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Speech-reading Intervention for Profoundly Deaf Child The Case of Hosanna School for the Deaf, Ethiopia

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Abstract: The objective of this intervention was to develop functional speech reading skillsand to increase response of correct speech reading skill. To attain the objective of the study single subject experimental design is used. Four critical elements of methods such as selection of the target, establishment of a baseline, repeated measurement with positive reinforcement, and intervention are used in thestudy. The research design used the steps of the A-B-A-B design. The participant client is profoundly deaf. Intervention of speech reading therapy presented for six weeks. This particular intervention consists of five days in a week and half hour intervention sessions. Long experienced speech therapist teacher was selected for the intervention. Amharic vowels served as the stimulus materials and Amharic one syllable words are instrument materials used for intervention.The finding revealed that 91.77% of the one syllable words at the highest level of success in lip reading and 91.67% similar success of vowels. The client word sound levels appeared to be the best ranging from 83.66% to 100% of the time correct responses and 66.66% to 100% of the vowels sounds correct responses. The result of these words and vowels correct response improvement occurred through continuous practice under proper guidance and intervention. This indicates that with great care and patience, must cultivate the habit of speech reading. Therefore, speech reading is a natural skill and can also optimize the effectiveness of hearing aids and cochlear implants. Large number of individuals in developing countries like Ethiopia cannot afford electronic aids and would benefit from any improvement in the teaching of speech reading.

Key words: lip reading, profoundly deaf, speech reading, speech therapy, intervention

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I. INTRODUCTION

Communication difficulty is considered the most important consequence of hearing impairment. Individuals with hearing impairment try to minimize this difficulty by using some mechanisms in order to have a better understanding of what is being said. Thus, they send the message back to the person they are talking to, in a much easier way. These mechanisms are called by Speri (2000) "communication strategies".According to Boéchat (1992), communication strategies are a set of given attitudes that work as facilitating agents for the message to be easily received, both in a visual and hearing way. The same author organized communication strategies in groups, according to their nature and she classified them into cognitive, interventional, mechanic, palliative, remedial, waiving and simulative ones. Among the cognitive strategies, which aim to rescue the content of the message, there is speech reading (SR).

Besides using communication strategies as facilitating agents for communication effectiveness, the use of speech reading becomes essential for this purpose. According to Kozlowski (1997), the visual processing of speech is used even among listeners, as part of speech perception. This process takes place mainly when the signal/noise relationship is unfavorable, since the phonemes are hidden by the noise, only being audible by the listener. For Demorest & Bernstein (1992) speech reading/lip reading is the most prevalent expression within the cognitive type of strategy, where individuals use several clues to understand speech, as for example, paying attention to facial expressions, recognition of gesture clues, paying attention to environmental clues and others.

The use of lip reading is unconsciously done when we communicate watching for facial expression, gestures, change of posture and clues that show us ways to decode the information, and it is being currently used when assessing individuals with hearing impairment. The deaf individual is able "to read" lip positions and thus interpret the speech sounds of the speaker; however, it is very likely that the best lip reader can only catch 50% of the words uttered, since many phonemes have an invisible articulation and others have the same articulation.

For Russo (1999), speech reading skills can be an important part of developing independence and a feeling of confidence when encountering situations in which spoken language is appropriate or desired.For these reasons, speech reading is an important and beneficial feature of a communication therapy or training. The focus

of this type of speech practice in speech reading enables deaf children to anticipate what may be said in a given spoken language situation. Hence, most deaf children who pass in such experiential in any type of educational setting can enjoy and later benefit from this type of guided exposure to spoken language presented in natural contexts.

Perspectives of Speech Reading

From a historical perspective, speech reading was initially developed in Europe as a method to teach speech production to young children with hearing loss. Until 1890's it was limited to deaf children who were characterized by a vision-only (unisensory) approach.Speech reading (lip reading, visual speech perception) a form of information processing, is defined by Boothroyed (1988) as a " process of perceiving spoken language using vision as a sole source of sensory evidence"(P.77). Speech reading, a natural process in every day communication, is especially, helpful when communicating in noisy and reverberant condition, because facial motion in speech production may augment or replace degraded auditory information (Erber, 1969). Also visual cues have been shown to influence speech perception infants with normal hearing (Kuhl and Meltzoff, 1982), and speech perception phenomena, such as the McGurk effect of (MacDonald and McGurk, 1978), demonstrate the influence of vision on auditory speech perception.

The term "speech reading" refers to the "fact of seeing in the mouth and facial expression of the person who is talking to us the words that we should normally hear" (Tejedor, 2000, P. 20). Thus, it involves using an alternative modality to audition, the visual modality, to access oral speech. As the environmental noise or the loss of hearing increases, people resort to speech reading to compensate for the loss of auditory information.

But speech reading is not the best substitute of the auditory path (Bernstein & Auer, 2003). The difficulties involved in this practice are familiar both to deaf people and the professionals who are in charge of their education. However, speech reading is also very beneficial when developing oral speech and facilitating integration in a society that is mostly made up of hearing people. For example, many authors state that children with hearing incapacity access the phonological code through lip reading, although they also use other sources of information such as their own articulation (Alegria, 1998; Alegria, Charlier, &Mattys, 1999; Campbell, 1997). In contrast, although the access to phonological code provided by speech reading is incomplete (due to the difficulty to distinguish some phonemes on the lips), lip reading facilitates this access sufficiently to be able to observe a clear relation between the level of speech reading achieved by the deaf and their mastery of reading (Harris & Moreno, 2006; Kyle & Harris, 2006). Harris and Moreno even state that good speech reading is the trait that identifies all the good deaf readers, although they qualify this statement by adding that it is a necessary but insufficient condition to become a good reader. But the main benefit provided by well developed lip-reading is that it improves the reception and comprehension of oral speech, as it allows compensating for the information that is not correctly perceived through the auditory channel. This effect has been observed both in deaf and in hearing people (Schwartz, Berthommier, &Savariaux, 2004).

However, despite this series of benefits associated with the practice of lip-reading, this channel of access to information is clearly inferior to the auditory channel in its efficacy because lip-reading is subject to a series of limitations that professionals shall comment on below.

Limitations of Speech Reading/Lip-reading

The most important limitation of lip-reading/speech reading is that not all the phonemes that are heard can be perceived on the lips (for example, the velars). Some phonemes are perceived but are easily confused with others (for example, /p/, /b/, and /m/).

These groups of orofacial confusions coincide with those proposed by Tejedor (2000), except that in this case, new groups are added, among which are included vowels. According to this author, the groups of sounds as a function of the difficulty involved in their perception on the lips would be: the group of the vowels and velars /a/, /o/, /u/, /e/, /i/, /g/, /j/, /k/; the group of the bilabials /p/, /b/, /m/; the group of the labiodental /f/; the group of the interdental sound corresponding to the letter z, sometimes forming a group with /d/, mainly at the end of words; the group of the dentals /t/ and /d/; the group of the alveolars /l/, /n/ and /r/; the group of the palatals, that is, sounds corresponding to the letters *ll*, *ch*, and *y*, along with the alveolar /s/.

This difficult to discern the different groups of phonemes cause their correct perception to range between 10 and 25% (Woodward & Barber, 1960) and the correct perception of isolated words to range between 10 and 30% (Rönnberg, Samuelsson, &Lyxell, 1998). Within the phonemes, isolated consonants are more difficult to identify than isolated vowels, according to the comparison of different studies (Bernstein & Auer, 2003). Another limitation usually attributed to speech reading/lip-reading is that it depends on the distance between speakers. Specifically, a distance of between 50 centimeters and 3 meters is recommended to be able to lip-read with comfort and precision (Tejedor, 2000). Speech reading also demands special conditions of luminosity and visibility. It cannot take place if the speaker places an object between his or her lips and the recipient's vision.

Lastly, another limitation of lipreading refers to its dependence on the context. Speech reading isolated phrases is extremely difficult when not supported by the context (approximately 5% of words in phrases are correctly identified, according to the results of Samuelsson &Rönnberg, 1993). In parallel to these external limitations are a series of individual variables that intervene in speech reading. The result of the bibliographic review of this issue is commented on below.

According to Conrad (1979), the capacity for lip-reading seems to be determined by the person's degree of hearing and the levels of intelligence and of speaking. However, the studies that have focused on establishing the relation between the degree of hearing and the level of lip-reading have not reached unanimous conclusions. Some have observed that hearing people are usually better lip-readers than deaf people and, therefore, they have concluded that the more the loss of hearing, the more difficult lip-reading will be (Massaro, 1987; Mogford, 1987). However, authors like Arnold and Köpsel (1996) find no relation between these two variables and Bernstein, Demorest, and Tucker (2000) observe that deaf people identify phonemes in direct syllables and words, both isolated and in sentences, better than hearing people. Along these same lines, early onset of loss of hearing is observed to contribute to better lip-reading, at least, when the loss of hearing is severe (Tillberg, Rönnberg, Svärd, &Ahlner, 1996).

The Relation of Intelligence and Speech/Lip reading

Speech reading/lip reading makes a higher cognitive demand than habitual auditory processing of oral information (Rönnberg et al., 1998). This is due to the fact that access to speech through lip-reading depends on the person's deduction capacity. This capacity allows access to speech by mentally completing what the ear cannot hear or the eyes perceive (Rönnberg, 1995). Therefore, it is considered that there is a clear relation between intelligence and lip-reading, which leads some authors to indicate that, when the intelligence quotient is lower than 80, there are important lip-reading difficulties (Tejedor, 2000). Yet the relation between intelligence and lip-reading does not seem so clear to all authors, for example, for Silvestre and Laborda (1998). According to these authors, there is a correlation in the cases in which there is good mastery of lip-reading; in contrast, there is no correlation in cases with insufficient mastery of speech/lip-reading. Thus, they conclude that intelligence may be necessary, but it is not sufficient to achieve a good level of competence in lip-reading.

Deductive capacity is closely related to knowledge of lexicon and linguistic competence in general so that, ultimately, speech/lip-reading also depends on the lip-reader's knowledge of oral speech (Conrad, 1979). Concerning this influence, there is the paradox that deaf children do not achieve good speech/lip-reading unless they have achieved an adequate level of global linguistic competence, and this is attained, among other ways, by lip-reading. But lip-reading does not seem to provide prelingual deaf children with easy acquisition of language. Only about 35% of speech is accessed through lip-reading (Torres, Urquiza, & Santana, 1999). Despite this, the studies find that deaf subjects with higher mastery of oral speech perform at the same level of lip-reading as hearing people and much better than bilingual (oral language and sign language) deaf subjects (Arnold &Köpsel, 1996).

The fact that training in verbal articulation improves visual perception of speech is nothing new (Ling, 1976); this influence seems due to the fact that, according to the motor theory proposed by Liberman, Cooper, Shankweiler, and Studdert-Kennedy (1967), speech perception is facilitated as a result of people's knowledge about their own articulator movements.

Phonological processing skills have also been shown to have significant impact on levels of speech/lip-reading (Conrad, 1979). As with written material, in lip-reading, phonological processing also allows decoding the visual input and activating the corresponding lexicon and, in effect, it permits people whose phonological processing skills are more developed to become better lip-readers (Lyxell, Rönnberg, &Samuelsson, 1994). Therefore, adequate development of phonological representations is an important prerequisite for speech/lip-reading skill in people with hearing deficiency (Rönnberg et al. 1998).

The Role of Sign Language in Speech Reading

The role that sign language may play in the development of speech reading is still unclear. According to some authors, signs hinder the development of oral speech and, therefore, of speech reading. It is thought that children who use sign language will not read lips because it will be easier for them to interpret signs than lip movements (Cuenca, 1995). However, to date, neither this negative influence has been verified, nor the possible beneficial influence of certain sign parameters (facial expression, mouth gesture, lip movements) in the development of speech reading skill. From a review of the studies on lip reading in the prelingual deaf, Mogford (1987) concludes that whether the deaf child's education was carried out by means of oral speech or by manual communication seems to have no influence on this skill. Arnold and Köpsel (1996) find that mastery of sign language, assessed by teachers, does not correlate with speech reading, although it does correlate with reading, which, in turn, is positively correlated with lip reading (r = .81, p = .005). From the above, a very fragmented view of the factors that affect lip-reading performance is obtained.

Lip reading is a skill we can all utilize and in reality everyone has had occasions to use it. However, without proper guidance it is generally a skill we cannot master. For deaf and hard of hearing it can be crucial for communication with the hearing community. Lip-reading is not an exact science but it requires a lot of practice with the right guidance, it is an easily acquired skill for both the hearing and deaf community alike. For the deaf, it can be a ticket into the hearing world. For the hearing, it can be a ticket to a greater understanding (Arnold &Köpsel, 1996).

Brief History of Clint's Institute

According to the review of the church documents and different reports of the school, when the church wished to open the deaf school, the first commencement and counseling take place by former teacher of the deaf Mr. Gunar Gomer Swedish Missionary at keren, Eritrea. After extended study by this individual, the church decided enchanting a long discussion where the deaf school building takes place in the country. Finally, the executive committee of the church firms the place in South Central Synod in Hosanna town, Hadiya Zone (Hossana School for the Deaf, 2006).

The school is situated in Hosanna town, Hadiya zone, South Nation Nationalities People Region, Ethiopia. . It is a residential School for the Deaf comprising the preparatory (zero class), the complete primary school and high school.

The Ethiopian Evangelical Church MekaneYesus School for the Deaf then started teaching deaf children at borrowed classrooms from South Central Synod, until the construction of the school building was completed. After the completion of the building on October 24, 1981 the students have shifted to the new building. The school started teaching deaf children with ten, five boys and five girls. The staff members during foundation of the school were four. The first director of the school was AtoAsmelashOgbamicheal who got special education training in UK; he served the school for 15 years.

The Ethiopian Evangelical Church MekaneYesus opened this school to implement its vision **"Serving the Whole Person"**, being addressed to serve the deaf children, too. The objective of the church was to serve the forgotten and neglected deaf children from urban and rural areas of the country. Based on the church's objectives deaf children started to be selected from all direction of the country regardless of gender and religion background. At the beginning, the plan of the school was to offer academic education services up to grade 4, but later on the demand gradually grew up and it extended to grade 8. The school now grows up to grade 10 in providing supplementary vocational education skill training besides the academic education. In addition, the Church opened the second deaf school in Nekemt, Oromia region.

It is the first boarding school for the deaf in the country and the first to provide high school level education. Now the school constitutes elementary school and high school. In addition, the school is giving vocational skill training like wood and metal work, tailor, embroidery, home economics, hair dressing, and computer services.Each year, the school admits limited number of deaf children that do not surpass 10 to 12. This limitation is determined by availability of dormitory numbers and donors' interests. The admission criterion of the school is also totally deaf children (Hossana School for the Deaf, 1991).

The teachers of the school took training abroad and home institutions like Gallaudet University, USA; Mont fort College, Malawi; Jyvaskyla University, Finland; Birmingham University UK; KSE training center, Nairobi; Asmara and Hosanna Deaf schools in summer program. Currently, some of the teachers are also attending in AAU and Dilla Universities.

Supportive Services in the School for Speech Reading

Audiology is essential for all those working with deaf and hearing impaired pupils. Audiology is a scientific subject which is continually developing and changing. Audiological studio is very important where there are residential schools, it helps to assess and management of amplification system of hearing aids. It further helps to able to interpret and discuss the implication of test results with parents and subsequently with other teachers (Maltby and Knight, 2000). It also helps in providing information for speech therapists in level of severity and informing lip reading skills. The school already had audiological center.

Audiological Testing room

Audiologists have a role to play in assessing the effectiveness of hearing aids in the real world at home and school, and are in a unique position to report back to the clinical setting on the effectiveness of prescribed hearing aids.

This audiological center of the school provides services for all deaf students in fixing hearing aids and testing hearing level. In addition, it gives services for those who seek support of hearing aids and counseling services. The school uses audiometer, pediatric audiometer, hearing aid testing box, etc. This intervention study also carried out in this sound proof and light luminosity room for speech reading therapy.

Selection Criteria of the Client

The following criteria was used to select the subject for the intervention (a) diagnosis of a severe or profound deafness (b) medical eligibility (c) audiological test result (d) no prior implementation of the speech reading (e) consent of the school for intervention. Out of the 15 students served in grade one, the child who met all the selection criteria was selected for the intervention.

History of the Client

The pseudonym Ali is 10 years old. He was born in 2007Tora small town, Silte Zone, South Nation and Nationalities People Region. Clinically, he is pre-lingual, profound, bilateral, sensorineural hearing loss. He has hearing parents and hearing brother and sister. His father's name is YassinAgebo and his mother's name is Tayiba Abdul Karim. Mother and father live in Tora town leading their life in farming. His hearing impairment was from early infant age i.e in his 14 months. The cause of his hearing impairment is mumps. The early medical reports revealed that neither medication nor surgical intervention is indicated. The resistance of mumps for a longer time without medication intervention damaged his inner ear. During this time, parents in seeking cure for their child, they have visited various traditional health centers. However, the child cannot be cured as parents expected.

Lastly, they brought the child to TikurAnbessa Hospital, Addis Ababa and they confirmed his deafness. After the recommendation of medical doctor, the parents started to look for the deaf school. His audiological examination result shows a pre-lingual, profound, bilateral, sensorineural hearing loss.

Currently, he is a grade one student in Hosanna School for the Deaf. Ali accesses the school curriculum entirely with Amharic sign language. He has strong receptive and expressive Amharic sign language skills but very limited receptive and expressive oral language skills. He became deaf before learning to speak; he is unable to talk and he uses sign language as his primary communication mode. His speech pattern consists of lip-reading and some unintelligible vocalizations. However, with appropriate speech reading intervention, he might show an improvement of speech reading skill.

He has undergone hearing aid evaluation but does not profit sufficiently from the aid. He always prefers not to fix hearing aid because of unclear acoustic conditions. His average air conduction hearing level is 90.2dB profound hearing loss as far as can be determined; his hearing loss would be classified as severe. He is extremely poor in the use of oral language, especially perception and expression. Of late, Ali has found it increasingly difficult to follow conversation in group and single. Ali is a joyful child and always enjoys coming to the speech reading intervention room for instruction and intervention. He is very cooperative with his therapist.

Audiogram Result of the Client

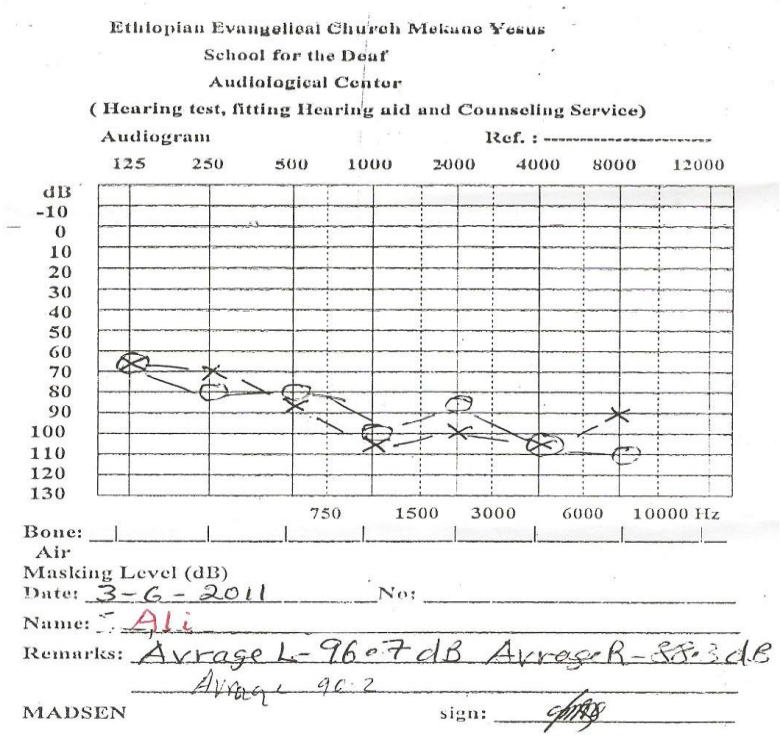

Table 1: Audiogram

Objectives of the Intervention

The objective of this intervention study is:

- to develop functional speech reading skills and to the overall efficacy of the child's receptive spoken language skills.
- to increase the frequency of correct responses of speech reading skill and implementation of the intervention.
- to provide the client with experience in the use of visual and facial modalities cues.
- to enhance knowledge of the speech reading practice, and to boost motivation to improve speech reading abilities.
- to enhance ability to generate personal goals for improving speech reading.

Definitions of Key Terms

Speech-reading (now often called lip-reading) is the ability to perceive speech by: (1) watching the movements of a speaker's mouth, (2) by observing all other visible clues including facial expressions and gestures, and (3) using the context of the message and the situation (Ronnberg,1991).

Speech-reading is a broader term that involves lip-reading together with the interpretation of body language, facial expressions, and linguistic and situational cues.

Lip-reading involves the extraction of meaning from movements of the lips, jaw, and tongue. In this study, both speech reading and lip reading are used interchangeably.

Intervention Method

The researcher used four critical elements of methodology in this study.Selection of the target, Establishment of a baseline, Repeated measurement with positive reinforcement, andIntervention.

Establishing a Stable Baseline Condition: The researcher was established a clear functional relationship between the treatments (independent variable) in order to correct responses lip-reading of client (dependent variable). The researcher established a baseline condition to see a state of speech reading skill as it were, in the absence of any intervention. This baseline is then used as the basis of comparison to determine the degree of correct responses that may occur during the treatment or intervention phase. There was no an intervention or treatment provided during the baseline condition, it serves as the basis of comparison in evaluating the effectiveness of the treatment. In establishing the baseline, three data patterns, or trends are generally noted: (1) stable trends, (2) increasing trends, and decreasing trends. These trends or patterns were helped the researcher in guiding decision to move to the phase. If the client demonstrates a continued of random correct and incorrect responses on the base line this would indicate a stable pattern in the data. The speech reading will proceed to the intervention phase and use the base line data to contrast with the data collected in treatment phase.

Repeated Measurement: Repeated measurement is a logic that applies equally to both baseline and intervention conditions. The role of repeated measurement is to establish a stable baseline condition, and intervention phase, repeated measure serve to identify when the relationship between the base line and intervention condition is stable. It is only when this relationship has been stabilized that the researcher can accurately assessing the degree of effectiveness of the intervention.

Repeated observation or measurement helped the researcher in this study to determine if specific intervention (the independent variable) applied in the experimental condition effects change in the participants target behavior(the dependent variable). When completing observations and repeated measurements of a client's behavior, it is clearly and surely finalizing the result of this intervention study.

Observation System

- The observer instructs the client to recognize and how to read lip and facial expressions.
- The researcher expects the correct responses to vowels and word recognition probe (test).
- The researcher utilizes multiple observations or repeated measurement to determine whether significant improvements in the performance of the participant have occurred.
- One of the behavioral components, or target behaviors, may be the number of correct responses to a word recognition probe (test) in this study.

Intervention Design

To start a specific speech reading therapy program geared to the individual, the following description of six weeks of training were presented. This particular intervention consists of five days in a week and half hour intervention sessions. The major aim of this speech reading intervention is to increase lip-reading experience of deaf child. The therapist repeatedly measured vowels and words in the same week alternatively. This was occurred after mastering of vowels. The therapy sessions were employed one teacher therapist and the

researcher. The researcher assisted the school therapist as cooperative therapist in rating correct and incorrect responses and guiding the intervention. The client was seated approximately 50cm to 2 meters from the therapist. A conventional type classroom was used; sign language and visual aids were presented. For clear facial reading fluorescent light distribution throughout the room took place. Speech reading intervention took in audiological testing room, external sound was well controlled. To rephrase Bandura's conclusion in everyday language, "nothing succeeds like success." It is important that the speech reading learner experiences frequent rewarding successes and not only the inevitable failures. Natural/positive reinforcements like clapping hands, verbal praises and other types of encouragements were used.

During speech reading exercise period mirror was used the trainee to observe his and therapist's facial expression. The words could be repeated up twelve times if the participant so required, both during the practice trials and during the intervention.

A-B-A-B Design: The research design used the steps of the A-B design but adds an addition phase: withdrawal of the treatment with a return to baseline conditions. The sequential application and removal (withdrawals) of the treatments allows the researcher to verify the effect of the treatment behavior. If changes occurred in each condition, the researcher is able to conclude that the changes were due to the treatment variable. In many cases the researcher was reintroduced the withdrawn treatment (B).

The researcher considered baseline data was collected (phase A) and then trial (independent variable) was introduced (phase B), with continued measure of the target behavior. The treatment was withdrawn (back to phase A) for a period of time while measurement continues. The treatment was then reintroduced (phase B), again with continued measurement. In this design the researcher wanted to show that the intervention effects are replicated over time. A comparison of both the A and B phases helped the researcher to determine if client speech reading is an effective treatment for the child. During the baseline phase, repeated measures of the number of reciprocal steps were taken five times in a week until a pattern of stable intervention performance established. Base line measures were begun by the first week of the April, 2016. Due to the A-B-A-B baseline design, baseline design data was collected for six weeks from the client. The intervention task of the lip-reading level consisted of identifying vowels, phonemes in direct syllables and words.

Intervention Procedure

The teacher was initially given special instructions about the work with his student in accordance with a technical and training concept. Teacher's experience was mostly positive. Speech reading not only involves focusing on lip movement, but it also involves the observation of other facial expressions and bodily gestures to fully understand the spoken message. The speech reading therapists records and categorizes vowels and words to determine what the child has mastered what has not? Then, the therapist first starts with vowels and assembles vowels with bilabial consonants /p/, /b/and /m/ to practice rhythmic exercises he latter finds into a sequential hierarchy of targets for his training. The intervention followed the following procedure:

- The therapist used visual cues like facial expressions, body languages and sign language to help the deaf child to understand what he is trying to lip read.
- For effective communication, the light source should not be behind the speaker; rather it should be behind the listener and should fall directly on the speaker's face so that the speaker's face is clearly visible.
- In order to observe and understand better in a quiet environment. The room should be free from any extra noise. Therefore, the room and surrounding environment were checked from any disturbances.
- The topic of the conversation was told in advance to the child with a hearing loss. This helped him for better understanding of the objective of the speech reading which was greatly benefited the deaf in being prepared to listen and interpret what was said.
- The therapist should not over-exaggerate. Too much loud speech will be difficult for the children to understand. Therefore, in a therapy class with the deaf child, therapist should speak softly and slowly.
- There should not be any obstacles in front of the speaker. Any moustache, hands over the mouth should be removed during speech reading training with the deaf child.
- Language is another important factor for good speech reading. It is difficult for child to speech read unusual pronunciations or a different language. Therefore, unusual pronunciation was avoided.
- During therapy, the therapist should look straight instead of looking down or away from the listener.
- Sounds of some letters e.g., ᴛ(P), ᑎ (B) and ᵐ(M) look the same when speaking; therefore the speech reader must be able to differentiate between these sounds on the basis of other clues.
- The therapist's mouth was free from obstacles and the vocalization was done at a normal speed and in adequate luminosity conditions.
- Instructions were provided both in oral speech and in sign language (depending on client's communicative preferences).

- The words could be repeated up to master if the client so required, both during the practice trials and during the procedure.
- Present the target (word) in sign language and write it and encourage the child toimitate it.

Intervention Setting: Speech reading intervention was conducted in the testing room of children with hearing impairment which was sound proof and luminent. The activities of intervention were occurred during the school day from Monday to Friday. These intervention activities occurred throughout the school campus.The intervention was conducted beginning from the first week of April and lasting May 15th in the second week 2016. Data was collected over a six weeks period of time.

TherapistSelection: Ten special education trained teachers in the school, five of them were taken a speech reading training courses. Out of these , the teacher who had speech reading training certificate; engaged in speech reading intervention activities in the school and long experienced teacher selected for the intervention.

In this study, the client was alternatively exposed to a series of measurements in the non-treatment, baseline phase, referred to as A, and the same series of measurements again during the treatment or intervention phase, referred to as B. In this research design, the relative success of any intervention is determined by visual inspection of the graphed data points. To determine whether a real or significant improvement has occurred, the researcher would first compare the level of the data points in the baseline condition with those recorded in the treatment condition, across the repeated measuring sessions. The comparison of baseline treatment and the significant improvement was recorded by percentage. This process simply consists of comparing the data points on the graphs displaying baseline scores or responses with the data points representing scores or responses recorded during the intervention phase.The vowels and words could be repeated up twelve times if the participant so required, both during the practice trials and during the intervention.It is important to provide successful experiences for deaf child. Since, the deaf child was new to spoken language/speech reading therapy will benefit from presentation of single words.

Instruments/Stimulus /Intervention Packages

A lip-reading training test was elaborated to achieve above goals. The purpose of the material was to develop functional speech reading skills and to ensure that the client correctly lip-read and to increase response of correct speech reading skill. And then the learner should be encouraged to take a probabilistic, and more relaxed, approach to speech reading. To conduct this, the following materials were provided for the intervention purpose of the study. The materials were divided into six weeks of intervention implementation of lip reading skills.

Baseline and Observation Phase: Explanation of purpose of the speech reading therapy intervention, discussion of the value of combined practice and demonstration of vision and audition together. Basic personal questions will be served as the stimulus materials. Amharic vowels were initially introduced. Thirteen minutes of practice on Amharic vowel letters.

አa፣ ኤe፣ ኢi ፣ኦo ፣ኡu.

- Measure the correct observation baseline responses

1.2 Intervention Phase (B)

አa፣ ኤe፣ ኢi ፣ኦo ፣ኡu.

- Measure the correct intervention responses

1.**3. Withdrawn (back to phase A) measurement continues (second phase)**.

አa፣ ኤe፣ ኢi ፣ኦo ፣ኡu.

- Measure the correct observation base line responses

1.4 Intervention Phase (B)

አa፣ ኤe፣ ኢi ፣ኦo ፣ኡu.

- Measure the correct intervention threshold responses

Followed by vowel intervention half hour minutes of practice on bilabial phonemes, visual cues will be practiced for rhythmic exercise purpose. The aims in practicing rhythmic exercises in unison are to alert the student to the feeling of speech movement as he talks, to teach him to imitate visible speech movements as he watches another talk, and to practice fundamental rhythmic exercises. The student attempt to imitate the speech vowels and bilabial syllables with or without voice depending on the skills of the child will be exercised e.g. (/pa/, /po/, /pi/, /pu/, /pe/, /ma/, /mo/, /mi/, /mu/, /me/, /ba/, /bo/, /bi/ ,/bu/, and /be/. ፐ ፣ ፖ ፣ ፒ ፣ ፑ ፣ ፔ ፣ ማ ፣ ሞ ፣ ሚ ፣ ሙ ፣ ሜ ፣ በ ፣ ቦ ፣ ቢ ፣ ቡ ፣ ቤ

2. Two Syllable Amharic Words

2. 1 Base line/Observation Phase (A)

መጣ፤ ሄደ፤ ጣለ፤ጥላ፤ በላ፤ ገባ፤ በራ፤ ወጣ በኋ፤ ደቦ

- Measure the correct observation base line responses

2. 2. Intervention Phase (B)

መጣ፤ ሄደ፤ ጣለ፤ጥላ፤ በላ፤ ገባ፤ በራ፤ ወጣ በኋ ፤ ደቦ

- Measure the correct intervention responses

3. Withdrawn (back to phase A) measurement continues (second phase).

መጣ፤ ጠጣ፤ ጣለ፤ጥላ፤ በላ፤ ገባ፤ በራ፤ ወጣ በኋ፤ ደቦ

- Measure the correct observation base line responses

4. Intervention Phase (B)

መጣ፤ ሄደ፤ ጣለ፤ጥላ፤ በላ፤ ገባ፤ በራ፤ ወጣ በኋ፤ ደቦ

- Measure the correct intervention threshold responses

II. DATA ANALYSIS

Data was typically analyzed and interpreted by visual inspection of the diagram data points in the study. The treatment may be analyzed in terms of whether it had an effect, and some degree, what kind of effect (i.e. increasing or decreasing client behavior). The therapist's mouth was free from obstacles and the vocalization was done at a normal speed and in adequate luminosity conditions. Instructions were provided both in oral speech and in sign language (depending on the client's communicative preference).

Before the experiment, the subject received a training session for about 30 min to ensure that he understood the instructions and could identify all stimuli. The subject was instructed to vocalize when the speaker pronounced a target stimulus shown at the beginning of each experimental session. He was told that one of the five SR stimuli (/pa/, /po/ and /pi/) would be randomly chosen as a target. This induced the subjects to make the same effort to learn all SR stimuli during training. All Responses of trials were analyzed. Thus, for the SR trials response latencies to vowels /a/ /e/, /i/, /o/,/u/ were averaged. Consequently, each of the 60 responses was analyzed for both the SR. False responses to a trial and missed responses were counted, and a client showed wrong responses to >12 of stimuli was excluded from the study.

III. RESULTS

Baseline Assessment (A). Baseline data collection occurred in the first week of the study across first day in 30-min one-on-one sessions. The first thing, the analysis was carried out in **Amharic Language Vowels**. Vowels are easier to discriminate on the lips than consonants.Beginning with vowels would help the client to open his mouth without contraction/closure. Vowels could help also consonants to be audible. Furthermore, vowels should be more easily learned than consonants for at least two reasons: (a) Vowels are based upon a more simple adjustment of the tongue than consonants. The manoeuvre of humping the tongue is grosser than that required for consonants. (b) Vowels are louder than consonants and are more likely to be heard by the children with residual hearing.

Moreover, the vowel sounds are classified or grouped with four hand locations, one at the throat, one at the chin, one beside the mouth and one at the side of the jaw. Understanding these major points, child knowledge of Amharic vowels was assessed in the following manner: single vowel letters were displayed in the paper in manuscript. አ a ፣ ኤ e፣ ኢ i፣ ኦ o፣ኡ u.

At this baseline stage the child was asked to vocalize the series of vowels by the therapist for baseline treatment.The client was asked each time to say them aloud, to attend to the port of articulation involved in the production of the syllables. The teacher observes the random trails in tallying the errors.

First Phase Intervention (Figure 1)

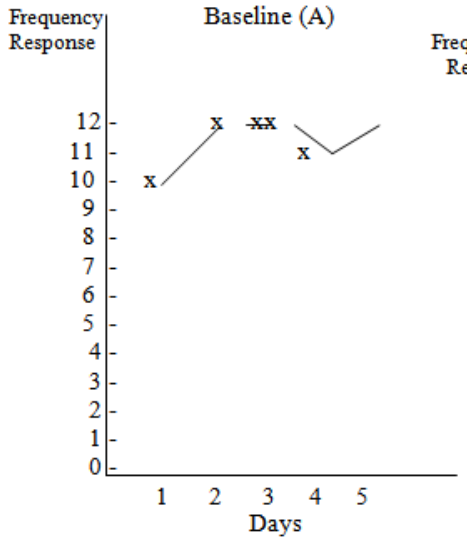

Figure 1 Diagram1.1 Vowels

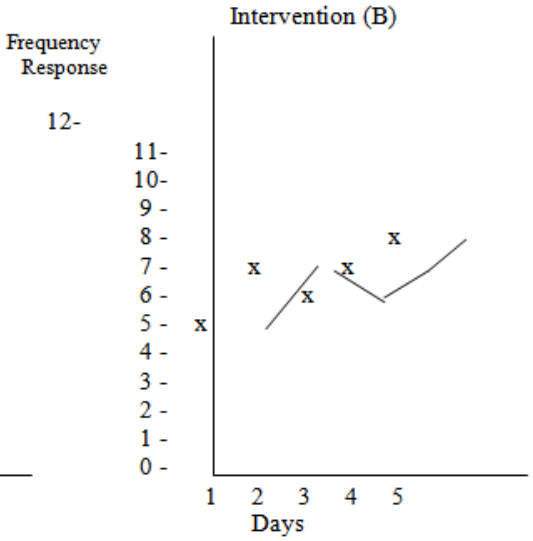

Diagram. 1.2 Vowels

During baseline stage the child vocalized the vowels by him. The therapist observation result during random trial and error as follows: The vowel (aኦ) is produced incorrectly 83.33% of the time; (o,ኦ) incorrectly produced (91.66%), and (e ኌ፣ iኢ፣ uኡ) produced incorrectly 100% respectively.

In intervention (B), vowels should be said aloud naturally by the teacher as the deaf student follows suit. But during intervention trails the child improved vocalizing the vowels. The vowel (a ኦ) is produced incorrectly 41.66% and 58.34% correctly produced; (uኡ) 58.33% incorrectly produced and 41.67% correctly pronounced; (oኦ) is pronounced 50% incorrectly and correctly produced 50%; (eኌ) is produced incorrectly 58.33% of the time and 41.67% correctly produced; (iኢ) is produced incorrectly 66.66% and 33.34% correctly produced. Through speech reading intervention the client correctly pronounced ranged between 33.34 to 41.66% and incorrectly produced ranged 58.34% to 66.66% percent.

Second Phase Intervention

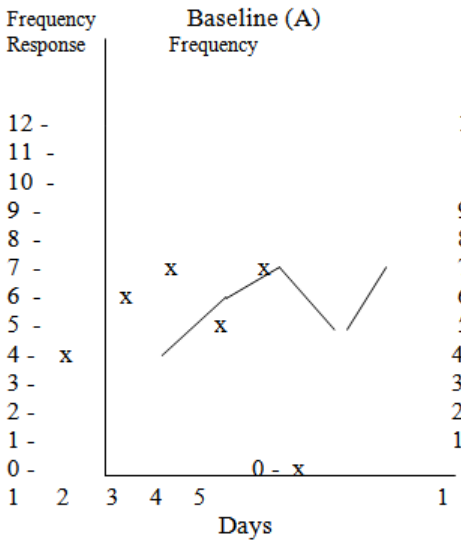

Diagram 1.3 Vowels

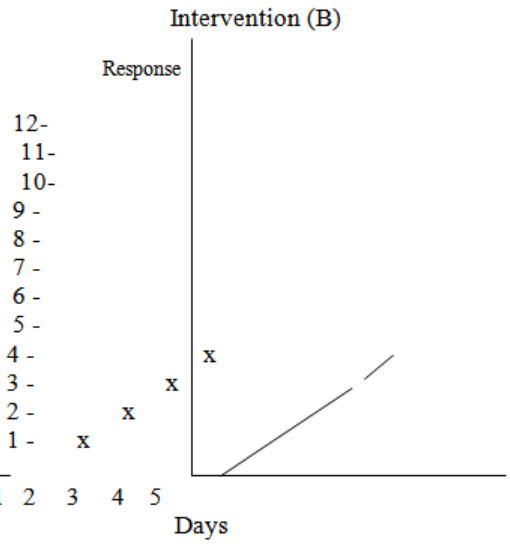

Diagram 1. 4 Vowels

In second phase base line assessment the child displayed a kind of improvement from pervious intervention phase for instance (a,ኦ), (o,ኦ), (u,ኡ) and (e,ኌ) is improved 8.33% except (i,ኢ). This improvement progress is shown because of his own trials during withdrawn periods in the weekend.

In the second phase intervention phase (B) the percentage of correctly identified vowels ranged between a minimum of 66% and a maximum of 100%.Among the vowels, during the intervention the most frequent confusion was seen between /ኤ / and /ኢ/; /ኦ /and /ኡ/ but /ኣ / was easily identified by the client. For instance, ኣ 100% correctly pronounced, ፣ኦ 91.67% and ኡ 83.34% ኢ 66.66% and ኤ 75% correctly pronounced respectively. For example, among the deaf the percentages of correct productions were: front sounds, 28.67%; middle sounds, 12.5%, and back sound, 0%, the vowel's variation, thus reflecting anunequivalent pattern of sensitivity to the phonologicalcontrast. This result indicates that the addition of thevisual information about the vowels enhancesthe ability to discriminate sounds in speech reading.

Rhythmic Exercise with Bilabials

Rhythm and consonant articulation were found to be more important than vowel articulation in producing intelligibility. Vowels are audible for consonant phonemes. Hudgins (1964) concluded that rhythm is a very basic factor in producing intelligible words. In addition, to the atypical cortical processing for speech there is a problem of monitoring created by deafness. Monitoring refers to self-checking during ongoing speech. It is to some extent sub-cortical. As it is this rhythmic exercise could help the child as pre-activity and brainstorming for post-activity of lip and oral organ movements.

Upon locating the proper port, the client enters the sound combination under the correct category, that is, lips, tongue-soft palate. Teacher and the deaf child can say the syllables together with certain rhythms as ba-ba-ba, ma-ma-ma, or pa-pa-pa, etc.The aims in practicing rhythmic exercises in unison are to alert the student to the feeling of speech movement as he talks, to teach him to imitate visible speech movements as he watches another talk, and to practice fundamental rhythmic exercises that are consistent with the contrasting movements and stressed syllables of the oral language, so that he is learning something which is applicable to the speech reading task. Each test stimulus (/pa/, /po/, /pi/, /pu/, /pe/, /ma/, /mo/, /mi/,/mu/, /me/, /ba/,/bo/, /bi/,/bu/,/be/, lip protrusion, smiling, neutral) was repeated 12 times at random to the client (a total of 180 trials for subject).

In this regard, the deaf child's correct responses for combined consonants, it was 50% and 100%, respectively. Of the 15 prints in which contrasts of vowels were presented, in 6 of them, the most frequent error was confusing /e/ and /i/ and, especially, in the case of the discrimination of the words *pe*and *pi*, *me and mi*, *be and bi* which were confused by the sample client. . The sound (b,ቨ) was produced 69% of the time as an incorrect response to either (m,ማ) or (P,ፐ). Whereas (m) was produced only 7% of the time as an incorrect response to (b) or (p), and (p) was produced only 5% of the time as an incorrect response to (b) or (m). The sound (b) was produced 69% of the time as an incorrect response to either (m) or (P). Whereas (m) was produced only 7% of the time as an incorrect response to (b) or (p), and (p) was produced only 5% of the time as an incorrect response to (b) or (m).

Syllables with the structure consonant + vowels are for deaf children to imitate and the particular consonants and vowels chosen are among the most visible of English sounds. This exercise improves the client's oral apparatus movements in lip reading.

Two Syllable Words Intervention

Baseline Assessment (A): The intervention procedure is used the same routine procedure for all two syllable words. The different tests were applied orally by the same therapist, with an intensity of around 70/75 acoustic environment, in a well-lit room and with minimum noise. The distance between the subject and the therapist was 1 meter. The subject was instructed to vocalize the words. The number of words and phonemes spoken correctly were expressed as percentages. For the purpose of diagram also stimulus words were grouped in to two parts. There were 10 items to speech read in two blocks chosen by the authors. In baseline random trials, each word was pronounced twelfth time by the child. This comprehensive and clearly presented form of instruction includes practice for recognizing 10 speech sound positions in words. The researcher collected data relative to a speech perception test of two syllable words which were presented as follows: **Block 1:**. መጣ፤ ሄደ፤ ጣለ ፤ ጥላ ፤ በላ**Block 2:** ገባ ፤ በራ፤ ወጣ በኋ ፤ ደቦ

Figure 2. First Phase baseline assessment

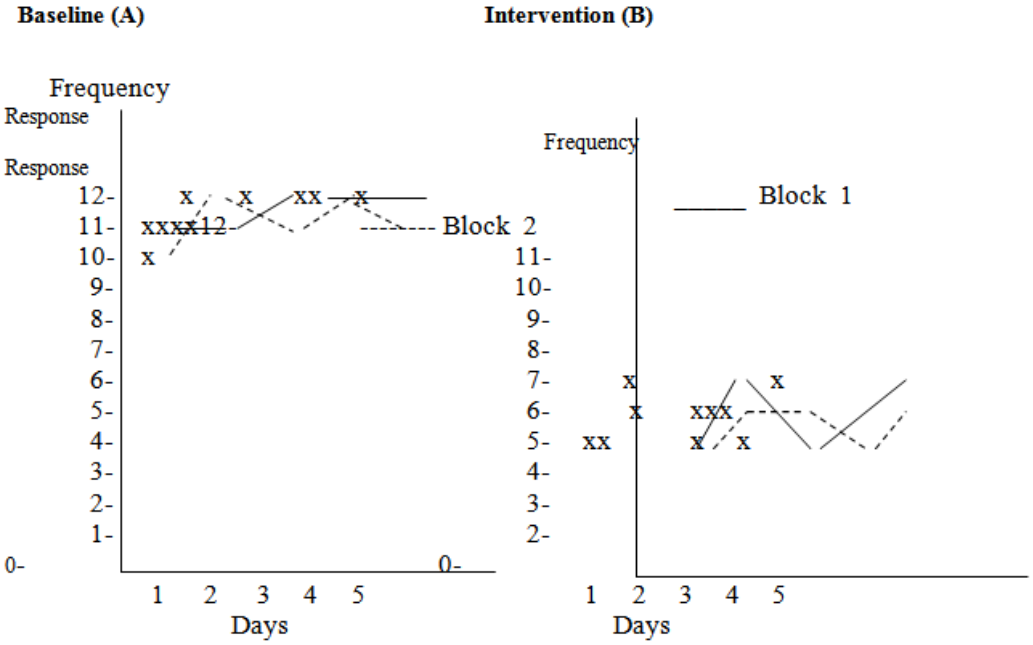

Diagram. 2.1 Two syllable wordsDiagram. 2.2 Two syllable words

መጣ ሄደ ጣለ ጥላ በላ ገባ በራ ወጣ በላ ደረሰ

The student was asked each time to say them aloud in initial baseline observation to attend to the port of articulation involved in the production of the words. In baseline treatment observation, the word 'tela, tila, geba, bera, hede' was produced 100% of the time as an incorrect response whereas (meta, wota, buna, dabo) was produced 91.66% of the time as an incorrect response and bela 83.3% of the time an incorrect response.

Diagram presents a confusion matrix of the word sounds produced by the deaf subject in response to the teacher's model of (tela&tila), (hede&geba), and [bera&meta). The data contained in this figure indicate that the one word in response differ noticeably as to their ease of production by the hearing impaired child. On diagram 2, in the intervention phase (B), it is possible to observe the correct responsethreshold percentage obtained by client of the speech reading test. The word (bela, dabo, meta, and buna) are produced correctly 58.33% of the time and 41.66% of the time incorrectly pronounced; (hede, geba, bera, wota,) 50% of the time as an incorrect response and 50% of the time as a correct response whereas (tela and tila), 58.33% incorrect response and 41.67 correct responses. However, the pattern of errors is equally interesting.

Figure 3. Second Phase intervention

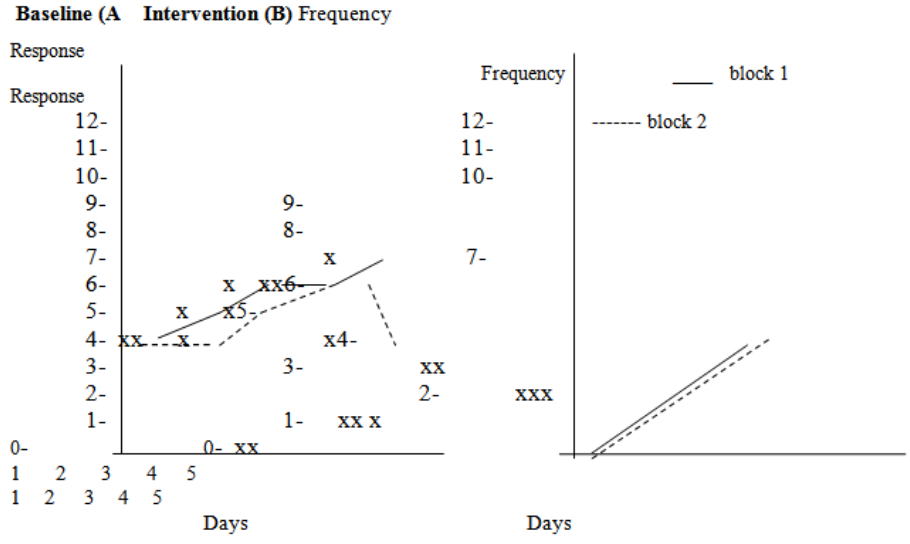

Diagram 2.3 Two syllable words *Diagram 2.4 Two syllable words*

During the sequential application and removal (withdrawals) of the treatments the child improved from (B) intervention time some of the words of oral production. For example, beladabo, meta and buna 10% improved and others 10% respectively, except tela and tila. These differences occurred, the child might be with his friends and family at home or privately exercising may brought these differences. Just as (bela) is the word produced correctly most frequently, it is also the word (tila) most likely to be substituted in error.

Whether examined in terms of the errors or in terms of the sounds produced correctly. The data summarized in diagrm 2.4 clearly illustrate the order of difficulty of production of these sounds for the hearing impaired subject. The words (bela&dabo) were produced 100% correct responses and are least difficult and are generally produced well. (Buna, meta&bera) were produced 91.67% correct responses and are of medium difficulty and are rarely produced incorrectly. This medium of difficulty occurred because of bilabial place of articulation and acoustic similarity confusion. (hede, geba, wota) were pronounced 83.66% correct responses and are difficult to produce and is produced correctly most of the time because of acoustic similarities and place of articulation similarities. Further, (tela and tila) are the most difficult words. This difficulty occurred because of vowels manner of articulation confusion.

IV. DISCUSSION

We can observe different level of difficulty from vowels, bilabial rhythmic exercises and word interventions. This order of difficulty can be understood in terms of the way these sounds look and "sound" to the deaf subject. For all these word sounds, the child sees no more than labial closure, which could presumably begin with /b/, /m/, or /p/. However, the actual pattern of production is not equally distributed among the categories. The differences of the data are most probably due to the relative manner of placement and articulatory complexity of the vowels and word sounds with respect to the way that they appear visually and invisible sounds. In fact, despite the visual similarity of these words, may be a fairly accurate guide for the production of labial words. The child can easily see and at an early associate an open mouth with making voice. i.e. with producing a word. Watching the teacher produce a word /ba/ the child can see the mouth closed at the lips and then opened in such a way, vocalization is to take a place. The correct articulatory gestures can be successfully imitated from the visual model. For bilabials, both vision and physiology help to make these sounds not to difficult to produce. The child can see the lip closure and the subsequent opening. While he cannot see the opening glottal he cannot perhaps see that the closure of the lips as bilabial leading sounds. Therefore,some phonetic information is invisible to the speech reader; the teacher allowed holding the paper to feel the glottal vibration during oral production. When the child initiates vibration of the glottal (g,ገ) and (h,ሀ) while the mouth is round opened, then this vibration will tend to open the nasal passage and produce an oral sound cannot be seen clearly.

Finally, the sounds (ti,ጥ and te,ጠ) are the most difficult to produce since they are in a similar place of alveolar plosives articulation and (e,ኤ and i,ኢ) vowels are formed in the same side of the front jaws. These make the words more difficult to produce correctly as the other sounds. To achieve a correct production of word sounds, the teacher often resort to have the child feel the vibration at the onset the vowels, although there is no guarantee that the child will know how to produce vibration simply by virtue having felt it.

Additionally, words that occur frequently in the linguistic environment are afforded an advantage in the recognition process, such as "bela,በላ ; dabo,ዳቦ ; buna,ቡና and metta,መጣ ," that high frequency words are predicted to be easier to recognize than low frequency words "hede, geb ; tela and tila". Both of these predictions (lexical density and frequency) have been verified with ample empirical evidence within the literature on auditory spoken word recognition (Gaskell &Marslen-Wilson, 2002; Luce& McLennan, 2005). Most congenitally deaf speakers have not achieved co-ordination of respiration, phonation, resonation, and articulation, and this destroys intelligibility and the smooth flow of speech. It seems that the more of a feature of speech depends upon acoustic determinants, the worse their control becomes. Thus, they are more apt to learn articulatory placement than glottal adjustments necessary for pitch variations, since the movement of oral structures is more visible than activities of the glottal (Summerfield, 1992). In this study the difficulty of production and differences vowels and word production happened because of above discussed similar reasons.

While the relative ease of production of the consonants among the subjects with hearing impairment can be interpreted in terms of the consonants' visual and acoustic characteristics, there are perhaps other linguistic or developmental factors of a purely articulatory nature which are also important.

During the intervention, the researcher observed that the ability is attained, not through long conscientious memorizing of difficult rules, but by the application of the fundamentals of those rules by continuous practice under proper guidance and therapy intervention. Lyxell (1994) reported that with great care and patience, must cultivate the habit of speech reading. It is only in this way that the child can attain its ability to read the lips; namely, by continuous practice

In similar vein, in this intervention the therapist showed these experiences plainly, it being necessary for the client to have a clear picture of each word position. The knowledge of these various positions is the basis of his skill in lip-reading. Each word made up of two or more sounds means to him a succession of the same number of positions. Words do not consist of individually spoken sounds, but of closely connected sounds. The passing from one sound to another demands another special movement which we may call inter- movement. Ronnberg (1995) considered the relationship between other skills and speech reading; he suggested that there are three direct predictors of speech reading skill: decoding ability, information processing speed, and guessing ability. He also claims that visual neural strength contributes to decoding ability, and working memory capacity' and vocabulary to guessing ability. For Ronnberg these six elements constitute the cognitive architecture underlying speech reading skill. Speech reading skill is a multicomponential skill not predicted by a single predictor, or by a simple structure of direct predictors. He notes, that low-level processes such as decoding and speed (or simply general speed) account for twice as much variance in sentence based speech reading than high-level processing such as guessing and working memory. Similarly, in this intervention the client displayed similar behavior of decoding and guessing ability. If the child is cultivated as early as possible in speech reading skill he cannot suffer in later inclusive oral society. This intervention study also attempts provisionally to locate speech reading on such a continuum and to tentatively suggest that learning, intervention and so training and teaching, may play a somewhat greater part than is sometimes thought.

The ability to extract verbal information from the speaker's face relies on the fact that the configuration of the visible articulators, primarily the lips, teeth, and tongue, shapes the simple resonances of the vocal track to modulate the emitted sound. Visual speech cues permit the discrimination of the place of articulation of certain consonants (e.g. 'p,ፕ' can be distinguished from 'd, ደ'), as well as the identity of different vowels. However, some parts of the acoustic speech signal are generated by movements within the oral cavity that cannot be seen and are consequently indistinguishable visually (e.g. visual perception of 'ga, ጋ' and of 'he' are virtually identical). Thus, visible speech cues provide some, but not all, of the linguistic information that acoustic signals offer, necessitating a certain amount of 'guesswork' to fill in the gaps when sound is absent. In fact it turns out that these visual cues provide information about precisely those parts of speech that are most difficult to discriminate by ear alone. Lip-reading, therefore, directly complements auditory speech perception: speech comprehension is very much an audio-visual activity. To conceive of lip-reading as a cognitive ability in isolation from auditory speech perception is to misunderstand the nature of its contribution to human communication. Lip-reading, it seems, is useful to all sighted people, including those with normal hearing. The visual information emanating from a speaker's mouth and face during normal conversation plays a significant role in influencing the perception and understanding of spoken language. The decision was predicated on the belief that a speaking face provides sufficient linguistic information to permit speech comprehension, and that practice is all that is necessary to effect skilled performance.

In this study, the researcher observed that most confusions in lip-reading were produced between the phonemes of the first group detected by Tejedor (2000)—specifically, /e/, /i/, /g/, /h/ and /w/— and the group of bilabials—/p/, /b/ and /m/—although the highest number of errors occurred significantly with the sounds /g/, /h/ and /w/.

With regard to /e/ and /i/, the confusion seems due the fact that they are both front vowels. Both /p/ and /b/ are bilabial phonemes that are lip-read identically, as occurs with /p/ and /m/. In the case of /g/ and /h/, they are both sounded and, although /g/ is linguovelar and /h/ are linguopalatal, they coincide in that they are both guttural sounds that are difficult to detect on the lips because their articulation point is not peripheral. The same holds for the confusion between /h/ in *hede*and /g/ in *geba*, in which, moreover, both coincide in that they are occlusive and linguovelar because the degree of speech intelligibility also plays a role in high lip-reading mastery.

In this intervention study positive reward also plays a great role to build self-esteem of the client. The speech therapist teacher used positive reinforcement rewards in each interval of success of the client.Eisenberg (1992) has reviewed the literature, which shows that rewarded effort contributes to industriousness. Bandura's (1986) self-efficacy theory places emphasis on the importance of confidence in one's own capabilities as a prerequisitive for behavioral change. According to Bandura, Adams, and Beyer (1977), self-efficacy expectations are a "major determinant of people's choice of activities, how hard they strive, and how long they will persist in their attempts" (p. 138). Bandura et.al (1977) argued that perceived self-efficacy was enhanced by the successful completion of difficult tasks, with generalization "to other situations in which performance was self-debilitating by preoccupation with personal inadequacies" (p. 195). To rephrase Bandura's conclusion in everyday language, "nothing succeeds like success." It is important that the speech reading learner experiences frequent rewarding successes and not only the inevitable failures. The social support of the speech reading group is important and must be encouraged by the teacher.

If our goal is for deaf people to develop autonomously and successfully in our society, then to achieve a good mastery of lip-reading is one of the key pieces. To achieve this, good mastery and adequate educational level in students with hearing impaired will be needed. One can only lip-read what one already knows and, therefore, it is just as important to develop good lip-reading as an adequate conceptual development. For instance, in this study 'bela' , 'dabo' 'buna' and 'meta' 100% easily recognize by the deaf child for the reason words that occur frequently in the linguistic environment. To achieve this, it is sometimes necessary to resort to alternative or complementary systems to oral speech. Among such systems, sign language should not be ruled out, as it has been proven to be, at least, harmless for speech-reading.

V. CONCLUSION

The purpose of this study was to develop functional speech reading skills and to the overall efficacy of the child's receptive spoken language skills. As it is known that speech reading is still of value since it does not rely on technology, is a natural skill and can also optimize the effectiveness of hearing aids and cochlear implants. Large number of individuals in developing countries cannot afford electronic aids and would benefit from any improvement in the teaching of speech reading. There is also a substantial body of individuals who have a hearing impairment but who are reluctant to wear a hearing aid will require speech reading. The skills taught will help compensate for background noise, aid speech discrimination, and help reduce feelings of isolation. Therefore, speech reading is an important means of communication in deaf individuals when he/she is communicating with normal hearing people, most of whom are non-signersand it can support the hearing aid fitting process.

Consequently, from the above results, the researcher obtained a high percentage of success in lip reading of one syllable words and vowels (generally speaking, 91.77% of the words at the highest level of success, and 8.23% in the remaining levels and 91.67% amazingly similar success of vowels and 8.33% level of difficulty as such two syllable words). This percentage amply exceeds the one found in other studies (Woodward & Barber, 1960; Rönnberg et al., 1998; Santana & Torres, 2000). The researcher attribute this large similarities to the fact that, in this intervention, the client received contextual support provided by the therapist and written words that were included in the prints, sign language, and also to the fact that the lip reading was performed in a phonologically the same language that is Amharic language. With regard to the use of Amharic sign language no investigation done in that the researcher did not obtain any clear result that supports its influence, either positive or negative, on the level of lip-reading.

The client word sound levels appeared to be the best ranging from 83.66% to 100% of the time correct responses. The vowels sounds correct response also ranges from 66.66% to 100%. The result of these words and vowels correct response improvement occurred through continuous practice under proper guidance and intervention. This indicates that with great care and patience, must cultivate the habit of speech reading. It is only in this way that the child can attain its ability to read the speech; namely, by continuous practice.

From the results obtained with this intervention one can conclude that: speech reading is an ongoing process in that it requires practice. It is akin to learning a language. If we learn a language and then cease to use it, we lose much of the ability to speak and understand. Much vocabulary is lost. Speech reading requires frequent practice in order to perfect the skill. Therefore, speech-reading is a visual communicative skill for perceiving speech. It is a visual communicative skill to perceive speech by observing the speaker's face; it is purely a visual skill. This ability is attained, not through long conscientious memorizing of difficult rules, but by the application of the fundamentals of those rules by continuous practice under proper guidance intervention.

With this intervention study, the researcher from the intervention can state the importance of speech reading as a mechanism to facilitate speech understanding and keeping a successful conversation. From a general point of view, speech reading brings benefits to patient's well-being with more self-esteem and, therefore, a better social life.

To achieve this, the social support of other members of the speech reading group and family members is essential. Perhaps success can be improved by training the partners and relatives of the hearing-impaired adult to speak more clearly, and perhaps be encouraged to use cued speech in the early stages.

To sum up, when the loss of hearing is such that it hinders or makes oral speech perception impossible, it is necessary to resort to lip reading, but this substitution, which is natural and instinctive in deaf people, requires exhaustive training and adequate instruments to overcome its limitations and ambiguities.

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