			
	Yes	No	Average	Intense
<b>1- Attract attention audio</b>	25	5	0	0
<b>2-Prolong the duration of attention audio</b>	23	7	0	0
<b>3-Flexibility in the transfer of attention audio</b>	25	5	0	0

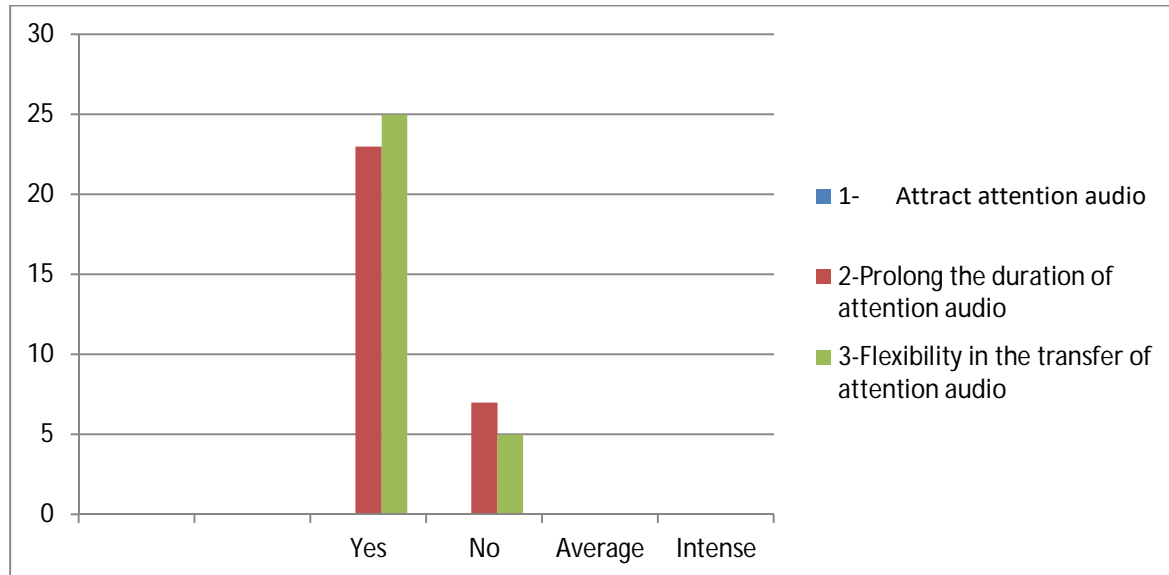


Chart (4-1)

The chart above explains the measurement

According to the measurement of hearing attention seven of the samples need rehabilitation after hearing impairment is set.

The treatment for the seven will be as follow for six month. We will use sound system in room and then start with a low sound to promote their hearing attention, and I will rise up the sound gradually, then stop and start the exercise again for hundred times .second step I prolong the duration of sound e.g. I use the sound of train (tot,toot,tooooot,tooooot ,tooooooooooot,tooooooooooooooooooot.) till they recognized that sound gradually became longer, with using of flash cards. third step we had in our room for speakers in the corner we starting using it one by one and we let the them decide which one is working in each time. Fours step we use flash cards with sound for every things in the nature starting with Implied Groups. Last step we let them differentiate between the sound of male and female.

**Result:** 30 of them show excellent hearing attention after six month of treatment.



***Pre- language stage of development (discrimination and auditory perception audio)***

Table (4-2)

<i>Terms</i>	<i>Measurement</i>			
<b>1-To identify the voices of the environment.</b>	Yes	No	Moderate	Intense
	15	5	10	

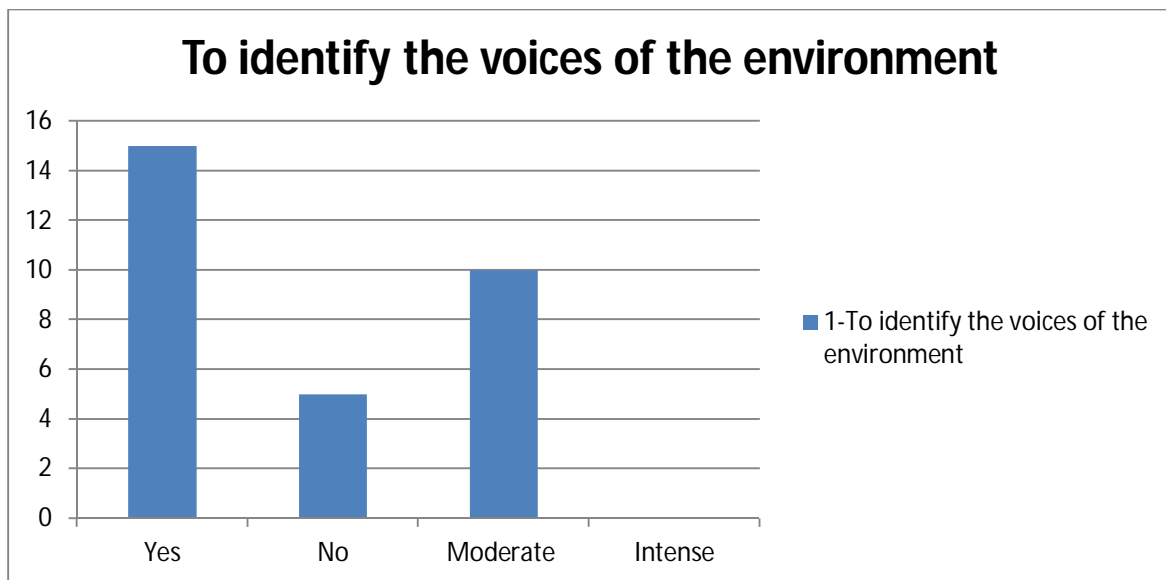


Chart (4-2)

The chart above explains the measurement .

According to the measurement fifteen of the patient needs starting from the pre language stage, and we start with them how to I identify the voices of the environment by using audio vision system. We link image with sound.

**Result:** 30 from 30 of them show excellent progress to link the voice with image.

## *Audio skills*

Table (4-3)

<i>Terms</i>	<i>Measurement</i>	
	Yes	No
<b>1-Sound evaluation</b>	15	15
<b>2- Memory Audio</b>	20	10

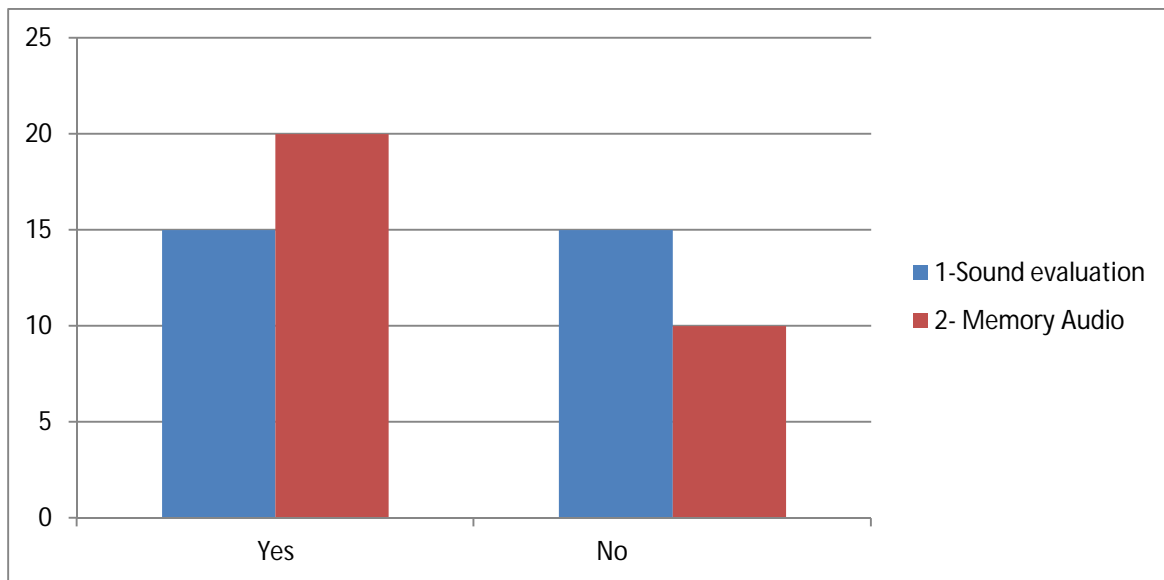


Chart (4-3)

The chart above explains the measurement.

In this stage appear clearly fifteen of them need sound evaluation and memory audio , we use just sound and show them four choices of flash card and we let them decide what this sound exactly belong to what picture .

**Result:** 28 of 30 show excellent audio skills after six month of treatment.

***The function of organs of the speech and functional processes:***

Table (4-4)

<b><i>Terms</i></b>	<b><i>Measurement</i></b>		
	Has Estimated	It does not have the estimated	Some how
<b>1-Drooling exercises</b>	29	1	0
<b>2-Swallowing exercises</b>	29	1	0
<b>3-Palate exercises</b>	30	0	0
<b>4-Chewing exercises</b>	30	0	0
<b>6-Jaw exercises</b>	25	0	0
<b>7-Lips exercises</b>	29	1	0
<b>8-Blowing exercises</b>	15	15	0
<b>9-Tongue exercises</b>	29	1	0

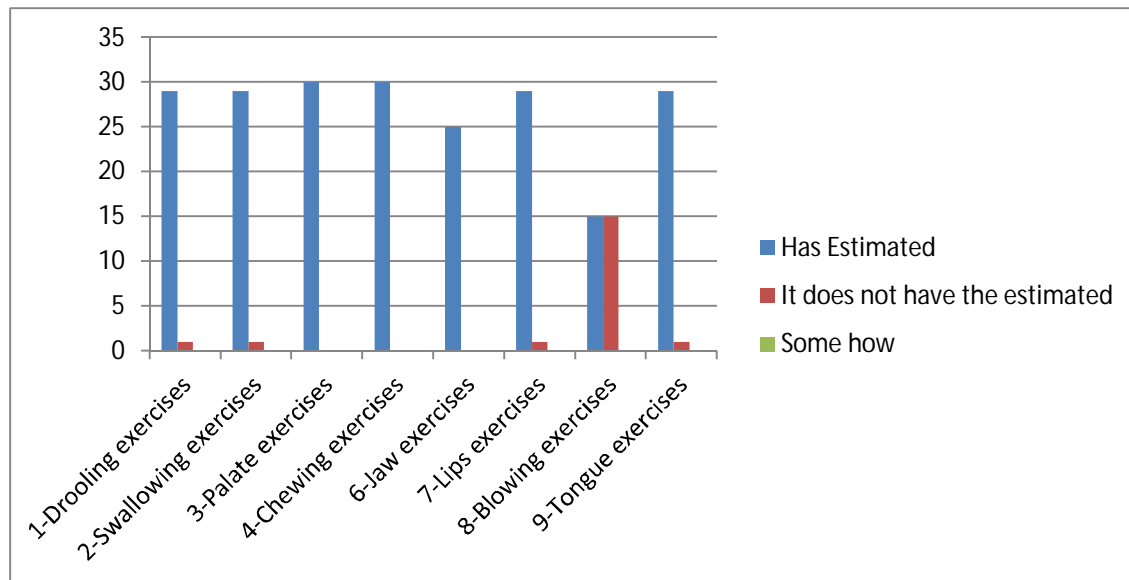


Chart (4-4)

The chart above explains measurement.

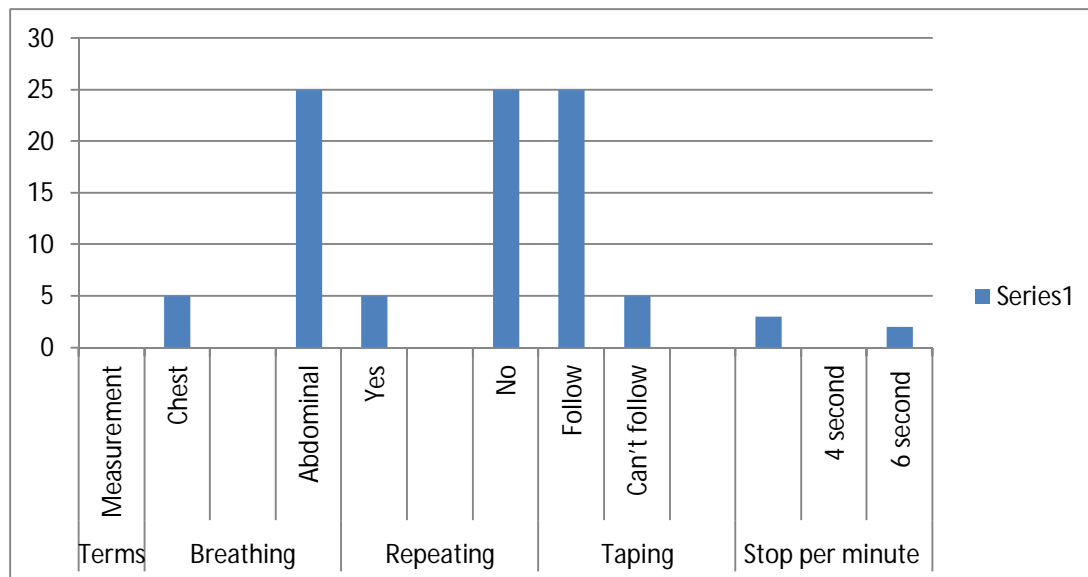
According to the measurement just one does not have the estimate to do the drooling exercises, so we use water rumbling for one month till we reach the stage of loosing drooling saliva. Only one does not have estimate to do lips exercises ,so we will start training him to round his lips, to suck with straw, saying words (btaka, kataba) for thousand times. According to the measurement fifteen of them does not have estimate to do blowing exercises, so treatment plan start with Extinguish the candle, blowing a balloon, use straw for sucking water or any liquid .

**Result:** 29 of 30 show a good progress in the function of the organs of speech. After six month of treatment.

## *Stuttering*

***Table (4-5)***

<i>Terms</i>	<i>Measurement</i>	
<b><i>Breathing</i></b>	<b><i>Chest</i></b>	<b><i>5</i></b>
	<b><i>Abdominal</i></b>	<b><i>25</i></b>
<b><i>Repeating</i></b>	<b><i>Yes</i></b>	<b><i>5</i></b>
	<b><i>No</i></b>	<b><i>25</i></b>
<b><i>Taping</i></b>	<b><i>Follow</i></b>	<b><i>25</i></b>
	<b><i>Can't follow</i></b>	<b><i>5</i></b>
<b>Stop per minute</b>		<b><i>3</i></b>
	<b><i>4 second</i></b>	
	<b><i>6 second</i></b>	<b><i>2</i></b>



**Chart (4-5)**

The chart above explains the measurement.

According to measurement five of them had sever stuttering , so treatment plan will start with breathing exercise to change their breathing from chest to abdominal breathing, secondly to delete repeating with DAF(delay auditory feedback. Thirdly we use taping technique to connect the brain with the organs of speech fast to produce speech as normal people, fours we use speech buddies to reduce stop per second.

**Result:** five from five who had stuttering succeed to reduce their stops from 6 seconds to the fluent speech.

### *Cleft palate and lip incompetent*

**Table (4-6)**

<i>Terms</i>	<i>Measurement</i>		
<b>Cleft palate</b>	<b>Phoneme (m,n)</b>	<b>Easy to pronounced</b>	<b>Difficult to pronounced</b>
		25	5
<b>Lip incompetent</b>	<b>Phoneme (w,o,p,b,)</b>	29	1

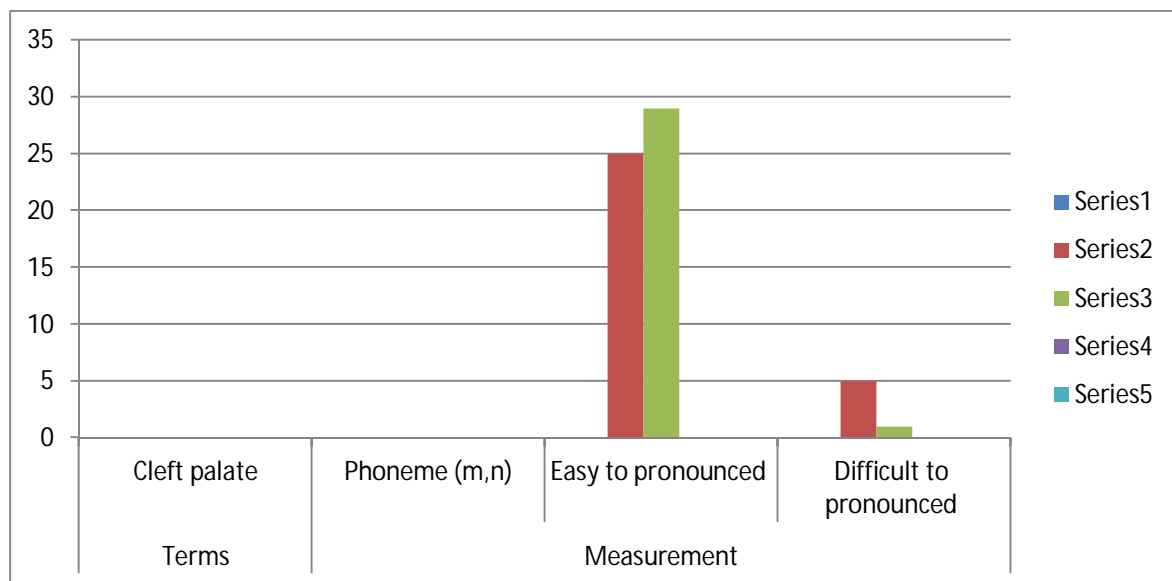


Chart (4-6) The chart above explains the measurement.

According to the measurement five of the sample size could not pronounced phoneme (m,n). due to the air flow come out through the nose, so the treatment plane will focus on the place of articulation and the manner of articulation we use mirror to show the right place of every sound.

We succeed to train one of them in the whole sounds, accept the phoneme (w,o,p,b).due to cant close his lips he need surgery .

**Result:** after six month of treatment 29 from 30 they are respond for the treatment accept one who is Moby's syndrome.

### **Summary:**

This chapter explains clearly the effectiveness of speech rehabilitation , also this study assessed the relationship between speech disorder and linguistics as base for speech rehabilitation .because all exercises depend one language training, sound production ,articulation(place and manner).

## **Chapter Five**

### **Conclusions, Recommendation and Suggestion for Further Studies**

#### **Conclusions**

The study is conducted to detect, analyze the treatment of speech disorders with explanation to the step of treatment according to every case.

The findings of the study show that all the patients who suffer from speech problems can be treated according to the steps of treatment. The Children's Learning Research Collaborative is a laboratory in the School of Teaching and Learning dedicated to conducting research on child development and early education. The research team includes multi-disciplinary, bringing together individuals from diverse disciplines, including speech-language pathology, psychology, reading, special education, and elementary education. The research focuses efforts on questions which answers will make direct and immediate contributions to educational and clinical practices with children and their families. Comprehension of children and adult ages 3 - 35, a state-wide evaluation of professional development for early childhood educators, and the development of a free, easily administered and comprehensive assessment tool of early childhood language skills.

#### **Recommendations**

The findings of the research proved that the effectiveness of speech rehabilitation, also must increase the awareness of the parents and teachers toward speech disorder and early intervention from the childhood, will help a lot decrease the severity of the problem.

#### **For Teachers and parents.**

Parents and teachers should attend the session of speech rehab to help them increasing the speech fluency to their children to get better out come in a few months because all exercise should be repeated at home.



## \* Stimulability

A child is “stimulable” if he or she can say the sound in direct imitation of the therapist or parent. That means your job is going to be so much easier! If the child cannot say the sound, you’ll have some work to do. You’ll need to teach them how to say the sound. This is called sound *elicitation*.

## \*Sound Elicitation

Sound elicitation is the process you go through to teach the child how to say the targeted sound. For example, if a child cannot say the /th/ sound in imitation the process is broken down for them. You might say, “Put your tongue between your teeth then blow.” After the sound and the meaning are learned they can say them accurately in imitation of you then practice the sound in isolation.



## \*Sound in Isolation

Practicing a sound in isolation means saying the sound alone without adding a vowel. For example, if you are practicing the /t/ sound you would practice saying /t/, /t/, /t/ many times in a row. The more accurate repetitions you are able to get your child to produce it better. I am satisfied with 10 accurate repetition in a row. When you are satisfied they can say the sound in isolation you are ready to move on to syllables.



## \*Sound in Syllables

Practicing a sound in syllables simply means adding each vowel after the target sound, before the target sound, and before and after the target sound, be sure to practice the long and short form of each vowel.

For example if the target sound is /s/ “after the target sound” would be “sa, si, su.” This is called “initial syllable production”, meaning the target sound is in the beginning of the syllable.

If the target sound is /p/ then placing the vowel “before the target sound” would be “ap, ip, up. This is called “final syllable production”, meaning that target sound is at the end of the syllable.

If the target sound is /k/ then placing of the vowel “before and after the target sound” would be, “ak, ek, uk, Of course there are multiple variations. This is called “medial syllable production”, meaning the target sound is in the middle of the syllable.

When I introduce the syllables I like to see in which position the child has the easiest time producing the target sound. If the child is the most successful with the target sound in the initial (beginning) position of syllables I will begin work on the target sound in initial position of words. If the child has more success with the target sound in the final position of syllables then I would begin working on that target sound in the final position of words.

So the plan is to work on the most successful position. For example, a child may exhibit a typical error pattern, or phonological process of final consonant deletion. This means they leave off the ending of most of their words. While the child can say the /m/ sound in the initial position of words with no difficulty, they never say it at the end of words. In this instance it is obvious that the sound in the initial position would not be a problem for them and would not be the place to start. Instead you would most likely begin working on the final position of the word.

Once your child can say the sound in syllables you can move the sound into words.



## **\*Sound in Words**

At this point you have decided which position of the word you want to target and will begin practicing word cards in the initial, medial or final position of the word. I am satisfied with 80% accurate independent productions before I move on to the next step, which is using the word in a sentence. Meaning, I don't count it as correct if the child says it in imitation of me. If I have to model a word for a child I will often put that word card back in the rotation for them to say again. After all the cards have been said we go back and practice the word cards that were in error.

There are so many ways to make practicing word cards fun. I sometimes make a snake and put a little incentive such as an m&m or a fish cracker every 3-5 cards. I have also fed the cards to puppets after they have been said, hid them around the room and gone on a hunt to look for them, as well as played memory, go fish and other fun card games. Be creative this makes it more fun for both of you!



## **Sound in Sentences**

My favorite way to practice sounds in sentences is with a “rotating sentence”. In a rotating sentence only the word card changes. For example, your sentence might read, “Put \_\_\_\_\_ in pink purse.” Then you rotate all your practice cards through the sentence. This is an especially great way to practice sentences for young children who can't read yet. They are able to memorize the sentence, or use visual cues to help them read it aloud. You are also able to maximize the production of your target sound when you use

a sentence with two or three target words in it. You may find my sentences for the different sounds on the worksheets page.

## **Suggestion for further researches.**

The researcher suggests the following for further studies:

- The usage of sound and articulation as assessment for student.
- Teachers of English must focus on sound production in isolation.
- The use of speech buddies to help students in correct pronunciation.
- Encourage the student to talk in front of the class help them to avoid stuttering problems.
- The systems of education must changes the ways of teaching English starting with letters name we must start with sound.

If we use this we can deliver a good system of education to the children in addition to that we can avoid speech problems.

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## Assessment

Evaluate articulation and phonological disorders for children and adult. These well-researched assessments enable clinicians to identify phoneme errors and error patterns to help them plan treatment.

### *Hearing attention:*

He or she attention to audio?

He or she recognizes prolong the duration of attention audio?

He or she flexible in the transfer of attention audio?

<i>Terms</i>	<i>Measurement</i>			
<b>4- Attract attention audio</b>	Yes	No	Average	Intense
<b>2-Prolong the duration of attention audio</b>				
<b>3-Flexibility in the transfer of attention audio</b>				

### *Pre- language stage of development (discrimination and auditory perception audio)*

He or she able to identify the voices of the environment ?

<i>Terms</i>	<i>Measurement</i>			
<b>1-To identify the voices of the environment.</b>	Yes	No	Moderate	Intense

## ***Audio skills***

He or she able to evaluate the sound if it is low or high?

He or she able to memory audio?

<i><b>Terms</b></i>	<i><b>Measurement</b></i>	
	Yes	No
<b>1-Sound evaluation</b>		
<b>2- Memory Audio</b>		

## ***The function of organs of the speech and functional processes:***

He or she able to swallow the saliva?

He or she able to do palate exercises?

He or she able chew?

He or she able to do jaw exercises?

He or she able to do lips exercises?

He or she able to do blowing exercises?

He or she able to do tongue exercises?

<i><b>Terms</b></i>	<i><b>Measurement</b></i>			
	Has Estimated	It does not have the estimated	Some how	
<b>1-Drooling exercises</b>				
<b>2-Swallowing exercises</b>				
<b>3-Palate exercises</b>				
<b>4-Chewing exercises</b>				
<b>6-Jaw exercises</b>				
<b>7-Lips exercises</b>				
<b>8-Blowing exercises</b>				
<b>9-Tongue exercises</b>				

## ***Stuttering***

The way of breathing?

Repeating the words or not?

He or she follows the taping or not?

Stop per seconds?

<i><b>Terms</b></i>	<i><b>Measurement</b></i>			
<i><b>Breathing</b></i>	<i><b>Chest</b></i>			
	<i><b>Abdominal</b></i>			
<i><b>Repeating</b></i>	<b>Yes</b>			
	No			
<i><b>Taping</b></i>	<b>Follow</b>			
	<b>Can't follow</b>			
<i><b>Stop per seconds</b></i>	<b>4 second</b>			
	<b>6 second</b>			



## ***Cleft palate and lip incompetent***

He or she able to articulate the sound (m,n)?

He or she able to articulate phoneme (w,o,p,b)?

<b><i>Terms</i></b>	<b><i>Measurement</i></b>		
<b>Cleft palate</b>	<b>Phoneme (m,n)</b>	<b>Easy to pronounced</b>	<b>Difficult to pronounced</b>
<b>Lip incompetenet</b>	<b>Phoneme (w,o,p,b,)</b>		