LANGUAGE THERAPY AND FUNCTIONAL IMPROVEMENT IN APHASIA

Register No. 8504

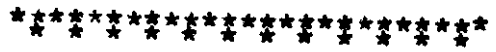
A DISSERTATION SUBMITTED AS PART FULFILMENT
FOR THE SECOND YEAR DEGREE OF

MASTER OF SCIENCE

SPEECH AND HEARING, UNIVERSITY OF MYSORE

ALL INDIA INSTITUTE OF SPEECH AND HEARING
MYSORE-570 006

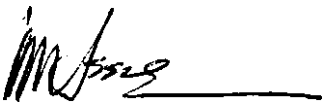
MAY 1987



TO MY FAMILY

CERTIFICATE

This is to certify that the dissertation entitled: "Language Therapy and Functional Improvement in Aphasia" is the bonafide work in part fulfilment for the degree of Master of Science (speech and Hearing) of the student with Register No.8504.



Dr.M.Nithya Seelan
Mrector
All India Institute of
Speech & Hearing
Mysore - 570 006.

CERTIFICATE

This is to certify that this Dissertation entitled: "Language Therapy and Functional Improvement in Aphasia" has been prepared under my supervision and guidance.

GUIDE

April '87

DECLARATION

This dissertation is the result of my own study under the guidance of Dr.(Mrs) P.Karanth, Reader and Head of the Department of Speech Pathology, All India Institute Speech and Hearing, Mysore, and has not been submitted earlier at any university for any other Diploma or Degree.

Mysore Reg.No.8504

May 1987

ACKNOWLEDGMENTS

I am grateful to my teacher and guide Dr.Prathibha Karanth Head of the Department of Speech Pathology, All India Institute of Speech and Hearing, Mysore for her invaluable guidance, help and patient listening.

I wish to thank Dr.M.Nithya Seelan, Director, AIISH, Mysore

My special thanks to GN Rangamani, for her timely help and suggestions at every stage of this study.

I am grateful to my parents for their moral support.

I must thank Bharathi and my other friends, Manju, Sunitha, Asha, Radhika, Sreedevi and Latha for their encouragement through out the study.

I am indebted to my subjects for being cooperative.

My thanks are due to Rajalakshmi R Gopal for her excellent work in typing my Dissertation neatly.

TABLE OF CONTENTS

INTRODUCTION

"Intervention is an innovative process which responds to the neurologic, linguistic and social needs of each client. Language intervention is a complex, flexible, dynamic process which is aimed at restoring or reestablishing the individuals previously learned language behavior, not only within the domain of the clinical cubicle, but in life". (Wepman, 1972).

Language intervention in aphasia is also called as language rehabilitation or language therapy. Language therapy for aphasia aims at restoring language to the premorbid level.

Initially, treatment started in a crude fashion using herbs, potions as well as remedies affecting the vascular system such as leeching, blistering and cautery. These orthodox treatment were in the forefront till twentieth century.

The need for more studies on language therapy for aphasics started after the first world war with increasing number of head injured soldiers. Although earlier studies emphasized treatment, the question about the nature and efficacy of language treatment remained unanswered. During this period, researchers reported that treatment was effective,although they did not substantiate their claims. (Fazier and Ingham, 1920; Weisenberg and McBride, 1933).

World War II once again evoked a surge of interest in aphasia rehabilitation, many programs including academic subjects,

reading, writing, arithmetic and spelling were taken up as reeducation was the underlying theme of rehabilitation. In 1950's and 1960's, stimulation was the central core of treatment of aphasia. The question of efficacy was raised. Researchers like Vignolo et al (1964) reported positive effects of aphasia therapy.

In 1970's, language treatment was a much debated issue. Few researchers reported no treatment benefits (Sarno, Silverman and Sands, 1970).

As years passed, language therapy for aphasics moved away from language centered drills and stimulus response repeating to festering language by using real life activities out of which language grows.

The recent attempts to modify aphasics language, taps the intact modality for different types of aphasia as in the techniques of melodic intonation therapy(MIT) for Broca's aphasia and visual action therapy (VAT) for Global aphasia.

Now, the focus has shifted from modality to linguistic aspects. Within the linguistic perview, deficits are identified at phonetic level, phonemic level, lexical level, grammatical level and treated accordingly.

Its contribution to therapy as seen by Lesser (1981) are - 1) A one-to-one correspondence between discovery from linguistic examinations of aphasia and recommendations for therapy.

2) Accurate linguistic descriptions gives opportunities for feedback from therapeutic practice to linguistic theory.

Linguistic investigations reveal that there is a universal rank order of difficulty of linguistic elements. This helps the therapist to discover the position in the rank order in which the patient has regressed and help to plan a therapy programme which takes the patient gradually forward through items of progressively greater difficulty.

This shift from modality to linguistic aspects has made researchers to view the rationale for aphasia therapy in a different light.

"A Rationale for language therapy with persons who have aphasia is based upon the belief that language constituted what is considered a human essence and that therapy effects a change in a patients language performance" (Chapey, 1981).

A part of rationale for language therapy is based upon the demonstrated effectiveness of therapy. Effectiveness is determined by a change in language behavior over time.

Need for the study: Present literature contains scant information on linguistic factors and the functional use of language in daily life. In therapeutic intervention the interrelation between the two needs to be established. The study focuses on these issues.

Aim of the study: **The present study focuses an linguistic aspects that are worked upon in therapy session and its reflection if any in daily communication behavior.**

The study attempts to identify the functional improvement as a consequence to language therapy based on linguistic premises.

Here, the term 'functional' is used to specify the dimension of language performance, that is used in everyday life and not just that in the clinical setting.

REVIEW OF LITERATURE

From the days of the first description of the role of the cortex in language production in 1870, till the first world war, the primary attention on aphasia was centered upon the role of cortex in language function with hardly any attention given to rehabilitation.

The idea of treatment for the disorders of language due to brain injury began in Germany and it was only with the growth of interest in problems of adjustment in the general population, that therapy for the brain injured gained wide spread recognition.

This developing interest was greatly stimulated by the large number of brain injured patients who needed therapy as an aftermath of the second world war. This was the population which offered a significant challenge to aphasia therapists and indicated a much felt need for developing new ideas in the complex field of aphasia.

With the knowledge gained through experience with brain damaged patients during the war, it is believed that many of them were rehabilitated to some degree to lead a satisfying life.

Though the brain injured were rehabilitated before 1940, it was not until the second world war, that rehabilitation received much attention. During the second world war, treatment

was developed without reference to theory because of the emergency conditions of the soldiers and aphasia therapy was opportunistic rather than planned with the results obtained being neither uniformly good nor uniformly bad.

Having briefly reviewed the historical development of intervention strategies in aphasia, the issues underlying aphasia rehabilitation are briefly outlined as follows:

Issues underlying aphasia rehabilitation:

The subject of recovery and rehabilitation in aphasia has been of great interest to many workers in the field who were motivated by a desire to treat the aphasic patients. However, few valid conclusions on the efficacy of treatment was permissible because very little was known about the pathophysiology of aphasia and less about the recovery process.

Though the end product of damage to human communication faculties were well described, one was unable to explain the observed loss in the absence of a thorough understanding of normal language processes. While this was the case with the pathophysiology, recovery process possessed even more serious problems.

The contemplation of the process of recovery appeared difficult as one could argue that the brain cells involved in language functions are destroyed and the functions they serve are irretrivably lost. On the other hand, one could also argue that the concept of language organization is not wholly dependent on anatomical factors.

Yet, spontaneous recovery assumed the place of a potent variable in aphasia rehabilitation.

Spontaneous recovery is the period during which structurally undamaged portions of the brain regain function following an insult (Luria, 1970).

Explanations for spontaneous recovery were offered on the following lines by Luria (1970):

a) Temporary depression of function of certain areas,

b) Adaptive transfer of function from one area to others.

a) In some patients, destruction of brain tissues were assumed, whereas in reality, the injuries temporarily depressed the function of certain areas. This depression or diaschisis, could spread to a whole system of functionally related areas, when it passed, the disturbed function could recovery completely.

b) Another possible mechanism for recovery by transfer of function and reorganization.

One area of the brain takes over the function of another area resulting in adaptive transfers thus compensating for the functional defect sustained as a result of brain damage.

The functional transfer was said to vary from -

i) "Vicarious compensation" in which another area of the brain assumes the functions of the damaged area.

ii) More complex transformational of the function itself, where a function comes to be performed by new processes occuring in areas having altogether different functions. The transfer of function could take place either at a subcortical level

or in symmetrical areas of the right hemisphere. Opinions differ regarding the importance of studies of spontaneous recovery in aphasia.

Spontaneous recovery is believed to vary from person to person depending on factors as listed below:-
a) Time factor (b) Etiology (c) Type of Aphasia (d) Age of the patient (e) Educational level, and (f) Behavioral factors.

These factors have been studied over the recent years and are summarized below:

a) Time factor: is the period during which spontaneous recovery is said to occur. The time period suggested by different authors are listed below.

- Vignolo (1964)	Two months post onset
- Culton (1969)	First month post onset
- Butfield and Zangwill (1946)	Six months
- Luria (1963)	
- Sarno and Levita (1971)	Three to six months.

b) Etiology: Spontaneous recovery is believed to be different depending upon the type of etiology (Kertesz, 1976).

Kertesz and McCabe (1977) are of the opinion that recovery rates differ in various etiologies such as cerebral infarcts, subarchnoid hemorrhage and trauma, presumably related to the extent of the damage.

Post traumatic patients were said to have faster recovery (Butfield and Zangwill, 1946; Wepman, 1951; Luria, 1970).

Patients with hemorrhage were believed to recover faster than patients with thromboembolic disease (Johnson, 1975).

c) Type of aphasia: Some types of aphasia were believed to improve more rapidly than others (Head, 1926). While recovery from anarthria was limited (Vignolo, 1964)• Anomic patients made the best recovery (Kertesz and McCabe, 1979).

d) Age of the patient: Age was considered as a potent factor in spontaneous recovery from aphasia (Eisenson, 1949 and Wepman 1951).

Vignolo (1964) stated that recovery was better when younger the age. Smith (1975) opined that elder patients showed diminished recovery.

But, Helm (1978) found that age was a nonsignificant factor in recovery process.

e) Educational level: Educational level was found to be non-significant variable in recovery from dysphasia (Sarno, Silverman and Levita, 1970, Smith, 1971; and Helm, 1978).

f) Behavioral factors: Eisenson (1949) felt that patients who had outgoing personalities and modest levels of aspiration had a better prognosis than patients who were euphoric, rigid and dependent.

Benson (1973) on the other hand summarized that depression, paranoia and euphoria affects recovery from aphasia.

Thus, owing to the role of the above stated factors, it is difficult to know definitely whether and how much spontaneous recovery will occur (Goldstein, 1971).

Summarizing in the words of Goldstein, 1971:

"Spontaneous recovery can be said to develop slowly and before it occurs, the patient may develop defensive and protective mechanisms, mannerisms, emotional reactions, wrong ways of compensation for the defect which later becomes a hindrance, if recovery sets in".

Further, special methods have to be applied based on psychologic and biologic knowledge concerning the nature of the defect. This enables the patient to think that he is not as disturbed as he thought and helps to accelerate spontaneous recovery.

Even if spontaneous recovery is effective, for further Improvement, special training brings the desired effect.

Therefore, in order to accelerate the recovery, perhaps therapy should be started as early as the problem is noticed in order to overcome the social, psychological and communicational limitations.

Therapeutic approaches:

It has often been said that "there are as many methods of treating aphasia as there are aphasics" (wepman, 1953).

Various therapeutic approaches can probably be traced back to two main opposing views that dominated throughout the history of dysphasia rehabilitation.

The views were -

a) Dysphasia viewed as the loss of language, or

b) Dysphasia believed to be due to the impaired ability to gain access to language.

These views have largely determined the major approaches to treatment. The "loss" theory has led to pedagogic approaches while the "impaired access" has resulted in stimulation and reorganization approaches.

<u>Pedagogic Approach</u>:

This was one of the earliest of all approaches to aphasia rehabilitation which primarily emphasized on reeducation. Their main goal was attainment of normal speech and language processes.

"Reeducation" as a probable means of restoring language in aphasia was first suggested by Bateman (1890).

The area of reeducation for aphasia remained within the purview of neurologists and psychologists for many decades. (Mills, 1904 and Froeschels, 1914).

However, it was only with the two world wars, that the explorations of the possibilities for reeducation in aphasia

were undertaken as a large scale. This work developed in Germany, Some of the prominent works related to the above are Poppelroute 1917, Isserlin, 1941; and Goldstein, 1942.

While popperouters (1917) work is inaccessible, Isserlin (1941) briefly reported that of the 178 cases he studied, complete recovery was seen in 10.1%, marked improvement in 25.3%, some improvement in 55.6% and no Significant change in 9%.

Goldstein (1919, 1942) summed up his experiences of the problems and methods of reeducation illustrating the principle values of reeducation in predominant expressive aphasia, the method explained by him is as follows:

Preliminary training begins in the use of appropriate muscles by exercises of lips and tongue. Thus, the patient is initially shown to imitate and then to make a number of positions and movements of the lips, tongue, palate and larynx. Once the control of these movements are achieved, speech training is commenced.

Speech training consists of teaching the patient to imitate simple speech movements of the therapist, using visual and tactual aids.

Once the patient speech improves, every effort is made to develop it neither a more natural setting, and exercises in reading, naming, describing pictures and simple conversation forms the part of the speech therapists routine.

Retraining in receptive dysphasics assumed a more round about route.

Disorders of reading were approached along indirect lines (Compensation and substitution). The basis for systematic reeducation in these cases was to trace the outlines of the letters within their finger tips and then spell out. When this became automatic, the patients were given normal reading material and instructed to carry out cursive writing movements in reaction to it.

Eventually, they became rapid, abbreviated and finally dropped out, but reappeared with unfamiliar and difficult words. The methods were purely empirical and adapted by trial and error to the individual case.

However, little was done directly in cases with any degree of word deafness.

With severe dyslexic cases, progressive practice was fruitful like reading silently and then aloud.

In the case of writing, reeducation work like systematic exercises in copying, spelling and dictation and occasionally instruction in grammar was carried out.

Retraining in cases of gross acalculia was achieved to a limited extent by the use of highly concrete procedures comparable to those used in teaching young children. In milder cases,

progressive practice in arithmetic and simple exercises in arithmetic of the ordinary scholastic type were given and they were given practice in handling money.

Formal reeducation was terminated when the patient had improved to a point where little or no practical disability remained or it was terminated in the less responsive cases, where the language condition approved stationary despite prolonged reeducation. At this point, careful psychological reexamination was indicated.

The merits and limitations of this traditional technique can be briefly summarized as follows:

"Reeducation increases the rate of improvement and aids in overcoming specific disabilities and also in helping the patient to find new ways of achieving the results he is unable to achieve in a normal manner" (Weisenberg and McBride, 1935).

On the other hand, the authors were seldom able to compare in a controlled manner the course and outcome of the disorder in two equated groups of patients of which only one group was given formal reeducation.

Consequently, they possessed no definite standards to assess spontaneous recovery of cerebral function as opposed to the effects of reeducation.

Subsequent to the traditional pedagogic approach, a great variety of techniques including drug therapy, sociotherapeutic

techniques, group therapy and role playing were reported as effective in the early latter half of the twentieth century, (Linn, 1967; Aarouson and Shatin et al, 1950; Bloom, 1962; Backers and Henry, 1947).

All these approaches seemed to depend upon the training and background of the therapists, some therapists were stimulating their patients by one technique, while others were using different techniques but in the final analysis, all therapists, regardless of their particular approach, new doing what might be called "stimulation therapy".

This resulted in a number of techniques viz:

- auditory stimulation by schuell (1955).
- Stimulation approach by Wepman.
- Visual-auditory approach by Eisenson.

'Stimulation approach' (Wepman).

"Language is the common tool of interpersonal relations - the interpersonal needs, the climate of recovery, the motivation to continue - such interpersonal and interpsychic events require our most heartful attention" (Wepman, 1972).

According to Wepman, Aphasia therapy like any other therapy is designed to help in changing behavior, not in the confines of a therapeutic setting alone, but in life, and it must be tailored to the neurological, linguistic and social needs of the patient.

He believed in three aspects which were important in the recovery process. They are - STIMULATION, FACILITATION and

MOTIVATION. These three forms were inextricably related and could not produce therapeutic changes without brining about changes in the other. His approach to therapy can be summarized as follows:

STIMULATION: Therapy is organized, goal directed stimulation, based upon a recognition of the patients needs, his drives and his motivation. Vocabularis are used which are considered as old recall patterns, much in the manner in which they were produced prior to the trauma.

By stimulating the patients, it permits them to function in language generally, rather than specifically i.e. the patients may use the words which are far removed from the vocabulary used in therapy.

Therefore, the content of therapy serves only to stimulate the patient to produce the integrations necessary for language, but does not convey specific new learning or new vocabulary to the patient.

FACILITATION:

This relates to the state of the organism sometimes the patient seems ready to produce the integrations necessary for use in language, and at other times, he seems quite unready.

Aphasia therapy facilitates the patient as he prepares to function i.e. when he is ready to produce language, he becomes able to do so.

Facilitation is a bimodal concept:

a) It is, as a consequence of stimulation, that factors which existed as nonintegrated cortical structures begin to function in a more Integrated manner.

b) It is the physiological lowering of the impedance against organized cortical action.

The impedance here might be thought of in terms of the destruction through trauma of the pathways which formed the previous integrations necessary for language response and which leave the patient with sufficient cortical tissue for response, but insufficient intact pathways for the particular act he wishes to perform. Therefore for successful integration, new pathways are facilitated by lowering the impedance.

MOTIVATION: Wepman states that stimulation - facilitation do not completely explain the recovery process.

The concept of motivation is expressed in terms of the psychological state of readiness for the formation of new, operative, neural integration. Motivation indicates the level of goal directed behavior, possessed by the patient. Motives are defined as goals to action, goals to be achieved, consciously recognized and not as the present status of the case.

The aphasic patient functions best when he reaches a psychological state of high motivation. By careful observation of the patients behavior, one can see the success, we are obtaining in -

a) meeting his needs, and

b) in our attempts to assist him in his resolution of his language deficit.

AUDITORY STIMULATION (Schuell):

"Clinical findings indicate that impairment of auditory retention and recall are reversible to a considerable degree and that improvement of articulation, word finding, reading and writing often results from the use of a single therapeutic principles STRONG, CONTROLLED, INTENSIVE AUDITORY STIMULATION (Schuell, 1955).

She reported that aphasic patients need to hear and grasp meaningful sound patterns over and over, day after day, month after month, as long as even minimal aphasic symptoms exist.

Auditory stimulation was considered as the foundation of all aphasia therapy she proposed six important principles involved in the use of effective auditory stimulation. They are:

1) Material used should be meaningful to the patient and relevant to the context in which it is used.
2) Length of each auditory unit presented must be carefully controlled.
3) The patient should make a specific response to each language to each language unit presented.
4) Abundant and varied materials should be used during each clinical period.

5) Maximal number of verbal attempts should be made by the patient during each clinical period.
6) Defective responses should not usually be corrected.

She has reported some important techniques for i) auditory stimulation, (ii) vocabulary and language usage iii) sensori-motor involvement (a) facilitation of movement patterns (b) for obtaining specific sounds (c) reinforcing sounds and facilitating speech, movements.

EISEASON'S APPROACH: Eisenson believed that the objective of therapy for an adult aphasic is to bring him as close as possible to his premorbid status as overall circumstances will permit. The circumstances may include motor and sensory impairments as well as modification in intellectual and language. Social and vocational readjustments are associated with these and include patients family and the patient himself.

The ultimate goal of therapy was to help the aphasic patient find a purpose in life that is ahead of him. The emphasis and thrust of therapy for some patients was on their future roles in life and the need for persons close to them to accept them as important members of society despite language limitations and the economic implication imposed by the severity of their circumstances.

He reported that therapy should be started as soon as the patient is able to take notice of what is going on about him.

He stressed the role of psychotherapy for aphasics which assists them for adjustments in life.

The best pathway for stimulation recommended by him are the sensory and motor avenues. For some, aural mode for reception and graphic for production was considered and for some visual for reception and oral for production. Later, auditory-visual association were established i.e. by picture identification and repetition of the words followed by phrases and sentences.

To summarize, Wepman believed in three aspects of therapy stimulation,facilitation and motivation, while Schuell considered auditory stimulation as the basic approach and Eisenson contributed to visual auditory approach with oral (spoken) feedback response.

MODERN-METHODS:

The continued interest in aphasia rehabilitation and the debate about its usefulness led to the Solution of specific methods for different types of aphasia, tapping specific language skills like speaking, understanding, reading, writing, ... etc.

Anna Basg, Capitani and Vignolo (1979) found that rehabilitation had a significant positive effect on improvement in all language skills. It was found that oral language modalities tend to improve more than corresponding aspects of written language. Formal language rehabilitation had a positive effect on the improvement of the ability to communicate through speaking

listening, writing and reading provided that it was carried out during at least 6 months and at a rate of no less than 3 individual session/week.

Springer and Weniger (1986) reported that the ultimate aim of language therapy is to enable the aphasic patient to manage the communicative interactions again. Though they pick up nonverbal cues relatively well, they often display considerable difficulties with these features of discourse which involve specific linguistic capacities.

Therefore, specific forms of therapy, verbal and nonverbal are used with different types of aphasia tapping their linguistic and cognitive ability.

The therapeutic methods can be classified into -
a) nonlinguistic methods (b) linguistic methods.

a) <u>Nonlinguistic methods</u>: are -
1) Programmed instruction
2) artificial language system
3) Melodic intonation therapy (MIT)
4) Voluntary control of involuntary utterances (VCIU)
5) Visual action therapy (VAT)

1) Programmed instructions This has been used by Holland (1970), by Sarno, Silverman and Sands (1970).

Holland (1969) described the characteristics of programmed instruction by defining in detail the behaviour ultimately to be

taught. The programmer then surveyed the response repertoire of persons for whom the program is intended or choose a grossly related response that the patients are capable of emitting. She defined this as the programs beginning. The program moves in small, carefully controlled steps towards closer approximations of the criterion behavior, which is called as shaping. Correct responses are differentially reinforced.

Holland (1969) reported success in increasing auditory memory span for auditory materials consists of sequences of digits and progressively longer and more complex units of spoken speech.

2. Artificial language system: Artificial language system was used to train global patients by Glass, Gazzaniga and Premack (l972).

Despite gross deficits in natural language, the patients were able to learn an artificial language system using cut out paper symbols for words. Various levels of competence were attained ranging from the expression of relations between objects (same and different) to simple statements of action (subject predicate - direct - object).

Other tests of conceptual - cognitive capacity revealed potential for abstraction and conceptual thought. It is proposed

that despite massive language loss, globally aphasic patients retain a rich conceptual system and at least some capacity for symbolization and primitive linguistic functions.

3) Melodic intonation therapy (MIT): Albert, Sparks and Estrabrooks were encouraged by the growing evidence that the right cerebral hemisphere is dominant for music (Spellacy,1970) andintonational contours (Blumstein, Cooper (1974). These findings suggested that function associated with the intact right hemisphere might be used to improve the language functions of the damaged language dominant left hemisphere. The resultant technique came to be known as "Melodic Intonation Therapy"(MIT).

Estrabrooks suggested the following criteria in determining the candidacy for MIT:

1) The patient must be severely impaired in verbal expression.
2) The patient must have intact comprehension skill for processing the verbally presented MIT stimuli.
3) The patient must have remained severely impaired in verbal expression for at least 4 months. This is to exclude the spontaneous recovery period (Culton, 1969; Sarso, 1971).
4) The patient must have received a previous course of language rehabilitation, but remained severely impaired in expression so that, this methods merit can be emphasized.

To summarize, the best candidate for MIT would demonstrate the main characteristics of "phonemic articolatory disorders of

speech", at least moderately intact auditory comprehension, severe oral apraxia, poor word repetition and tendency toward use of a restricted phonemic stereotyping, for eg, 'bika bika[1] In addition, the best patient will have aphasia as a result of CVA rather than extensive intracranial surgery and will be closer to 4 months than 99 months post onset.

The treatment program by sparks Helm and Albert (1974)[2] consists of a/level program and Sparks and Holland (1976) have proposed a 4 level program in which the first level required the patient to reproduce hummed patterns without words, while the other three required the patient to intone phrases and sentences.

Therapy utilizes high probability word phrases and sentence items which are musically intoned according to the inflection stress and rhythm, patterns of the natural speech prosody of each item.

Phonologically less complex items are chosen at the elementary level by avoiding the consonant blends and introducing bilabial and alveolar sounds in the early treatment program.

Family names, greetings and simple comments are included at the elementary level.

Gleason et al (1975) suggested that command statements precede statements of fact in the hierarchy.

The singing follows a high note, low note pattern. Each syllable is sung separately but a stacatto approach is avoided.

To conclude the therapist assists the patient in hand tapping followed by humming and progresses to verbalization. The therapis and the patient say in unison in all the steps with the therapist gradually fading away. The therapy is concluded when normal speech prosody is utilized. *i.*

4. Voluntary control of involuntary utterances: (VCIU) - This approach putforth by Estrabrooks and Barresi (1980) aimed at helping the patients to bring involuntarily is produced utterances under voluntary control and hence termed "Voluntary control of Involuntary Utterances" or VCIU.

Aphasic population with moderately intact comprehension and severely nonfluent verbal output with apraxia are amenable to VCIU.

Patients with stereotyped verbal expression like 'No' '0h', 'I don't know',.... were found to be the best candidates for this technique of therapy.

This approach differs from others in that the patients spontaneous utterances form the basis for the therapy and the patient not the clinician, determines the treatment lexicon.

5. Visual Action Therapy (VAT): VAT is a nonverbal treatment which enables globally aphasic patients to produce symbolic gestures for visually absent pictured object stimuli (Ertabrooks) Criteria for selecting patients were given by Helm et al are as follows:

a) Patient should be diagnosed as Global Aphasia.

b) Patient should have received some other form of language therapy which has failed to result in any improvement.

The theoretical rationales to support the training of gestural output systems of global patients given by Estrabrooks et al are:-

a) Gestural communication may be used independently of verbal communication

b) Hand gestures for manual communication require less refined motor control than the articulatory movements required for verbal communication

c) Limb movements, unlike face movements, have more predominately unilateral control.

d) The hand-arm, unlike the bucco/facial apparatus necessary for speech is visible to the initiator and can be visually monitored.

Despite the theoretical advantages of using gestures, there are certain abstracts which may interfere with their learning a gestural system.

a) Patients with global aphasia usually have severe limb apraxia of the non-hemiplegic left arm as a part of their symptom. This may prevent patients from using representational gestures as a natural means of communication.

b) Severe auditory and reading comprehension disturbances preclude the use of verbal or written instructions.

c) Some patients may not show significant improvement by using VAT because of the facial apraxia. VAT trains the limb praxis and not the bucco facial praxis.

The treatment program consists of three levels. First level contains 12 steps, levels 2 and 3 contains 6 steps each. Directions and reinforcements are given nonverbally. Each session begins with a review of the preceding step.

The hypothesis which explains improvement in auditory and reading comprehension are (l) Patients may employ internal verbal monitoring during the training program (2) VAT may improve general attention skills (3) VAT may improve visual spatial and visual search skills (4) VAT may integrate some of the conceptual systems necessary for linguistic performance. (Helm and Benson, 1978).

B) Linguistic Methods:

The above types of therapy are modality bound. These forms of therapies were used till the last decade.

In the last decade, therapy has focussed more on linguistic aspects. Conseqently a number of linguistic approaches are being developed and tried out in aphasia rehabilitation.

Various researchers have contributed to the linguistic aspects in aphasia therapy. (Lecours (1965); Lhermitte et al (1969); Lhermitte and Ducame, B(1965), Lecours (1975); Nespoulous J.L (1973).

Lesser (1978) reports the contribution of linguistics to therapy as follows -

a) The first is to expect a one to one correspondence between discovery from linguistic examinations of aphasia and recommendations for therapy i.e. if linguistic investigations reveal that there is an order of difficulty of linguistic elements, then the therapist discovers the position in this rank order to which the patient has regressed and plans a therapy programme which takes the patient gradually forward through items of progressively greater difficulty.

b) The other attitude is to point at the contradictory results and different interpretations far from the linguistic investigations and stress that they demonstrate the complexing of the language disorders after brain damage.

Lhermitte and Oucarne (1965) coined the term"pre language therapy" which is given prior to language training. "It consists of a series of empirically selected exercises which are presented with the aim of minimizing the clinical manifestations of various neuropsychological disturbance which are frequently associated with aphasia".

Prelanguage therapy focuses on remediation of attentional disturbances, problems of spatial and temporal orientation, of memory, of calculation and dyspraxic deficits which affect retraining of spoken or written language.

In cases of Broca's aphasia, a programme for preparatory exercises for phonetic level therapy is utilized which controls intra oral pressure, imitation, performance on command various movements of speech organs, writing exercises are also included.

Prelanguage therapy can be used similarly with other types of aphasia so that language therapy gets facilitated.

Therapies based on linguistic principles have been given for several types of aphasia.

I. Therapy in Broca's Aphasia.

I. a) Therapy for linguistic reduction: given by Lhermitte et al (l9

Management of the linguisticreduction is divided into 2 stages i) Demutization (ii) Spontaneous production.

i) Demutization: Here the automatic uses of language is encouraged Phonemic cues and contextual cues along with mime, gestures are used to enhance speech production. Gradually, the patient is encouraged to produce meaningful linguistic units in Unison with the therapist. This includes imperative predicates, expression of emotions, etc.

ii) Spontaneous productions Here, audiovisual cues are used. Dialog ues which includes propositional questions, replies and comments are made use of.

I(b): Therapy for phonetic disturbances: Therapy includes motor imitation followed by verbal imitation in the initial stages; later, the patient is required to produce on verbal command.

The course of therapy is hierarchically organized. Vowels are taught first followed by consonants (stops before fricatives, anterior consonants before the posterior ones etc)

Therapist and the patient produce the phonetic features in Unison accompanied by hand gestures. Later, the patient repeats these features without cues and exaggeration.

After phonemes are accurately produced, syllable enchaining is done i.e. the exercises including phonemic sequences in order of increasing complexity (words, phrases and sentences).

These learning exercises are followed by drills and exercises to promote stabilization, generalization and transfer to oral reading, conversation etc.

I.(c) Therapy for impaired prosody: The expression of joy, surprise, fear etc, are expressed through variations in intonation.

Some of the suprasegmental features of discourse are affected in Broca's aphasia. The speech is monotonous, exaggerated, leading to a loss or disturbance of normal speech melody.

The patient may be given exercises centred on Vocalic chaining, transitions between words stress and melodic line. Exercises are aimed at recovery of the intonation patterns of interrogatives, negatives, etc.

B. Word Fluency:

Ask the patient to name as many animals as he or she can in 1 minute. The patient may be helped if hesitant "Think of a domestic animal, like the horse, or a wild animal, like the tiger". The patient may be prompted at 30 seconds. Score 1 point for each animal named (except for those in the example), even if distorted by literal paraphasia.

Max. Score : 20

Patient's score:

1, ಗುಲ್ಮ ಬಣ್ಣ ———— (ಹಸಿರು)

2. ಸಕ್ಕರೆಯಂತು ———— ಇದೆ (ಸಿಹಿ)

3. ಗುಲಾಬಿ ಹೆಂಪು ಮುಲ್ಲಂಗಿ ———— (ಬಿಳಿ)

4. ಒಗ್ಗರಣೆಲ್ಲಿ ———— ಇದೆ (ಉಪ್ಪು)

5. ನಾವು ಇಬ್ಬರು ಮನುಗೆ ———— (ಇಬ್ಬರು)

Max. Score : 10

Patient's score:

D. Responsive Speech:

1. ನೀವು ಯಾವಾಗದರಿಂದ ಬರೆಯುತ್ತೀರಾ?

2. ಸೂರ್ಯ ಯಾವಾಗ ಬಣ್ಣ?

3. ಒಂದು ವಾರದಲ್ಲಿ ಎಷ್ಟು ದಿನಗಳಿವೆ?

C. Sequential commands:- Score

1. ಕೈಯನ್ನೆತ್ತಿ 2

2. ಕಣ್ಣುಮುಚ್ಚಿ 2

3. ಕುರ್ಚಿ ತೋರಿಸಿ 2

4. ಕಿಟಕಿ (2) ತೋರಿಸಿ ಮೇಲೆ (2) ಬಾಗಿಲು ತೋರಿಸಿ 4

5. ಪೆನ್ (2) ಮತ್ತು ಪುಸ್ತಕ (2) ತೋರಿಸಿ 4

6. ಪೆನ್ನಿಂದ (4) ಪುಸ್ತಕ (4) ತೋರಿಸಿ 8

7. ಪೆನ್ನನ್ನು (4) ಪುಸ್ತಕದಿಂದ (4) ತೋರಿಸಿ 8

8. ಬಾಚಣಿಗೆಯಿಂದನನ್ನು (4) ಪೆನ್ನಿಂದ (4) ತೋರಿಸಿ 8

9. ಪುಸ್ತಕದಿಂದ (4) ಬಾಚಣಿಗೆಯಿಂದನನ್ನು (4) ತೋರಿಸಿ 8

10. ಪೆನ್ನನ್ನು (4) ಪುಸ್ತಕದ (6) ಮೇಲಿಟ್ಟು, ನಂತರ ಅದನ್ನು (4) ನನಗೆ ಕೊಡಿ 14

11. ಬಾಚಣಿಗೆಯಿಂದನನ್ನು (5) ಪೆನ್ನಿನ (5) ಪಕ್ಕ ಇಟ್ಟು, ಪುಸ್ತಕವನ್ನು (5) ತಿರುಗಿಸಿಡಿ 20

Max. Score - 80

Patient's score-

III. Repetition:- Max. Score

1. ಹಾಸಿಗೆ 2

2. ಮುಖಗು 2

3. ಕೈ 2

4. ಬಾಳೆಹಣ್ಣು 2

5. ಕಿಟಕಿ 2

6. ಕಾನೂನಬಲು 4

Articulation and prosody can be combined through prolonged training.

1(d) Therapy for Agrammatism: Therapy includes exercises which aim at increasing the availability of the commonest morpho-syntactic rules.

The following principles enhances the effectiveness of therapy (Lecours et al 1965).

1) Lexical elements (nouns, adjectives and verbs) are selected according to their frequency of usage in the language.

2) The questions asked during the early stages of therapy are formulated in such a manner that the syntactical structure* of the correct respond is predetermined.

3) Visual cues are presented.

4) Exercises of comprehension precede those of production.

Comprehension exercises include pointing to picture in response to spoken command and matching of written sentences to their corresponding pictures.

Production exercises - repeating, copying, reading

5) Imperative and assertive forms precede nagative, investigative and other transformations.

6) Exercises in narration are carried out with the aim of increasing the transfer and generalization. To help this, therapists assistance is gradually decreased.

Stages In therapy:

It consists of three successive stages.

1) Teaching of thematically unrelated sentences.

Initial stage, focuses on the patients attention on structural aspects i.e. on the syntactical features of the stimulus utterances

eg. Therapist: I want to go out, so I open the door and what do I do?

Patient: I go out.

Initially, the first cue is given by the therapist. Exercises are preceded by repetition and oral reading.

2) Teaching Thematically related sentence.

Intermediate stage, where the patient attends to both the syntactic structure of the target sentences and the messages conveyed (semantics).

Here, exercises include 'SAD' (simple affirmative declaratives) type. Audiovisual cues are used. Initially, repetition of the therapists utterances followed by oral reading of the printed matter and therapists questions to elicit the target response is used.

Eg.	Picture of a lady walking	Picture of lady falling
Printed:	**Lady is walking**	**She trips and falls off.**

3) Expressive discourse:

- Final stage aims at the transfer of these gains into variation.

17. ನೀವು ಬಾಳೆಹಣ್ಣನ್ನು ಸಿಪ್ಪೆ ಸುಲಿಯುವ ಮೊದಲೇ ತಿನ್ನುತ್ತೀರಾ?

18. ಜುಲೈ ತಿಂಗಳಲ್ಲಿ ಮಳೆ ಬರುತ್ತದೆಯೇ?

19. ಕುದುರೆ ನಾಯಿಗಿಂತ ದೊಡ್ಡದೇ?

20. ಪಾದರಿಯಿಂದ ಸುಲ್ಲನ್ನು ಕತ್ತರಿಸುತ್ತಾರೆಯೇ?

Max. Score : 60

Patients Score :

B. Auditory recognition:-

Real objects	Drawn objects	Forms	Letters	Number
ಕಪ್	ಬೆಂಕಿಕಡ್ಡಿ	—	ಕ	5
ಬೆಂಕಿಕಡ್ಡಿ	ಕಪ್	ತ್ರಿಕೋಣ	ಬ	61
ಪೆನ್ಸಿಲ್	ಬಾಡಣಿಗೆ	ವೃತ್ತ	ಟ	500
ಹೂ	ಸೂಕ್ಷ್ಮದರ್ಶಕ	ಬಾಣ	ಪ	1867
ಬಾಡಣಿಗೆ	ಪೆನ್ಸಿಲ್	ಕ್ರಾಸ್	ತ	32
ಸೂಕ್ಷ್ಮದರ್ಶಕ	ಹೂ	ನಿಲಿಂಡರ್	ಗ	5000

Colour	Furniture	Bodyparts	Fingers	Right-left
ನೀಲಿ	ಕಿಟಕಿ	ಕಿವಿ	ಹೆಬ್ಬೆರಳು	ಬಲಭುಜ
ಕಂದು	ಕುರ್ಚಿ	ಮೂಗು	ಉಂಗುರದಬೆರಳು	ಎಡಮೊಣಕಾಲು
ಕೆಂಪು	ಬೆಂಚು	ಕಣ್ಣು	ತೋರುಬೆರಳು	ಎಡಹಿಮ್ಮಡಿ
ಹಸಿರು	ದೀಪ	ಎದೆ	ಕಿರುಬೆರಳು	ಬಲಮಣಿಗಂಟು
ಗುಳಿ	ಬಾಗಿಲು	ಕತ್ತು	ನಡುಬೆರಳು	ಎಡಮೊಣಕೈ
ಕಪ್ಪು	ತಾರಸಿ	ಗಲ್ಲ	ಬಲಕಿವಿ	ಬಲಕೆನ್ನೆ

Max. Score - 60

9.	ಅರವತ್ತೈದರೂಪಾಯಿ	10
10.	ನೀನಾಂತುಗಾರನು ಹೊಲ ಉಳುತ್ತಿದ್ದಾನೆ	8
11.	ಅವನು ನಿಂತಿರುಗಿ ಬರುವನಲ್ಲ	10
12.	ಸೊಕೆಂತುಬಂದಿಲ್ಲ ಬಂದಾರನಲ್ಲ	10
13.	ಮೊಗಲನೆಂತು ಭಾಗೀರಥೀಂತು ನೋಕಾಪಡೆ	8
14.	ಗುಪ್ತಚಾರನು ನೀನಾಗೆ ಸಲಾಂತನಗೈದನು	10
15.	ಅತ್ತಿಗೊಂದು ಕಾಲು ನೊಸನಿಗೊಂದು ಕಾಲು	20

IV. Naming:-

A. Object naming

Stimulus	Response	Tackle cue	Phonemic cue
1. ದುಡುಮ			
2. ಬಾಲೆ			
3. ಪಾಕು			
4. ಕಪ್			
5. ಪಿನ್			
6. ಸುತ್ತಿಗೆ			
7. ಟುಪಾತ್ಬ್ರಷ್			
8. ರಬ್ಬರ್			
9. ಬೀಗ			
10. ಪೆನ್ಸಿಲ್			
11. ಸೂಕ್ಷ್ಮದರ್ಶಕ			
12. ಬೀಗದಕೈ			
13. ಟೇಪ್			
14. ಕಣ್ಣಿ			
15. ಬಾಚಣಿಗೆ			
16. ಪುಸ್ತಕ			
17. ಚಪ್ಪಲಿ			
18. ಕೈಗಡಿಯಾರ			
19. ಕಸ್ತೂರಿ			
20. ಬೆಂಕಿಕಡ್ಡಿ			

Articulation and prosody can be combined through prolonged training.

I(d) Therapy for Agrammatism: Therapy includes exercises which aim at increasing the availability of the commonest morpho-syntactic rules.

The following principles enhances the effectiveness of therapy (Lecours et al 1965).

1) Lexical elements (nouns, adj actives and verbs) are selected according to their frequency of usage in the language.

2) The questions asked during the early stages of therapy are formulated in such a manner that the syntactical structures of the correct respond is predetermined.

3) Visual cues are presented.

4) Exercises of comprehension precede those of production.

Comprehension exercises include pointing to picture in response to spoken command and matching of written sentences to their corresponding pictures.

Production exercises - repeating, copying, reading

5) Imperative and assertive forms precede nagative, investigative and other transformations.

6) Exercises in narration are carried out with the aim of increasing the transfer and generalization. To help this, therapists assistance is gradually decreased.

Stages in therapy:

It consists of three successive stages.

1) Teaching of thematically unrelated sentences.

- Initial stage, focuses on the patients attention on structural aspects i.e. on the syntactical features of the stimulus utterance

eg. Therapist: I want to go out, so I open the door and what do I do?

Patient: I go out.

Initially, the first cue is given by the therapist. Exercises are preceded by repetition and oral reading.

2) Teaching Thematically related sentence.

- Intermediate stage, where the patient attends to both the syntactic structure of the target sentences and the messages conveyed (semantics).

Here, exercises include 'SAD' (simple affirmative declaratives) type. Audiovisual cues are used. Initially, repetition of the therapists utterances followed by oral reading of the printed matter and therapists questions to elicit the target response is used.

Eg.

Picture of a lady walking	Picture of lady falling
Printed: Lady is walking	She trips and falls off.

3) Expressive discourse:

- Final stage aims at the transfer of these gains into variation,

Initially, pictured stimuli is given followed by narration on suggested topic of well known stories which later moves on to personal narratives not dependent on such formalized learning.

II. Therapy for Wernicke's Aphasia:

II a) Therapy for logorrhoea: The goal here is to silence the patient and to focus his attention on different tasks which include mostly nonlinguistic stimuli and require gestural rather than spoken production.

Lhermitte et al (1965) states that after completing the above task, language retraining is begun. The exercises includes:

- audiophonatory exercises by repetition
- visuoophonatory exercises by oral reading.
- audiographic exercises by writing to dictation
- visuographic exercises by copying.

The least impaired mode are utilized first. Transition from these stages to dialogue situation is carefully done.

II (b) Therapy for phonemic disturbances: Therapy exercises are planned to follow an order of increasing difficulty.

In the beginning of therapy, anticipation errors (activate - tactivate) has to be minimized. This can be done by exposing the stimulus syllable by syllable. This syllable by syllable by exposure can be achieved in oral reading by covering the card.

Perseveration can be controlled by lengthening the interval between successive stimuli.

Since few errors are made on monosyllables, initially, bisyllables whose constitutent phonemes do not share many common feature (hammer, pillow) are used. Later, bisyllabic stimuli having similar phonemes are used. (Satin, seashore, seaside) these are followed by clusters like concrete, structure, etc).

After bisyllables are established small phrases are included and later coupler sentences are trained.

Alajouanine et al (1964) state that oral reading is less impaired than repetition. Hence, they recommend written word pairing with auditory model. Since writing to dictation is less impaired, the patient is trained to write and read simultaneously.

In the final stage, other modes are removed and concentration on therepetition mode is stressed. If the patient has difficulty in all modes, the "method of codes" by de Ribeucourt.
- Docarne is utilized; whose association of sound and meaning is done eg. If the patient spontaneously say 'car', the therapist should immediately try to associate it with written word, with a gesture or with a rapid sketch to elicit the production of 'car'.

II(c) Therapy for paragrammatism: Paragrammatism or dyssyntaxia is characterized by the juxtaposition of lexical words. Paraphasic substitutions are observed.

The sentence stimuli used in the therapy exercises include correct examples of the syntactical structures erroneously product by the patient. The patient is asked to read. The stimuli, to repeat them and to reproduce them from memory in speech and in writing. Other exercises are, joining of sentence fragments written on different c

An order of increasing linguistic complexity is follows:

Thematerials used are similar to that used in the last stages of therapy for agrammatism.

Therapy for lexical disturbances:

Lexical disturbances are observed in all type of aphasia excluding pure anarthria, pure agraphia, pure word deafness and pure word blindness.

When lexical reduction is clearly evident, the first stage of lexical therapy consists of naming exercises - this is to promote recovery of a basic vocabulary. The initial words are semantically diverse and a have a high frequency of usage. Refinements are included in the later stages of therapy, where the patient is asked to name not only each stimulus, but also its different parts (Watch - hands, bracelets).

Low frequency usage words and words which are related in terms of conceptual association (eg. Chicken-Table) are introduced later.

During the first stages of therapy, drawing and pictures are used with written words.

Ombredane (1951) used the term "Rotated Naming". Here, cues are not given, and the patient is asked to respond to the picture card. No time limit is imposed. Then a 2nd card is given to name. Again first and second card are presented to verify the continued availability of the appropriate response. Later, a third card is introduced. This method was found to be useful in therapy for patients with amnesic aphasia.

For Broca's aphasics, phonemic cues should be given along with the above steps and following exercises are utilized which are linguistically oriented. These exercises are aimed towards the associated production of words which are defined in relation to others by different types of semantic associations.

1) Antonymes: A stimulus word is presented orally and in writing and the patients task is to find a word of opposite meaning or during initial exercises to select the antonym from a list of words spoken by the therapist or written on separate cards.

2) Homonyms: Here, the patients task is to produce different words each one of which is related to the possible meanings.

3) Synonyms: which have similar meaning.

4) Derived words - the patient has to say some derived forms of the stimulus word, (front-affront, frontier, forefront).

5) Compound words - the first element is given and compound words are constructed by the patient.

eg: Key-Keyhole, Keyboard.

6) Categories - Here, the patients task is to retrieve the name of some category members.

eg. Tools - hammer, screw driver. etc.

Linguistic Profile Therapy (LPT)

This technique was developed by Karanth (1986). Therapy is based on the assessment and description of the profiles of individual aphasics on the TPAK (The Psycholinguistics abilities in Kannada).

The rationale of the therapy is as follows.

"Rehabilitative programme based on individual aphasics linguistic profiles are on concrete grounds affording both measurable precision and direction at every stage in therapy. They are considerably more tailor made than traditional approaches to language therapy for aphasics "(Karanth, 1986)".

LPT is more comprehensive than the tradition method of the therapy taking into account both the modality bound deficits and those of linguistic complexities.

It offers the language therapist a concrete base, therapeutic direction and measurable precision in terms of therapeutic progress

This method is easily amenable for home training programs under the guidance of language therapists.

The subject candidacy to undergo this therapy are - Irrespective of the type of aphasia, the severity and time, all aphasics are amenable to therapy. But, LPT may not be immediately practicable with severe global aphasics. It is suggested that with these patients language therapy may be initially based on a broad two prolonged outline with focus on automatic speech on one hand and progmatic usage of language on the other . When the patient shows some improvement within this broad frame work, LPT could be begun.

The details of the therapy have been put forth in the subtitle "Current study".

These are the few linguistic approaches which are currently being used in therapy.

EFFICACY OF THERAPY FOR APHASIA :

Despite the fact that aphasia therapy has existed for several decades the question of efficacy of therapy for aphasia remains equivocal.

The earlier reports of Frazius and Ingram (1920) stated that "Improvement has been marked in every patient, the aphasic symptoms of some of whom had previously remained stationary for several months".

Butfield and Zangwill (1946) reported on the treatment of aphasia and improvement after reeducation.
46% of their patients were judged as much improved.
31% as their improved and
23% as unimproved.

Wepman (1951) studied soldiers with traumatic head injuries during II world ear and 51% of his patients showed improvement after language rehabilitation.

Several researchers have reported the effectiveness of speech therapy for aphasics. (Meikle, Wechcler, Tuppu et al 1979, David, et al 1982).

Many studies have used nonrandomized control group and have found the effectiveness in therapy. (Basso, Capitani and Vignolo, 1979; Basso, et al, 1975; Deal and Deal, 1978; Hagen,1973; Schwan and Kertsz, 1981).

Additional studies without using control groups, have provided evidence towards solving the efficacy issue and have revealed positive effects for language treatment (Broida, 1977; Butfield and Zangwill, 1940; Debul and Hanson, 1975; Prins et al 1978, Sands, Sarno and Shankweiler, 1969; Safer, 1973; Smith et al 1972; Wertz et al, 1978; Wertz et al 1981).

But, other researchers contradict the above studies stating that speech therapy for aphasics is least effective (sarvo etal 1970; Rincoln et al, 1984).

This is because the subject as a whole provokes many constructive criticisms and comments.

Researchers like Pring (1983), Coltheart (1983); Code(1985) suggest that single subject studies might be an appropriate tool for therapists who are coming under increasing pressure to demonstrate the value of their work.

Advantages of single subject studies are as follows:-

1) The subject can act as his/her own control, thus avoiding the need to match another subject on all the relevant variables
2) No patient remains untreated.
3) The study can be more easily carried out by practicing therapists in a normal clinic.
4) Details of the intervention techniques are given, thus making the study clinically useful to other therapists and more realistically replicable.
5) The clinician receives ongoing information about the efficacy of his/her therapy for the patient in question.

According to Pring (1983), the duration and extent of spontaneous recovery, support and stimulation provides by relatives and friends are difficult to account. In addition, is difficult to generalize the results of single case studies.

But, these methodological objections are negated by most single subj est designs where the efficacy of therapy has been put forth (Anne Hesketh, 1986; Pring, 1986).

Miller (1984) points out the advantages of single case studies in studying the efficacy of treatment.

1) If specific forms of intervention is shown to effect improvement in the specific skills to which they are directed, it can be plausibly argued that treatment was the cause of such improvement.

2) This claim can be strengthened by showing that improvement does not occur in another area of deficit not related to the treatment.

3) Another advantage is that improvement may be more rapid if specific areas are treated than if the measure of improvement is a more general one.

4) The use of specialized treatment allows a more satisfactory resolution of the baseline problem.

In almost all of the above reviewed methods, improvement was observed. But, the Improvement inclinics was generally not correlated with the overall communication abilities of the patient.

Chapey (1976) opined that the need for socialization is the core of man's existence and the desire to communicate with others is the essence of that socialization. Therefore, to satisfy the social needs, man needs other communication abilities like writing,reading, used in a natural manner.

Knowledge of natural speech utterances has increased rapidly in recent years through psycholinguistic research.

Therefore,

/the working principles that seem most useful to future aphas rehabilitation programs are - (Wepman, 1957).

1) That the aphasic patient is an individual exhibiting both internal and external needs with definable problems both in psyche and soma and others, that are truly psychosomatic.

2) That the aphasic adult is an individual exhibiting behavior which is the product of his biological inheritance, his early environmental conditioning plus his brain injury and its consequen

3) A broadly conceived attitude towards the therapeutic climate is essential because of the wide spread nature of the aphasic patients generalized pr

Having considered the above factors, therapy should emphasize the used to measure the improvement not only the clinics, but also in the overall communicational abilities of the patient.

The objective of the present study is to check the efficacy of linguistic profile therapy in bring about functional improvement (which considered other communicational abilities) as measured by functional communication profile (FCP).

CURRENT STUDY

AIM: The present study aimed at analyzing the efficacy of language therapy in aphasia. The language therapy was based on Linguistic profile Therapy (LPT) which focuses on linguistic aspects. The reflection of such therapy in a patients daily communication was studies.

TOOLS: The tools used in this study were:

a) Western Aphasia Battery (WAB)

b) Test of psycholinguistic abilities in Kannada (TPAK)

c) Functional communication Profile (FCP)

a) **WAB**: This test was designed by Kertesz and Poole (1974). WAB was designed for clinical and research purpose.

The oral language subtests are:

- spontaneous speech
- auditory, verbal comprehension
- repetition
- naming.

These are used to assess the severity and type of aphasia. The summary of their scaled scores provides the Aphasia quotient(A.Q). The test format is given in Appendix 'A'.

b) **TPAK**: This test was designed by Karanth (1980)

The test was designed with the "objective of evaluating the linguistic competence of aphasics by obtaining and analyzing

adequate linguistic samples at the phonemic, syntactic and semantic levels both in reception and expression". (Karanth,1980)

The test is comprised of three major sections:

I. Phonology

II. Syntax

III. Semantics.

The phonological section elicits all the basic features in the phonological system of the Kannada language. It contains two subsections.

Phonemic discrimination deals with the patients ability to distinguish between basic features of the phonological system in his speech reception. Minimal pairs are used with words selected for their familiarity and picturability. Here, the patient is asked to point to the picture named.

Phonetic expression deals with the patients ability to pronounce the different phonemes of the Kannada language in different word positions and combinations.

Section II deals with syntax. Here, the patients are asked to say whether the given sentence (aural/written) is correct or not. Both correct and incorrect forms are included and accuracy of the response, is checked. The constructs involve transitives, intransitives tenses, causatives, conjunctives,...etc.

Section III deals with sementics. Here the objective is to check whether the patient knows the meaning or concept associated

with words and the relationship between the words. Here, the patient's expression of this knowledge in speech is tested.

The subsections include semantic discrimination and semantic expression. The former one tests the comprehension in terms of colours, furniture and body parts; and the latter one tests the expression in terms of naming, synonymy, homonymy, antonymy,.etc.

The stimulus is administered in either the oral or graphic mode, which ever suits the patient, while testing both reception and expression. Responses can be gestural spoken or written both in reception and expression.

Spoken and heard speech are the only forms tested. Reading and writing are used as additional channels of reception and expression for purposes of testing, but these are not scored (Karanth, 1980).

The test format and scores are given in Appendix 'B'.

c) Functional communication Profile (FCP):

This profile was designed by Sarno (1963). This is a profile which is used to measure a dimension of language performance not used in clinical setting.

FCP consists of a list of 45 communication behaviour which are used in common in daily life. The items such as handling money, saying greetings, calculation,etc. are included.

Its purpose is to encompass as much information about a patient's residual language function as possiblein the simplest and most visual manner. A quantifiable measure of functional communication regardless of an individuals severity of impairment is obtained.

Ratings for each listed behaviour are made on a continuum along a nine point scale from zero to normal. Ratings are done on the basis of a non structured interaction with the patient in a conversation situation.

Scores are expressed as subscores for each communication modality-movement, speaking, understanding, reading and others The scores are converted in terms of percentage and weighted scores in each modality. A overall percentage is obtained by adding up the weighted scores which reflects total functional communication abilities.

eg:An overall score of 62% indicates that the patient's total communication effectiveness is 62% of his premorbid level.

The profile is given in Appendix 'C'.

SUBJECT:

The subject of this study R.R is a 33 year old right handed male. He is a native speaker of Kannada (a drawidian language spoken in Karnataka -South India) and could understand English also. R.R. is literate having studied upto twelth class and worked as a Electrical Technician in a factory.

CASE HISTORY:

The patient was brought to "All India Institute of Speech and Hearing" four months after a stroke, with the following complaints.

- Difficulty in naming

- Difficulty to say what he wanted to say

- He had right hemiplegia for one month after the incident.

Medial reports revealed the following -

- Left carotid insufficiency

- Left cerebral infarction

- No cranial nerve involvement

- Normal intracranial circulation

The present investigates interviewed the patient four months after the incident and administered the tests described earlier.

PROCEDURE:

Three tests (WAB, TPAK, and PCP) were administered in the standard procedure in three sittings and a baseline was recorded.

Environment of administration:

The environment was made as distraction free as possible by carrying out the procedure in a quiet room and by the removal of any potential visual distractive stimulus.

Patient's condition during test administration:

- He was physically fit and his medical conditions was stable.

- He did not have any sensory problems.

The tests were administered in a formal sitting except FCP which was given both formally and informally (as per the instructions in the manual).

Response recording:

The responses were transcribed verbatum in WAB and TPAK and visually represented in FCP.

the scores obtained by the subject in the three tests are given below in Table 1 to 3,

Subtests	Patient's score
Spontaneous speech	
- Fluency	3
- Information content	5
Comprehension	6.3
Repetition	0.6
Naming	0.8
A.Q.	14.7x2=29.4

Table-1 WAB scores

The scores reflected good information content in the patient's spontaneous speech. But the repetition task was poorly performed by the patient.

As described earlier, WAB is used to assess the type and severity of aphasia. Despite the good information content in spontaneous speech, the diagnosis of "Broca's aphasia" was made

as his fluency, repetition and naming was poor, as compared to his auditory verbal comprehension.

TPAK: The pretherapy linguistic profile is given in Table-2,

Section	Subsection	Possible total score	Subjects score.	Total scores on sections
Section-I	A. Phonemic discrimination	48	33	
	B. Phonetic expression	52	31	4
Section-II	A. Morpho phonemic structures	10	8.5	
	B. Plural forms	5	3.5	
	C. Case markers	5	4	
	D. PNG markers	10	6.5	
	E. Tenses	10	5	
	F. Transitives, Intransitives and Causatives	10		58.5
	G. Conjunctives, comparatives and quotaelves	10		
	H. Conditional clauses	10	6	
	I. Participial constructions	10	6	
	J. Sentence types	10	6	
	K. Predicates	10	5	
Section-III	A. SEMANTIC DISCRIMINATION			
	1. Colours	5	[illegible]	
	2. Furniture	5	[illegible]	
	3. Body parts	5	[illegible]	

Section	Subsection	Possible Total score	Subjects score	Total score on sections
	B. SEMANTIC EXPRESSION			
	1. Naming	20	3	
	2. Lexical category	15	1	
	3. Homonymy	5	0	
	4. Synonymy	5	3	38
	5. Antonymy	5	2	
	6. Semantic anomoly	5	1	
	7. Paradigmatic relations	5	0	
	8. Sytagmatic relations	5	0	
	9. Semantic contiguity	5	3	
	10. Semantic similarity	5	4	
	11. Polar questions	10	5	
	Grand Total			160.5

Table-2 Scores obtained on TPAK

On The TPAK, the subject performed poorly on all the three subsections. However, phonemic discrimination, expression and semantic expression were particularly poor.

FCP: The pretherapy percentage scored by the subject in all modalities are given in Table-3.

Modalities	Patient's raw score	Patient's score in percentage	Weighted score
Movement	13	32%	8.4
Speaking	23	29%	5.2
Understanding	55	46%	11.0
Reading	22	34%	6.2
Others	23	41%	5.8
Overall percentage score			26.7%

Table-3 patient's FCP scores.

The comprehension scores were maximum compared to other modalities and speaking modality scored the least.

THERAPY:

After completion of the pretherapy evaluations *the* patient and his family were counselled.

Therapy for this patient was entirely based on his linguistic profile as obtained in the TPAK and did not include the functional aspects.

Duration of language therapy for this patient was three months with three sessions in a week. The duration of each session ranged from thirty minutes to forty five minutes.

The therapy programme drawn for this patient named linguistic profile therapy (LPT) was based on his linguistic profile (pretherap linguistic profile). The scores obtained on each of the three

sections that of phonology, syntax and semantics, out of a maximum of 100 each, were compared with each other. That section in which the patients performance was the poorest was taken up for therapy. The rationale underlying this coice was that it is not always possible to clearly delineate phonological errors as against those of syntax and semantics and vice versa. All the three linguistic levels are intervened and cannot be separated in the normal use of language. Therefore, it is not expected that apnasics will show clear cut deficits in any one level. The level at which the greatest deficit is seen is taken up for therapy on the premise that it is therein that the aphasic's greatest difficulty lies and improvement at the level would not only improve his deficit at that level but also in his overall communication.

Accordingly, in this patient, the therapeutic focus was on semantics and phonology.

Following hierarchy was obtained in R.R's first evaluation under phonology and the semantic subsections.

Phonology	Semantic expression
Phonemic discrimination	Semantic contiguity
Phonetic expression	Semantic similarity
	Polar questions
	Antonymy
	Naming
	Lexical category
	Semantic Anomoly
	Homonymy
	Paradigmatic relations
	Syntagmatic relations

Accordingly, the following goals were specified for language therapy for R.R.

I.(a) Phonemic discrimination:

The aim was to

- **train the patient to distinguish between basic features of the phonological system in his speech reception.**
- **minimal pairs to be used.**
- **matching of pictures and written materials to be used with oral stimulus.**

(b) Phonetic expressions:

The aim was to

- **train the patient to repeat after the therapist and produce spontaneously different phonemes in initial, medial and final position.**
- **picture cards and written materials along with phonemic cues to be used.**

II. Semantic Expression:

To improve patients performance in the following semantic areas:

1. Naming: The aim was to

- **train the patient to name the objects presented to him.**
- **common objects of daily use to be used.**
  tactual, phonemic and graphic cues to be used.

2. Lexical category: The aim was to

- **train the patient to name as many animals as he can in one minute**
- **different lexical categories to be used - like fruits, vegetables**

- The cues to be used are - graphic, pictorial and phonemic.

3. Semantic similarity:

The aim was to train

- the patients to match and explain the relationship between two words which are semantically similar.

eg. In Kannada ādu - āta

4. Semantic contiguity:

The aim was to

- train the patient to match and explain the relationship of two words which are semantically contigous.

eg. On Kannada, bene - tupa

- graphic and phonemic cues to be used.

The successive steps to be worked by revising the previous steps in therapy.

Once such a hierarchy was established, from the least difficult to the most difficult, the former ones were trained first to facilitate success and continuance in therapy and to keep up the patient's motivation.

After the linguistic items were chosen, the modalities that were affected were taken into consideration. Based on the deblocking principle, each stimulus was presented in as many modalities

as possible - oral, written, picture and object. The patient was encouraged to use all modalities in response. Gradually, those modalities in which the patient performed wall were withdrawn and the patient forced to fall back on the affected modalities.

Illustration of therapy to R.R:

Materials used were - picture cards, objects (real ones and models), book, sketchpens.

His major modality problems were repetition and oral expression as in naming. When working on naming, he was given the object to be named and its name in the written form. He was encouraged to look at these and feel the object (tactual cue) while the therapist named for him. He was then encouraged to repeat the word after the therapist. Gradually the written word and the object were withdrawn and the patient was asked to repeat the word after the therapist. In the later stages, the patient was made to name the object presented to him without any cues.

Similarly, the other items were worked out in therapy.

RESULTS AND DISCUSSION:

The subject was reevaluated on the WAB, TPAK, and FCP after thirty six sessions of therapy for a period of 3 months. The post therapy scores are given in Table (4), (5) and (6).

Spontaneous speech	
Fluency	7
Information content	7
Comprehension	6.7
Repetition	0.6
Naming	4.8
A.Q.	52.2

Table (4)- Patient's posttherapy WAB scores.

Section	Subsection	Possible total score	Subject's score	Total score: on
I.	A.Phonemic discrimination	48	48	88
	B.Phonetic expression	52	40	
II.	A.Morpho phonemic structures	10	9.5	69.5
	B.Plural forms	5	3.5	
	C.Case markers	5	3	
	D.PNG markers	10	6.5	
	E.Tenses	10	6	
	F.Transitives, Intransitives and Causatives	10	7	
	G.Conjuctives, comparitives and Quotatives	10	7	
	H.Conditional clauses	10	7	
	I.Participial construction	10	6	
	J.Sentence type	10	7	
	K.Predicates	10	7	
III.	A. SEMANTIC DISCRIMINATION			
	1. Colours	5	5	
	2. Furniture	5	5	
	3. Body parts	5	4	

Section	Subsection	Possible total score	Subject's score	Total scores on secs.
	B. SEMANTIC EXPRESSION			
	1. Naming	10	15	
	2. Lexical category	15	5	
	3. Homonymy	5	2	
	4. synonymy	5	5	
	5. Antonyray	5	3	62
	6. Semantic anomoly	5	1	
	7. Paradigmatic relation	5	0	
	8. Syntagmatic relation	5	1	
	9. Semantic contiguity	5	5	
	10. semantic similarity	5	5	
	11. Polar question	10	6	
	Grand Total			219.5

Table (5) Post therapy linguistic profile.

Modalities	Patient's score	Patient's score in percentage	Weighted score
Movement	21	52%	13.6
Speaking	41	51%	9.2
Understanding	82	68%	16.4
Reading	39	61%	11.0
Others	33	59%	8.2
Overall percentage score			58.4%

Table (6) Patient's post therapy FCP scores.

The results in table (5) indicate that, the patient showed improvement in semantics and phonology sections. The increase in Syntax scores were also observed. Simultaneously an increase in WAB and FCP were also noted as given in table (4) and table (6)

THERAPY PROGRESS:

After three months of linguistic profile therapy, the following improvement was observed in the subsections which were worked upon.

I.a) Phonemic discrimination - The patient could discriminate all the features of the phonological system, using minimal pairs. He could point out to the pictures appropriately.

b) Phonetic expression - Repetition improved remarkably with additional phonemic cues, he could repeat the phonemes, in all the positions.

II.Semantic expression:

a) Naming: The patient could name 10-12 objects appropriately without any cues.

With additional cues (tactual and phonemic), he could do more -

b) Lesical category: In one minute, the patient could say 5-6 names of animals without cues and 10-12 with pictures.

- He could name 6-8 vegetables with visual cues
- He could name 5-6 fruits with visual cues

The results in table (5) indicate that, the patient showed improvement in semantics and phonology sections. The increase in Syntax scores were also observed. Simultaneously an increase in WAB and FCP were also noted as given in table (4) and table (6)

THERAPY PROGRESS:

After three months of linguistic profile therapy, the following improvement was observed in the subsections which were worked upon.

I.a) Phonemic discrimination - The patient could discriminate all the features of the phonological system, using minimal pairs. He could point out to the pictures appropriately.

b) Phonetic expression - Repetition improved remarkably with additional phonemic cues, he could repeat the phonemes in all the positions.

II. Semantic expression:

a) Naming: The patient could name 10-12 objects appropriately without any cues.

With additional cues (tactual and phonemic), he could do more -

b) Lecical category: In one minute, the patient could say 5-6 names of animals without cues and 10-12 with pictures.

- He could name 6-8 vegetables with visual cues

- He could name 5-6 fruits with visual cues

c) Semantic similarity and semantic contigulty:

Without any cues, he could match the appropriate forma orally or graphically.

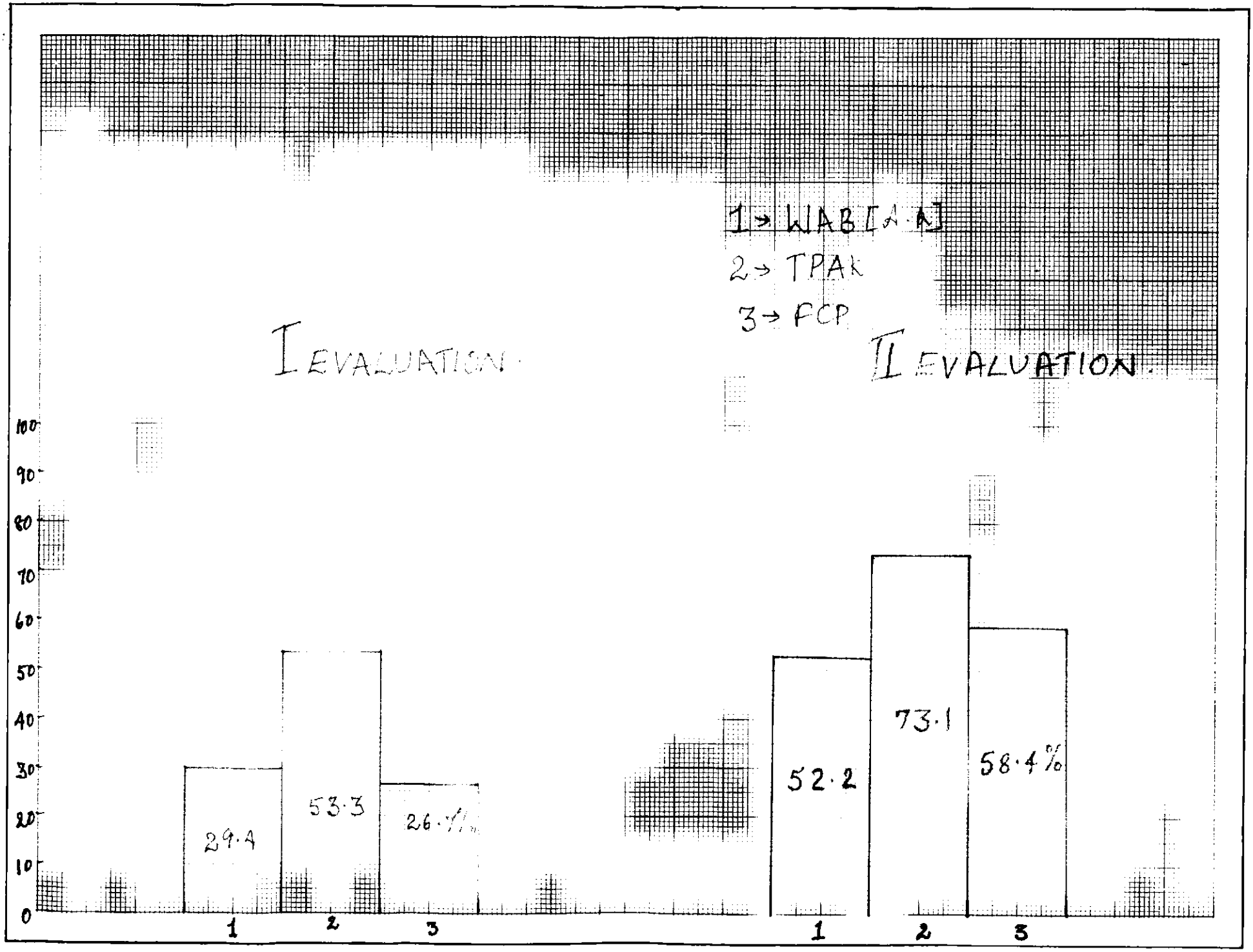
DISCUSSION:

The results of the present study indicate improvement in FCP scores for the case who had undergone 36 sessions of LPT, Parallely, changes in WAB AQ was also noted.

The pre and post therapy scores obtained by the subject on the three tests are given in the form of a bar diagram.
Graph-1(See page No.60)
As may be seen there was an increase in WAB AQ from 29.4 to 52.2.

In TPAK, there was an increase from 160.5 to 219.5. Out of a possible total of 300, when converted to 100 (as depicted in the graph) it was found that the TPAK scores shifted from 53.33 to 73.16 from first evaluation to second evaluation.

When a comparitive (pre and post therapy) linguistic profile was drawn (Table-7), it was observed that there was a substantial change in the scores on the categories which were worked upon in therapy. Alongside a slight improvement was also noticed in the syntactic category, which was not specifically worked upon in therapy, This can be attributed to the close interrelation between the language components namely syntax, semantics and phonology.


1→ WAB [A.A]
2→ TPAK
3→ FCP
I EVALUATION.
II EVALUATION.
100
90
80
70
60
50
40
30
20
10
0
29.4
53.3
26.4%
52.2
73.1
58.4%
1
2
3
1
2
3

GRAPH NO. 1

Section	Subsection	Possible Total	Subs. score 1st evaln	Subs. score 2nd evaln	Subs Total score 1st evaln,	Total score 2nd evaln
I.	A. Phonetic discrimination	48	33	48	64	88
	B. Phonetic expression	52	31	40		
II.	A. Morphophonemic structure	10	8.5	9.5	58.5	69.5
	B. Plural forms	5	3.5	3.5		
	C. Case markers	5	4	3		
	D. PNG markers	10	6.5	6.5		
	E. Tenses	10	5	6		
	F. Transitives, Intransitives and causative	10	6	7		
	G. Conjunctives, comparatives and Quotatives.	10	5	7		
	H. Conditional clauses	10	3	7		
	I. Participial constructions	10	6	6		
	J. Sentence types	10	6	7		
	K. Predicates	10	5	7		
III.	A. SEMANTIC DISCRIMINATION					
	1. Colours	5	5	5	38	62
	2. Furniture	5	4	5		
	3. Body parts	5	5	4		
	B. SEMANTIC EXPRESSION					
	1. Naming	20	3	15		
	2. Lexical category	15	1	5		
	3. Homonymy	5	0	2		
	4. Synonymy	5	5	5		
	5. Antonymy	5	5	3		
	6. Semantic Anomoly	5	1	1		
	7. Paradigmatic relations	5	0	0		
	8. Syntagmatic relations	5	0	1		
	9. Semantic contiguity		3	5		
	10. Semantic similarity	5		5		
	11. Polar questions	10	5	6	160	219.5

Table-7: Comparative Linguistic Profile.

An alternate explanation for the improvement shown by the patient could of course be spontaneous recovery. There is no clear cut evidence as to how and what brings about spontaneous recovery. Since the present case reported for therapy after 4 months of his stroke and spontaneous recovery is generally said to occur within two months (Vignolo, 1964) and also because the shift of scores as seen in pretherapy and post therapy indicated a definite recovery pattern, the recovery is attributed to linguistic profile therapy.

Parallely, a shift of scores in overall percentage from 26.7% to 58.4% was seen in FCP. Though the items of FCP were not worked in therapy, an improvement was observed in all modalities like - movement, - speaking, - understanding, - reading - others.

When a comparitive functional communication profile was drawn (Profile(a), it was observed that there was an increase in scores by 2-3 points in some of the items under all modalities. Remarkable improvement was observed in few items like - saying greetings, -ability to imitate oral movement, -understanding directions, -reading newspaper headlines.

New York University Medical Center

SPEECH AND HEARING THERAPY SERVICE

Functional Communication Profile

63

Name RR

Chart No. _____

EVAL (Blue)			RE-EVAL (Red)			RE-EVAL (Red)			RE-EVAL (Red)		
Date _____			Date _____			Date _____			Date _____		
M 13	32 %	(5.4)	M 21	52 %	(13.6)	M ___	___ %	(.)	M ___	___ %	(.)
S 23	29 %	(5.2)	S 41	51 %	(9.2)	S ___	___ %	(.)	S ___	___ %	(.)
U 55	46 %	(11.0)	U 82	68 %	(16.4)	U ___	___ %	(.)	U ___	___ %	(.)
R 22	34 %	(6.2)	R 34	61 %	(11.0)	R ___	___ %	(.)	R ___	___ %	(.)
O 23	41 %	(5.8)	O 33	59 %	(9.2)	O ___	___ %	(.)	O ___	___ %	(.)
Overall		26.7%	Overall		59.4%	Overall		__.__%	Overall		__.__%

	NORMAL	GOOD	FAIR	POOR	0	
MOVEMENT						Ability to imitate oral movement
						Attempt to communicate
						Ability to indicate "yes" and "no"
						Indicating floor to elevator operator
						Use of gestures
SPEAKING						Saying greetings
						Saying own name
						Saying nouns
						Saying verbs
						Saying noun-verb combinations
						Saying phrases (non-automatic)
						Giving directions
						Speaking on the telephone
						Saying short complete sentences (non-automatic)
						Saying long sentences (non-automatic)
UNDERSTANDING						Awareness of gross environmental sounds
						Awareness of emotional voice tone
						Understanding of own name
						Awareness of speech
						Recognition of family names
						Recognition of names of familiar objects
						Understanding action verbs
						Understanding gestured directions
						Understanding verbal directions
						Understanding simple conversation with one person
						Understanding television
						Understanding conversation with more than two people
						Understanding movies
						Understanding complicated verbal directions
						Understanding rapid complex conversation
READING						Reading single words
						Reading rehabilitation program card
						Reading street signs
						Reading newspaper headlines
						Reading letters
						Reading newspaper articles
						Reading magazines
						Reading books
OTHER						Writing name
						Time orientation
						Copying ability
						Writing from dictation
						Handling money
						Using writing in lieu of speech
						Calculation ability

ESTIMATED TOTAL SPEAKING VOCABULARY: 0 1-50 50-100 100-500 500-1000 over 1000

DEPARTMENT OF REHABILITATION MEDICINE, NEW YORK UNIVERSITY MEDICAL CENTER,
Speech Therapy Service, New York, New York

NYU 4/77 - PS-483

On the basis of the above results, one can postulate that linguistic based therapy such as LPT, helps in total rehabilitation of the patient. As seen in this subject, with increment in his linguistic capacity, even his functional ability in communication improved.

In order to further check on the above results, a second patient who could not attend therapy was studied over a period of three months in the same fashion as the subject of this study.

The subject CS was a 50 year right handed male. He was a native speaker of Kannada. He did not know any other language and was literate having studied upto tenth class and worked as an Agriculturist.

Case History: The patient was brought to AIISH, two months after a stroke, with the following complaints.

- complete loss of speech
- poor comprehension.

The present investigator examined the patient and administered the three tools: WAB, TPAK and FCP in a standard procedure. The test was administered in three sitting and a base line was recorded

Three months later, a reevaluation was done on all the three tools, under similar sitting as in the first evaluation,

Table-8 depicts the scores of first and second evaluation,

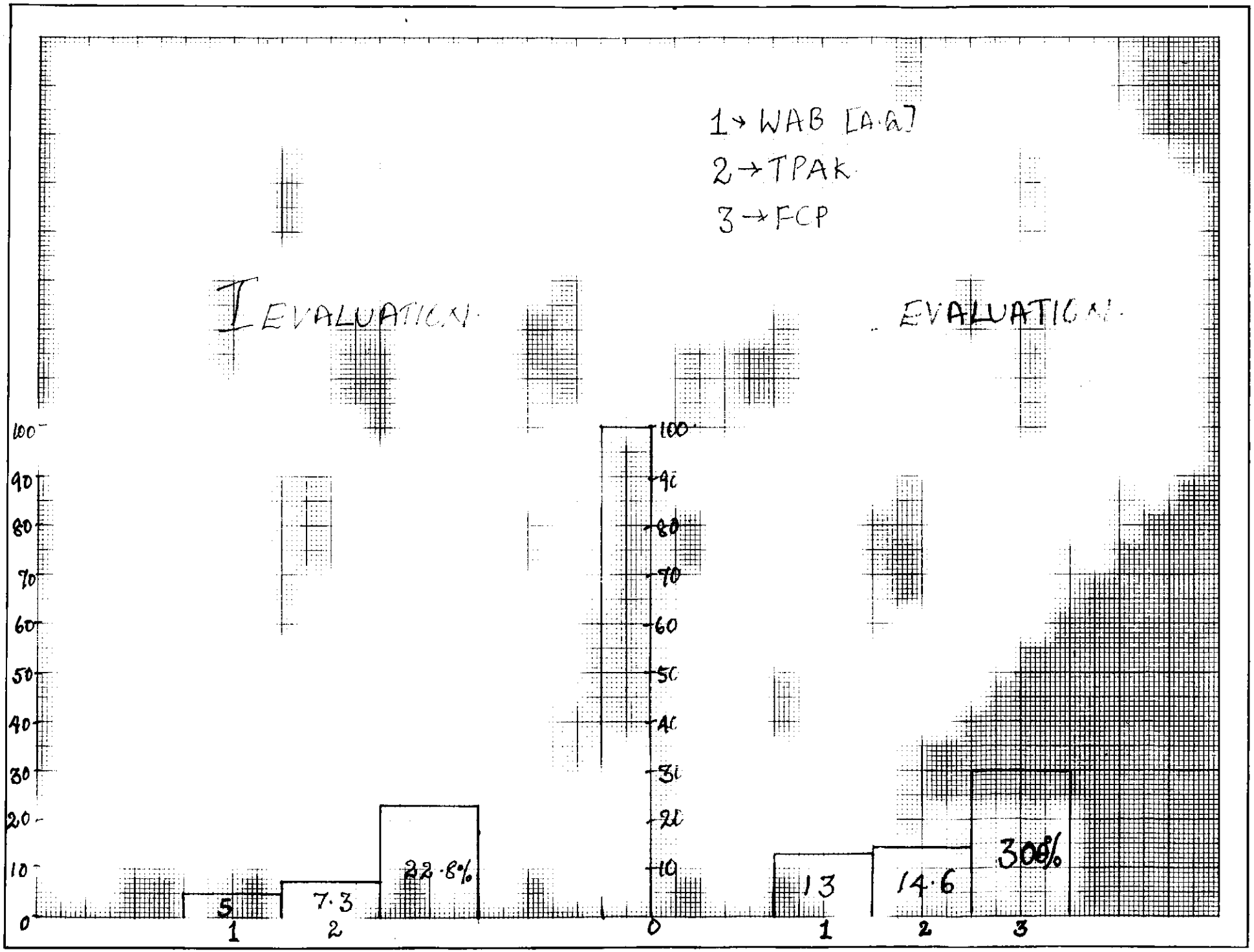
Tools	Results of Ist evaluation	Results of IInd evaluation
1. WAB (A.Q)	5	13
2. TPAK (Raw scores)	22	44
3 FCP (Overall %age)	22.8%	30.9%

As depicted in table-8 and graph(2), a slight improvement was observed in all the three tests - WAB, TPAK and FCP.

Based on these results, the slight improvement can be attributed to spontaneous recovery.

CONCLUSION:

It appears that the improvement brought about by linguistically based therapy (LPT) is significantly greater as in the first patient (R.R) than the improvement by spontaneous recovery a in the second patient (C.S). However, it is important to clarify these issues in further studies with patients who have similar types and severity of aphasia.


1→ WAB [A.A]
2→ TPAK
3→ FCP
I EVALUATION
EVALUATION
100
90
80
70
60
50
40
30
20
10
0
5
7.3
22.8%
1
2
0
13
14.6
30%
1
2
3

New York University Medical Center

SPEECH AND HEARING THERAPY SERVICE

67

Functional Communication Profile

US

Chart No.

EVAL (Blue) Date	RE-EVAL (Red) Date	RE-EVAL (Red) Date	RE-EVAL (Red) Date
m _ 3 f i L % (1.S) s J3_ JÉ_7° (O.-5) u jai 2i % (¡r-o) R ja- Jfc_^. (3 -5) oja_ (3.2J	m 17 4X % (MO» s tx; r«_% u AX_ S O R J L » 4 _ ¿ 0 J l_ S-I (* •!»)	M % (~ .) S % (.) U % (.) R (.) 0_____% (.)	M % (.) S % (.) U % (.) R % (.) 0_____% (.)
1 Overall 2_£_._£Z.	Overall	Overall ____._%	Overall

NORMAL GOOD FAIR POOR 0

MOVEMENT
- Abilitv to imitate oral movement
- Attempt to communicate
- Ability to indicato "yes" and "no"
- Indicating floor to elevator operator
- Use of gestures

SPEAKING
- Saying greetings
- Saying own name
- Sayi no nouns
- Saying verbs
- Saying noun-ver') combinations
- Sayino pnrase^ (non-automatic)
- Giving directions
- Speaking on the telephone
- Sayino short complete sentences (non-automatic)
- Saying long sentences (non-automatic)

UNDERSTANDING
- jftwareness or gros> environmental sounds
- awareness or emotional **voice tone**
- Understanding of own **name**
- awareness of speech
- Recognition of family names
- Recognition **of** ".rnes of familiar objects
- Understanding action verbs
- Understanding gestured directions
- Understanding verbal directions
- understanding simple conversation with one person
- understanding television
- understanding conversation with more than two people
- Understanding movies
- Understanding complicated verbal directions
- Understanding rapid complex conversation

READING
- Reading single words
- Reading rehabilitation program card
- Reading street signs
- Reading newspaper headlines
- **Reading** letters
- Reading newspaper articles
- Reading magazines
- **Reading** books

OTHER
- **Writing name**
- **Time orientation**
- **Copying abi1 ity**
- Writlng from dictation
- **HandI ing money**
- **Using writing in lieu of speech**
- **CalculatIon abiIity**

I ESTIMATED TOTAL SPEAKING VOCABULARY: 0 1-50 50-100 100-500 500-1000 **over IÖ551**

DEPARTMENT OF REHABILITATION MEDICINE. NEW YORK UNIVERSITY MEDICAL CENTER,
Speech Therapy Service, New York, New York

NYU 4/77 - PS-483

SUMMARY

The major aim of the study was to check the efficacy of language therapy for aphasics based on the" Linguistic Profile Therapy (Karanth, 1986) and to identify the reflection of such therapy in a patients daily communication profile (Sarno, 1965).

There have been shifts in the approach to therapy since the two world wars. The approaches have shifted from general stimulation to programmed instructions and of late to treatment geared towards the specific problems of the subtypes of aphasia. The latter approaches are both nonlinguistic and linguistic.

Despite the existence of language therapy for aphasia over several decades, its efficacy continues to be questioned. Much of this ambiguity is due to the lack of controlled studies, which in turn are due to the difficulties in matching and grouping aphasic subjects and studying them in a controlled manner over a long period of time.

Some of the many factors to be considered in controlling are cause and type of aphasia, extent of brain damage, premorbid language abilities, level of literacy, number of languages known.

In order to overcome some of these problems, efficacy of language therapy in aphasia is increasingly relying on single case paradigms.

In the present study, a subject of Broca's aphasia was taken. Three tools were utilized to have a baseline of his capabilities. The tools used were - Western Aphasic Battery - WAB(Kertesz and Poole, 1974); Test of Psycholinguistic Abilities in Kannada - TPAK (Karanth, 1960); Functional Communication Profile-FCP(Harno,1965).

Therapy was given based on LPT (TPAK) for thirty six sessions with the duration ranging from 30 to 45 minutes/session. Language focused on the area of greatest deficit within which a hierarchy of items beginning with the least difficult was formed and taken up for therapy one by one.

Reevaluation was carried out after 36 sessions and the result were noted in all the three tests. An increase in score in TPAK was reflected in functional improvement of the patient (FCP) with a simultaneous change in WAB scores.

The above improvement was attributed to the linguistic based therapy with a corresponding change in the patients daily communication. However, this needs to be further documented in aphasics of different clinical subtypes and severity.

To conclude, linguistic profile therapy is a useful therapeut method for the rehabilitation of aphasics. It takes into account both the modality bound deficits and those of linguistic units and complexity. It offers the language therapist a concrete base, therapeutic direction and measurable precision in terms of therapeutic progress or the lack of it.

Though LPT focusses language therapy on modality deficits and those of linguistic levels of phonology, syntax and semantics, it brings about a change in the patients daily communication behaviour. The daily communication behaviour include-attempt to speak. Understanding movies, T.V's,...; reading newspapers: handling money, calculation ability. ....etc.

SUGGESTIONS FOR FURTHER RESEARCH:

The usefulness of specific therapeutic methods such as LPT needs to be documented carefully. Wherever possible group studies that take into consideration other factors such as age, sex, languages known, onset of therapy, duration of therapy need to be carried out. When this is not possible, as is often the case the single case method with different subtype of aphasia and severity can be documented.

Varied single subject case designs may be used. Designs like ABAB withdrawal and reversal designs, multiple baseline design can be used to study the efficacy of aphasia therapy.

BIBLIOGRAPHY

Albert, M.L, et al. (1981) "Clinical aspects of Dysphasia" Vienna: Springer-Verlag Wein, New York.

Chapey, R, (1981) Language Intervention strategies in adult aphasia", Williams and Wilkins, Baltimore, London.

Darley, F.L., (1972) "Efficacy of language rehabilitation in aphasia", JSHD, 37, 3-22.

Eisenson, J., (1973) "Adult aphasia" - Assessment and Treatment, Prentice-Hall INC, Englewood Cliffs, New Jersey.

Estrabrooks, H., Fitzpatrik, N., and Barreasi, B., (1982) "Visual action therapy for global aphasia", JSHD, 47, 385-389.

Goldstein (1948) "Language and language disturbances", Grune and Stratton, INC, New York.

Helm, N.A., (1980) "Voluntary control of involuntary utterances", A treatment approach to severe aphasia. Proceedings of 1980 Clinical aphasiology conference. BRK pub., Minneapolis.

Hesketh, A., (1986) "Measuring progress in aphasia therapy: A multiple baseline study", BJDC, 21(1), 47-62.

Karanth, P(1980) "A comparative analysis of aphasic and Schizophre language". Doctoral Dissertation, University of Mysore.

Karanth, P(1986)"Linguistic Profile Therapy", Paper presented at the second International Aphasia Rehabilitation Congress held at Gothenburg, Sweden in June 1986.

Kertez, A (1979) "Aphasia and associated disorders"- Taxonomy, Localization and recovery, Grune and stratton INC, New York.

Lecours, et al. (1983) "Aphasiology", Bailliere Tindall, London, 402-432.

Lesser, R, (1978) "Linguistic investigations in aphasia", Butler and Tanner Ltd., Frome and Randon.

Luria, (1970)""Traumatic aphasia" - Its syndromes, psychology and treatment", Mouton and Co.N.V.Pub. 49-56.

Miller, J et al (1983) "Contemporary issues in language intervention", ASHA Reports, 12, Rockville, M.D.

Pring, T.R, (1986) "Evaluating the effects of speech therapy for aphasics!, Developing the single case methodology, BJDC,21 (1), 103-115.

Sarno, M.T., (1972) "Aphasia" selected readings, Appleton-Century Crofts, Meredith Corporation, New York.

Sarno, M.T., (1981) "The functional communication profile" . Manual of Directions, New York University.

Shewan, C and Bandur, D., (1986) "Treatment of Aphasia - A language oriented approach", Taylor and Francis Ltd., Loddon.

Shuell, (1965) "Aphasia in adults". Harper and Row Pubx New York.

Shuell (1974) "Aphasia theory and therapy", Univ. Park Press, Baltimore, Maryland, U.S.A.

Weisenburg and McBride (1964) "Aphasia", Hafner Publishing Co INC New York.

Wepman (1951) "Recovery from aphasia", Ronald Press, Co. New York.

APPENDIX

Score sheet:

	Max. Score	Patient's score	Total for AQ
I. Spontaneous speech			
a) Information content	10		
b) Fluency	10		
c) Total	20		
(Divide the total by 2- 10)			
II. Auditory verbal comprehension			
a) Yes-No question	60		
b) Auditory-word recognition	60		
c) Sequential commands	80		
Total	200		
(Divide the total by 20-10)			
III. Repetition	100		
(Divide the score by 10)	10)		
IV. Naming			
a) Object naming	60		
b) Word fluency	20		
c) Sentence completion	10		
d) Responsive speech	10		
Total	100		
(Divide the total by 10	10)		
Aphasia Quotient Add total & Multiply by 2			

TEST OF PSYCHOLINGUISTIC ABILITIES IN KANNADA
SECTION I : PH0N0L0GY

Section I-A - Phonetic Discrimination

Instructions: Place the pictures representing each minimal pair in front of the subject. Read aloud the words of the minimal pair and ask the subject to point out to the appropriate pictures. If the subject fails to do so give him the written forms of the minimal word pair and ask him to match them with the appropriate pictures. Score 1 for each correctly identified picture. Allow correction once only if the subject is very certain his earlier response was wrong. Repeat once if required.

Sl No.	Minimal Pair	SUBJECT'S PHONIC	Response Graphic
1.	ಹೂವು — ಹಾವು		
2.	ಕತ್ತಿ — ಕತ್ತೆ		
3.	ಓಟ — ಆಟ		
4.	ಹುಡುಗಿ — ಹುಡುಗ		
5.	ಎಲೆ — ಒಲೆ		
6.	ಆಟ — ಗಾಟ		
7.	ಬಳೆ — ಬಾಳೆ		
8.	ಪೆನ್ನು — ಪೆನ್ನು		
9.	ಕಪ್ಪೆ — ಕತ್ತೆ		
10.	ಓದು — ಓದು		
11.	ಜಾಡಿ — ಗಾಡಿ		
12.	ಮಳೆ — ಬಳೆ		
13.	ಅನ್ನ — ಅಣ್ಣ		
14.	ಕಾಸು — ಕಾಲು		
15.	ನಾಲು — ಶಾಲು		
16.	ಕೊಡ — ಕೊಳ		
17.	ಹಲ್ಲ — ಹಳ್ಳ		
18.	ಕಾರು — ಕಾಳು		
19.	ಅಜ್ಜ — ಅಂತ್ಯ		
20.	ಬಾಂಬು — ಬಾವಿ		
21.	ಕತೆ — ಕತ್ತೆ		
22.	ಮಗ್ಗ — ಮಂಗ		
23.	ಬಸ್ಸು —, ಟಿಟ್ಟು		
24.	ದನ — ಧನ		
25.			

TOTAL SCORE: 48

SECTION I-B: Phonemic Expression

Instructions: **Ask the subject to repeat each word clearly after you. If the subject is unable to repeat the word give him the written form of the word and ask him to read it aloud. If he fails to do so then give him the appropriate picture and ask him to name it. Score 1 for each correctly repeated target sound. Errors involving phonemes other than the target phoneme should not be scored but taken into account during qualitative analysis.**

Sl No.	STIMULUS WORD	SUBJECT'S RESPONSES		
		Repetition	Reading	Naming
1.	ಆಗಸ			
2.	ಆನೆ			
3.	ಇಲಿ			
4.	ಈಶ್ವರ			
5.	ಉಂಗುರ			
6.	ಊಟ			
7.	ಎಲೆ			
8.	ಏಣಿ			
9.	ಐದು			
10.	ಒಲೆ			
11.	ಓಲೆ			
12.	ಔಷದ			
13.	ಕನ್ನಡಕ			
14.	ಪುಸ್ತಕ			
15.	ಗರಗಸ			
16.	ಮೂಗು			
17.	ಬಾಪೆ			
18.	ಬಾಚಣಿಗೆ			
19.	ಜನ			
20.	ಸೂಜಿ			
21.	ಮೀಸೆ			
22.	ಪಟ			
23.	ಡಬ್ಬ			
24.	ಗಾಡಿ			
25.	ಹಣ್ಣು			

26	ತಲೆ				
27	ಕೋತಿ				
28	ದನ				
29	ಕುದುರೆ				
30	ನಾಯಿ				
31	ಮನೆ				
32	ಪೆನ್ನು				
33	ಚಪ್ಪಲಿ				
34	ಬಾಗಿಲು				
35	ಗೊಂಬೆ				
36	ಮರ				
37	ವೆಮ್ಸ್				
38	ಂತುವು ಂತುತಿ				
39	ರೂಪಾಂತು				
40	ರೇಡಿಂತೋ				
41	ಕಾರು				
42	ಲಂಗ				
43	ಕಾಲು				
44	ವಿಮಾನ				
45	ಬಾವುಟ				
46	ಶಂಖ				
47	ಬ್ರುಶ್				
48	ನರ				
49	ಬನ್ನು				
50	ಹಲ್ಲು				
51	ಸಿಂಹ				
52	ಕೋಳಿ				

TOTAL SCORE: 52

SUBJECT'S SCORE:

SECTION I-C: Running Speech

Instructions: **Read the following passage slowly and clearly. Ask the subject to repeat it after you. Later ask the subject to read the passage aloud. Use aspiration wherever necessary. This section is not to be scored. Analyse the subject's performance on this section in terms of his performance on Section I-B. Also pay particular attention to clusters and take observational notes.**

Passage:

ವೈಜ್ಞಾನಿಕ ವಿಧಾನ ಜಗತ್ ಪ್ರಸಿದ್ಧವಾಗಿದೆ. ಬಹಳ ಜನರು ಅದನ್ನು ವಿಚಿಕ್ಷಿಸಲು ಕಾಕನಕೋಟೆಯಂತಲ್ಲಿ ಭಾರಿ ಉತ್ಸಾಹದಿಂದ ಅಣಿಯಾಗುತ್ತಾರೆ. ವಲದ ಆನೆಗಳನ್ನು ಸಿದಿಯುವುದೆ ಅದರ ಉದ್ದೇಶವಲ್ಲ. ಆಭಾಗಳನ್ನು ತರಬೇತಾದ ಆನೆಗಳಿಂದ ಪಳಗಿಸುವುದು ಒಂದು ಮಜಭಾ ಕಾರ್ಯ. ಈ ಘಟನೆಯನ್ನು ವೀಕ್ಷಿಸುವವರು ಚಕಿತರಾಗುತ್ತಾರೆ. ಎದೆ ರುಚಿಲೆ ಎನ್ನುವುದರಲ್ಲಿ ಸಂದೇಹವಿಲ್ಲ. ಪೆಡ್ಡಾದ ಕೆಲಸ ಥಟ್ಟನೆ ಮುಗಿಯುವಂತದಲ್ಲ. ಠಕ್ಕ ಕಾಡಾನೆಗಳನ್ನು ಹಿಡಿಯುವುದು ಪಳಗಿಸುವುದು ಸಾಮಾನ್ಯವೇನಲ್ಲ. ಕಾರ್ಯದ ಫಲ ತದನಂತರ ತಿಳಿಯುವುದು.

ತೋಳ ಮತ್ತು ಆಡು :

ಒಂದು ಆಡು ಬಿಟ್ಟದ ನೆತ್ತಿಯಲ್ಲಿ ವೇಯುತ್ತಿತ್ತು. ಒಂದು ತೋಳ ಅದನ್ನು ನೋಡಿತು. ಅಲ್ಲಿಗೆ ಹೋಗಲು ಅದಕ್ಕೆ ಸಾಧ್ಯವಿರಲ್ಲಿಲ್ಲ ಅದು ಆಡನ್ನು ಕುರಿತು — 'ಕೆಳಗೆ ಬಾರಯ್ಯ ಅಷ್ಟು ಎತ್ತರದಲ್ಲಿದ್ದರೆ ಕಾಲು ಜಾರಿದರೆ ಏನು ಗತಿ. ಅಲ್ಲದೆ ಇಲ್ಲಿ ಹುಲ್ಲು ಹುಲುಸಾಗಿ ಬೆಳೆದಿದೆ. ಬಹು ರುಚಿಯಾಗಿದೆ ಎಂದು ಆಮಂತ್ರಣ ನೀಡಿತು. ಅದಕ್ಕೆ ಆಡು 'ನೀನು ನನ್ನನ್ನು ಕರೆಯುತ್ತಿರುವುದು ನನ್ನ ಊಟಕ್ಕೊ? ನಿನ್ನ ಭೋಜನಕ್ಕೊ ?' ಎಂದು ಕೇಳಿತು.

Transcript-1 (Repetition)

Transcript-2 (Reading)

Analysis of Clusters

SECTION -II : SYNTAX

Instructions : Instruct the subject that the following list of words and sentences contains both correct and incorrect forms. Ask the subject to listen carefully and indicate whether each item is correct or not. Illustrate with one or two examples if need be. Read the items in the list one by one. Repeat once if necessary. If the subject fails to respond give him the test items in the written form. Accept correction once. Score ½ for each accurate response in subsections A, B, C and D and 1 for each accurate response in subsections E,F, G, H. I J and K. Make a note of the modality to which the subject responds.

A. Morphophonemic Structures

Sl No.	TEST ITEM	SUBJECT'S RESPONSE	ACCURACY OF RESPONSE
1.	ಎಡಗೈ		
2.	ಪೈಸೆನಲ್ಲಿ		
3.	ಹುಡುಗನಲ್ಲಿ		
4.	ದಾರೀಲಿ		
5.	ನಿಜಂತಾ		
6.	ಕಲುಮ್ಲವನ್ನು		
7.	ಮನೆಂತುಲಿಮ್		
8.	ಕಾಡುಗೆ		
9.	ಬೀದಲಿಮ್		
10.	ನೀರಲಿಮ್		
11.	ಮಗುವನ್ನು		
12.	ಊರುವಲಿಮ್		
13.	ಕೆಳಗುಟಿ		
14.	ಬಲದಿವಿ		
15.	ಮರಲಿಮ್		
16.	ನಿಜಪಾ		
17.	ಅಜ್ಜಲಿಮ್		
18.	ಊರಲಿಮ್		
19.	ಕೆಳದುಟಿ		
20.	ಪುಸ್ತಕದಲಿಮ್		
	SUBJECT'S SCORE		

B. Plural Forms

Sl No.	TEST ITEM	RESPONSE	ACCURACY
1	ಹುಡುಗಿಂತರು		
2	ಅಜ್ಜಿಗಳು		
3	ಅನ್ನ		
4	ದನರು		
5	ಮರಗಳು		
6	ನೀರುಗಳು		
7	ಗಂಡನರು		
8	ಪುಸ್ತಕರು		
9	ಕೆಂಗನಂದಿರು		
10	ಅಕ್ಕಂದಿರು		

i SCORE:

C. Case Markers

Sl No.	TEST ITEM	RESPONSE	ACCURACY
1	ಹುಡುಗನಿಗೆ ಹೇಳಿದೆ		
2	ಮೇಲಕ್ಕೆ ಗೊಂಬೆ		
3	ಪೆನ್ನಿನ ಬಾಗದ ಬಿ		
4	ಅಂಗಡಿಂಯಿಂದ ತಂದದು		
5	ಕೆಲಸದ ಹುಗುಗ		
6	ಇಟ್ಟಿಗೆಂಯಿಂದ ಮನೆಂತಲ್ಲಿ ಕಟ್ಟಿದ್ದಿರರು		
7	ಪುಸ್ತಕ ಅಣ್ಣನವುನ್ನ ಕೊಟ್ಟಿ		
8	ಮರವನುನ್ನ ಉರುಳಿಸು		
9	ಊರಿನಲ್ಲಿ ಇದ್ದಿ		
10	ಬ ನಿಂದ ಕೊಡೆದೆ		

D. PNG MARKERS:

Sl No	TEST ITEM	RESPONSE	ACCURACY
1.	ನೀನು ವುಲಗುವೆ		
2.	ಕಮಲ ಬರುತಾ್ಳೆ		
3.	ಅವರು ಓಡಿದರು		
4.	ಹಸು ಬರುತಾ್ನೆ		
5.	ಆ ವುಲಗಿದವು		
6.	ನಾವು ನೋಡುವಳು		
7.	ಅವರು ಹೋಗುತಾ್ರೆ		
8.	ನೀನು ಬರುತಾ್ನೆ		
9.	ಅದು ವುಲಗಿತು		
10.	ಗಣೇಶ ಓಡಿದಳು		
11.	ಆವ ಹೋಗುತ್ತೀರಿ		
12.	ನೀನು ಓಡಿದೆ		
13.	ನೀವು ನೋಡುವರು		
14.	ನಾವು ವುಲಗಿದಿರಿ		
15.	ನೀವು ಹೋಗುತ್ತೀರಂತೆ?		
16.	ಸೀತೆ ಓಡಿದಳು		
17.	ಅದು ನೋಡುವುದು		
18.	ನಾನು ಬರುತ್ತೇನೆ		
19.	ನಾವು ಹೋಗುತ್ತೇವೆ		
20.	ಸೀತೆ ನೋಡುವನು		

E. Tenses

Sl No.	TEST ITEM	RESPONSE	ACCURACY
1	ನೀವು ಬರುತ್ತಾ ಇರಿ		
2	ಅವರು ನಾಳೆ ಬಂದರು		
3	ಶಂಕರ ನಿನ್ನೆ ಮೋದ		
4	ನೀನು ಈಗ ತಾನೇ ಬರುವೆ		
5	ಅವುಕ್ಕ ನಾಳೆ ಇಷುಟ ಹೊತಿಗೆ ಬಂದಿದ್ದರು		
6	ನಾನು ಸೂಕ್ಕಲಲ್ಲಿ ಇದ್ದೇನೆ		
7	ಅವನು ಕಳೆದ ವಾರ ಬಂದಿದ್ದ		
8	ನೀತಿ ನೊನ್ನೆ ಬರುತ್ತಾಳೆ		
9	ನಾನು ನಾಕ್ಕಲಲ್ಲಿ ಇರುತ್ತಾ ಇರುತ್ತೇನೆ		
10	ನಾನು ನಾಳೆ ಮುನೆಂಮುಲಲ್ಲಿ ಇರುತ್ತೇನೆ		

SCORE:

E. Transitives, Intransitives and Causatives

Sl No.	TEST ITEM	RESPONSE	ACCURACY
1	ಹಾಲಿಗೆ ನೀರು ವಿರೆಸಬೇಡ		
2	ಅಕ್ಕಸಾಲಿ ಮೂಡುತ್ತಾನೆ		
3	ಹುಡುಗಿ ಓದುತ್ತಾಳೆ		
4	ನಾನು ಹಣ್ಣನ್ನು ತಿನ್ನುತ್ತೇನೆ		
5	ಅಜ್ಜಿ ಕಡೆಂಮುತ್ತಾಳೆ		
6	ಮುಗು ನಿದ್ದೆ ಮುಲಗುತ್ತದೆ		
7	ಅವರು ನಮ್ಮಿಂದ ಕೆಲಸ ಮಾಡುತ್ತಾರೆ		
8	ಮುಗುವನ್ನು ಮುಲಗಿಸು		
9	ನಾವು ನಿಮ್ಮಿಂದ ಪಾಠ ಓದಿಸುತ್ತೇವೆ		
10	ಅವನು ಮುಗುವಿಗೆ ತಿನ್ನುತ್ತಾನೆ		

G. Conjucctives, Comparatives and Quotatives

Sl No	TEST ITEM	RESPONSE	ACCURACY
1	ರಾಮನೂ ಶಂಕರನೂ ಸ್ಕೂಲಿಗೆ ಹೋದರು		
2	ನನ್ನ ಅಣ್ಣ ಮಕ್ಕಳು ಬಂದರು		
3	ಗಣೇಶ ಮತ್ತು ರಮೇಶ ಹೋದಾಗ ಶಿವೆಂದು ಕರಕೊಂಡು ಹೋದರು		
4	ಪೆನ್ಸಿಲ್ ಅಥವಾ ಪೆನ್ನು ಕೊಡು		
5	ಗಿರೀಶ ಸುರೇಶನಿಗಿಂತ ಚಿಕ್ಕವನು		
6	ಸುಧಾಗೆ ಲಲಿತ ಅಂದವಾಗಿದ್ದಾಳೆ		
7	ನಿಮ್ಮಪ್ಪ ಪಾಠ ಮಾಡುತ್ತಿದ್ದನೆ ಅಂತ ಕೇಳಿದರು		
8	ಈ ರಾಜ್ಯಕ್ಕೆ ಮೈಸೂರು ಸೇರಿತು		
9	ಭಾರತಿ ನಂಜಿ ನಾಳೆ ಬರುತ್ತದೆ ಹೇಳಿದಳು		
10	ಲಕ್ಷ್ಮೀ ಎಂಬವಳು ಬಂದಿದ್ದಳು		

SCORE:

H. Conditional Clauses

Sl No	TEST ITEM	RESPONSE	ACCURACY
1	ನೀನು ಬೇಗ ಹೋದರೂ ಬಸ್ಸು ಸಿಗುತ್ತಿರಲಿಲ್ಲ		
2	ನೀನು ತಿನ್ನ ಇದ್ದರೆ ದೊಡ್ಡವನಾಗುವುದಿಲ್ಲ		
3	ಅವನು ಮನೆಗೆ ಬಂದರೆ ದುಡ್ಡು ಕೊಡುತ್ತೇನೆ		
4	ಅಂಗಡಿಯವನಿಗೆ ಹಣ ಕೊಟ್ಟು ಅವನು ಪುಸ್ತಕ ಕೊಡುತ್ತಾನೆ		
5	ನೀವು ಹೇಳಿದರೆ ಅವರು ಮಾಡಿದರು		
6	ಇವತ್ತು ದುಡ್ಡು ಸಿಕ್ಕಿದರೆ ನಾವು ಮಾರ್ಕೆಟ್ಟಿಗೆ ಹೋಗುತ್ತೇವೆ		
7	ಅವರು ಮೊದಲೇ ಹೇಳಿದ್ದರೆ ಮಾಡಬಹುದಿತ್ತು		
8	ನೀನು ಮನೆಗೆ ಬಂದ ಹಣ್ಣು ಕೊಡುತ್ತಿದ್ದೆ		
9	ನಾನು ಬೇಲೂರಿಗೆ ಹೋದ ಶಿಲಾಬಾಲಿಕೆಯರನ್ನು ನೋಡಲಿಲ್ಲ		
10	ಭಾರತಿ ಬರದೆ ಇದ್ದರೆ ನಾನು ಬೆಂಗಳೂರಿಗೆ ಹೋಗುವುದಿಲ್ಲ		

I. Particular Constructions

Sl No.	TEST ITEM	RESPONSE	ACCURACY
1.	ನಿನ್ನನ್ನು ನೋಡದೆ ಬಹಳ ದಿನವಾಯಿತು		
2	ನೀನು ಭೀಲಾಗದ ಹುಡುಗನಾ?		
3	ಬಿಸಿ ಬಿಸಿಯಾದ ಬಿಗ್		
4	ನಾನು ಇನ್ನೂ ಕಾಫಿ ಕುಡಿ ತಿಂಡಿ ತಿಂದೆ		
5	ಇದು ನಾನು ಓದು ಸೂಕ್ಷಲೂ		
6	ಬೀಸಾಂತು ಮಾಡುವವರು ರೈತರು		
7	ಅವಳು ಪೊಸ್ಟಾಫೀಸಿಗೆ ಬಂದು ಕನ್ನಡ ಕಲಿಯುತ್ತಾಳೆ		
8	ಔಷಧಿ ಕುಡಿದೆ ಜ್ವರ ಹೋಗುವುದಿಲ್ಲ		
9	ನಾನು ಇಷ್ಟಪಟ್ಟ ನಿನ್ನೇವು ಶಂಕರಾಭರಣ		
10	ರಾಮಣ್ಣ ಎಂತಾವತ್ತಾ ಬಂದನು ಇವತ್ತು ಎಂಟಾಕೆ ಬಂದ		

SCORE:

J. Sentence Types

Sl No.	TEST ITEM	RESPONSE	ACCURACY
1.	ಇದು ಬೆಂಗಳೂರು ಅಲ್ಲಾ		
2.	ಅವರ ಜವಾಬ್ದಾರಿ ನಾವೇ ನೋಡಿಕೊಳ್ಳುತ್ತಾರೆ		
3.	ಅವನು ನಿನಗಾಗಿ ಹೋಗೋಣ		
4.	ಇದು ನನ್ನ ಶಾಲೆ		
5.	ನೀನು ಆ ಕೆಲಸ ನೂಡಬಾರದು		
6.	ನಾವು ಹಾಡು ಹೇಳಲಿ		
7.	ಅವಳು ತೊಟ್ಟಿಂಬುನನ್ನು ನೋಡಿ ನಕ್ಕಳು		
8.	ಬಾವಿಯಲ್ಲಿ ನೀರು ಅಲ್ಲವಾ ?		
9.	ನಿವುಗೆ ಕನ್ನಡ ಗೊತ್ತಾ ?		
10.	ಅವನು ಕಾಫಿ ಕುಡಿ		

K. Predicates

Sl No.	TEST ITEM	RESPONSE	ACCURACY
1.	ಈ ಪುಸ್ತಕ ನನ್ನದು		
2.	ಈ ಲಂಗ ಕಮುಲ		
3.	ನಿನ್ನ ಕೋಣಿ ಎತಾವ?		
4.	ಅವರ ನಾಂಯಿ ಬೊಾಡ್ಡದು		
5.	ಆ ಪೆನುನ್ನ ಅವನ		
6.	ಜೋರಾಗಿ ಓಡಿ ಅವರ ಕುದುರೆ		
7.	ನಿನ್ನೆ ಸಾಡಿದುದಿ ನನ್ನೆ ತಂಗಿ		
8.	ಅವರ ಮನೆ ಎತಾವುದು?		
9.	ಆ ಬಿಕುಕ ಟಿಕಕ		
10.	ಆ ನೀರಿ ಅಮುನದು		

SCORE:

>

SECTION III : SEMANTICS

Section III-A : Semantic Discrimination

Instructions: Ask the subject to point out to the colour, object and body part named. Name the items one by one. If he fails give him the written words and ask him to match them with the corresponding items. Repeat item once if necessary. Accept correction once. Score 1 for each item identified correctly.

	No.	TEST ITEM	SUBJECT'S RESPONSE	
			PHONIC	GRAPHIC
COLOURS	i	ಕೆಂಪು		
	ii	ಹಸಿರು		
	iii	ಕಪ್ಪು		
	iv	ಹಳದಿ		
	v	ನೀಲಿ		
FURNITURE	vi	ಕುರ್ಚಿ		
	vii	ಮೇಜು		
	viii	ಬಾಗಿಲು		
	ix	ಬೀರು: ಅಲಮಾರು		
	x.	ಕಿಟಕಿ		
BODY PARTS	xi	ಮೂಗು		
	xii	ನಾಲಿಗೆ		
	xiii	ಬಲಗೈ		
	xiv	ಬಲಗಣ್ಣು		
	xv	ಎಡಗಿವಿ		

Section III-B; Sementic Expression

1. Naming

Instructions: Ask the subject to name the object presented. If he fails to do so check whether he con write the name or explain its use, through gestures score 1 for each correctly named (oral or written response) object but not for recognition of objects (as seen through gestural explanations). Accept mild paraphasias.

Sl. No.	TEST ITEM	SUBJECT'S RESPONSES		
		PHONIC	GRAPHIC	GESTURAL
i.	ಪೈನೆ: ಕಾನು			
ii.	ಬಾಕು			
iii.	ಸೂಜಿ			
iv.	ಬೀಗ			
v.	ಗಡಿಂತೂರ			
vi.	ಸೀನೆ: ಬಾಟ್ಲಿ			
vii.	ಬಾಚಣಿಗೆ			
viii.	ಜವುಜ			
ix.	ಬೆಂದು			
x.	ಲೋಟ			
xi.	ಪೆನ್ಸಿಲು			
xii.	ಬೀಗದ ಕೈ			
xiii.	ಪುಸ್ತಕ			
xiv	ಕನ್ನಡಿ			
xv.	ದಾರ			
xvi.	ಬೆಂಕಿ ಕಡ್ಡಿ			
xvii.	ಸುತ್ತಿಗೆ			

APPENDIX-A

Western Aphasic Battery Test Booklet

Patient Data

I. Spontaneous Speech

1. ನೀವು ಇವತ್ತು ಹೇಗಿದ್ದೀರಾ?

2. ನೀವು ಇಲ್ಲಿಗೆ ಮೊದಲು ಬಂದಿದ್ದೀರಾ? ಥಮಾ ನಾನು ನಿಮ್ಮನ್ನು ಹಿಂದೆ ಪರೀಕ್ಷಿಸಿದ್ದೆನೇ?

3. ನಿಮ್ಮ ಹೆಸರೇನು?

4. ನಿಮ್ಮ ವಿಳಾಸವೇನು?

5. ನೀವು ಏನು ಕೆಲಸ ಮಾಡುತ್ತೀರಾ?

6. ನೀವು ಇಲ್ಲಿಗೆ ಏಕೆ ಬಂದಿರುವಿರಿ? ನಿಮಗೆ ಏನು ತೊಂದರೆ ಎಂದು ಹೇಳಿ?

7. ಈ ಚಿತ್ರದಲ್ಲಿ ಏನೆಲ್ಲಾ ನಡೆಯುತ್ತಿದೆ ಹೇಳಿ.

Max. Score - 10 Patient's Score: Functional Content

10 Fluency

II. Auditory Verbal Comprehension.

A. Yes/too questions.

	Verbal	Gestural	EyeBlink	Correctness
1. ನಿಮ್ಮ ಹೆಸರು ಕುಪ್ಪುಸಾಮಿಯಂತೀರ?				
2. ನಿಮ್ಮ ಹೆಸರು ರಾಮಕೃಷ್ಣ ಎಂದೇ?				
3. ನಿಮ್ಮ ಹೆಸರು ———— ಎಂದೇ?				
4. ನೀವು ಬೆಂಗಳೂರಿನಲ್ಲಿ ವಾಸಿಸುತ್ತೀರಾ?				
5. ನೀವು ಕಲಕತ್ತೆಯಂತಲ್ಲಿ ವಾಸಿಸುತ್ತೀರಾ?				
6. ನೀವು ————ನಲ್ಲಿ ವಾಸಿಸುತ್ತೀರಾ?				
7. ನೀವು ಗಂಡನೇ : ಹೆಂಗನೇ ?				
8. ನೀವು ವೈದ್ಯರೇ?				
9. ನಾನು ಗಂಡನೇ : ಹೆಂಗನೇ ?				
10. ಈ ಕೋಣೆಯಂತಲ್ಲಿ ನೀವು ಶತ್ತಿದಿಯೇ?				
11. ಬಾಗಿಲು ಮುಚ್ಚಿದೆಯಂತೀರ?				
12. ಇದು ಫಲಹಾರ ಮಂದಿರನೇ?				
13. ಇದು ವಾಕ್ ಪರೀಕ್ಷೆ ನೂಡುವ ಸ್ಥಳವೇ?				
14. ನೀವು ಉಟ್ಟಿರುವ ಬಟ್ಟೆ ಕೆಂಪೇ?				

Lexical Category

Instructions: Ask the subject to list the names of all the animals that he knows, for one minute. If he is unable to name them check whether he can write them. Give him an example or two if need be. Score 1 for each correctly named animal.

Score:

Homonymy

Instructions: Ask the subject to give alternate meanings for the following words. Test items may be given verbally or graphemically. Score *h* each for all correct responses.

i. ಹೊಳೆ

ii. ಹತ್ತು

iii. ಬಾಳೆ

iv. ದಂಡ

v. ಕರೆ

Score:

4. **Synonymy**

Instructions: Instruct the subject to match pairs with identical meaning in the following sets of words. Test items to be given verbally or graphically. Score 1 for each correctly matched pair.

i.	ರಾಜ	(a)	ಕರುಣೆ
ii.	ದಂತ	(b)	ಗಾರವ
iii.	ಕೋಪ	(c)	ತೆಳು
iv.	ವಯಸ್ಸಾದ	(d)	ಸಣ್ಣ

5. Antonymy

Instructions: Instruct the subject to match the opposite pairs in the following sets of words given verbally or in writing. Score 1 for each correct pair.

i.	ಬೆಳಿ	(a)	ದಡ್ಡ
ii.	ಬಾಣ	(b)	ನೆಲದು
iii.	ಒಳ್ಳಂತು	(c)	ಕರಿ
iv.	ಗಟ್ಟಿ	(d)	ಹಸಿ
v.	ಬಿಕ್ಕ	(e)	ದೊಡ್ಡ
		(f)	ಕೆಟ್ಟ

SCORE:

6. Semantic Anomaly

Instruct the subject to indicate whether each of the following sentences is meaningful or not and explain why, if not meaningful. Test items to be given -rally or in writing. Score 1 for each correct explanation.

i. ನನ್ನ ಅಣ್ಣ ನನಗಂತ ಕಿರಿಯವನು
ii. ರವೀಶ ನನ್ನ ತಂಗಿ
iii. ಕುರ್ಚಿ ನೀಗವಾಗಿ ಓಡುತ್ತದೆ
iv. ಬೆಂಕಿ ತಣ್ಣಗಿರುತ್ತದೆ
v. ಸೂರ್ಯಂತೂ ಬೆಳಿಗೆ ಮುಳುಗುತ್ತಾನೆ

SCORE:

7. Paradigmatic Relations

Instruct the subject to explain the meaning of the following terms given verbally or graphically. Score 1 for each correct explanation.

i. ಅತ್ತೆ
ii. ಭಾವ
iii. ಅಕ್ಕ
vi. ಅತ್ತಿಗೆ
v. ತಮ್ಮ

SCORE:

8. **Syntagmatic Relations**

Instruct the subject to fill in the missing slot. Test items to be given verbally or graphically. Score 1 for each correct response.

i. ಕೂದಲು — ಕಪ್ಪು, ಪಾಲು ———

ii. ಸಿಂಹ — ಗರ್ಜಿಸು, ನಾಯಿ ———

iii. ಹಕ್ಕಿ — ಹಾರು, ವಿಮಾನ ———

iv. ಅನ್ನ — ತಿನ್ನು, ನೀರು ———

v. ಜನವರಿ — ತಿಂಗಳು, ಭಾನುವಾರ

SCORE:

9. **Semantic contiguity**

Instruct the subject to match and explan the relationship between the following groups of words given verbally or graphically. Score 1 each for every correct pairing.

i.	ಬಿಣ್ಣ	(a)	ಅನ್ನ
ii.	ಹತ್ತಿ	(b)	ಕಾಳು
iii.	ಅಕ್ಕಿ	(c)	ಮಡಿಕೆ
iv.	ಮಣ್ಣು	(d)	ಗಿಡ
v.	ಬೀಜ	(f)	ತುಪ್ಪ
			ಬಟ್ಟೆ

SCORE:

10. **Semantic Similarity**

Instruct the subject to match and explain the relationship between the following groups of words given verbally or graphically. Score 1 each for every correct pairing.

i.	ಆಡು	(a)	ಪಾಠ
ii.	ಓದು	(b)	ಹಾಡು
iii.	ಹಾಡು	(c)	ಓಟ
iv.	ನೋಡು	(d)	ಗಾಟ
v	ಮಣ್ಣು	(e)	ಆಟ

11. Polar Questions

Instruct the subject to answer the following questions with either 'Yes' or 'No'. The questions may be given orally or in writing. Fill in the subject's name in the blank in item (2). Accept corrections only if the subject is very certain. Score 1 for each correct response.

Sl No.	QUESTIONS	RESPONSE	ACCURACY
i.	ನಿನ್ನ ಹೆಸರು ರಾಮಕೃಷ್ಣ ಎಂದೋ?		
ii.	ನಿನ್ನ ಹೆಸರು ———————ಎಂದೋ?		
iii.	ಈ ಊರಿನ ಹೆಸರು ಮೈಸೂರು ಎಂದೋ?		
iv.	ಇದು ನೀವೂ ಮಂದಿರವೆ ?		
v.	ಈ ಕೋಣೆಯಲ್ಲಿ ಬಾಗಿಲು ಮುಚ್ಚಿದೆಯೇ?		
vi.	ಕಲ್ಲು ನೀರಿನಲ್ಲಿ ಮುಳುಗುತ್ತದೆಯೇ?		
vii.	ಸೂರ್ಯ ರಾತ್ರಿ ಕಾಣುತ್ತಾನೋ?		
viii.	ನೀನು ಬಾಳೆಹಣ್ಣು ಸುಲಿಯುವ ಮೊದಲು ತಿನ್ನುತ್ತೀಯಾ?		
ix.	ಸಿಂಹ ನಾಯಿಗಿಂತ ದೊಡ್ಡದಾ?		
x.	ಸುತ್ತಿಗೆಯಿಂದ ಮರ ಕತ್ತರಿಸುವುದಕ್ಕಾಗುತ್ತದಾ?		

SCORE :

SECTION IV: DISCOURSE

Instructions: Ask the subject to answer the following questions at length.

(1) ನಿನ್ನ ಹೆಸರೇನು ?

(2) ನಿನ್ನ ಮನೆ ಎಲ್ಲಿದೆ ?

(3) ನೀನು ಏನು ಕೆಲಸ ಮಾಡುತ್ತೀ?

(4) ಈ ಚಿತ್ರದಲ್ಲಿ ಏನೇನು ಕಾಣುತ್ತದೆ ಎಂದು ವಿವರಿಸಿ ಹೇಳು

(5) ಒಂದು ಸಣ್ಣ ಸೀರಿಯಸ್ ಅಥವಾ ನಿನಗೆ ಇಷ್ಟವಾದ ವಿಚಾರದ ಮೇಲೆ ಐದು ನಿಮಿಷಗಳವರೆಗೆ ಮಾತನಾಡು

DISCOURSE ANALYSIS

SUBJECT PROFORMA - TEST OF PSYCHOLINGUISTIC ABILITIES IN KANNADA

SECTION	SUB-SECTION	Possible Total Score	Subject's Score	Total Scores on sections
SECTION I	A Phonetic Discrimination	48		
	B Phonemic Expression	52		
SECTION	II			
	A Morphophonemic Structures	10		
	B Plural Forms	5		
	C Case Markers	5		
	D PNG Markers	10		
	E Tenses	10		
	F Transitives, Intransitives and Causatives	10		
	G Conjunctives, Comparatives and Quotatives	10		
	H Conditional Clauses	10		
	I Participial Constructions	10		
	J Sentence Types	10		
	K Predicates	10		
SECTION IIIA	Semantic Discrimination			
	1. Colours	5		
	2. Furniture	5		
	3. Body Parts	5		
	B Semantic Expression			
	1. Naming	20		
	2. Lexical Category	15		
	3. Homonymy	5		
	4. Synonymy	5		
	5. Antonymy	5		
	6. Semantic Anomaly	5		
	7. Paradigmatic Relations	5		
	8. Syntagmatic Relations	5		
	9. Semantic Contiguity	5		

QUALITATIVE ANALYSIS

/ York University Medical Center

EECH AND HEARING THERAPY SERVICE

Functional Communication Profile

APPENDIX 'C'.

/ _____

No. _____

EVAL (Blue)	RE-EVAL (Red)	RE-EVAL (Red)	RE-EVAL (Red)
Date _____	Date _____	Date _____	Date _____
M ___ ___% (.)	M ___ ___% (.)	M ___ ___% (.)	M ___ ___% (.)
S ___ ___% (.)	S ___ ___% (.)	S ___ ___% (.)	S ___ ___% (.)
U ___ ___% (.)	U ___ ___% (.)	U ___ ___% (.)	U ___ ___% (.)
R ___ ___% (.)	R ___ ___% (.)	R ___ ___% (.)	R ___ ___% (.)
O ___ ___% (.)	O ___ ___% (.)	O ___ ___% (.)	O ___ ___% (.)
Overall ___.___%	Overall ___.___%	Overall ___.___%	Overall ___.___%

	NORMAL	GOOD	FAIR	POOR	0	
MOVEMENT						Ability to imitate oral movement
						Attempt to communicate
						Ability to indicate "yes" and "no"
						Indicating floor to elevator operator
						Use of gestures
SPEAKING						Saying greetings
						Saying own name
						Saying nouns
						Saying verbs
						Saying noun-verb combinations
						Saying phrases (non-automatic)
						Giving directions
						Speaking on the telephone
						Saying short complete sentences (non-automatic)
						Saying long sentences (non-automatic)
UNDERSTANDING						Awareness of gross environmental sounds
						Awareness of emotional voice tone
						Understanding of own name
						Awareness of speech
						Recognition of family names
						Recognition of names of familiar objects
						Understanding action verbs
						Understanding gestured directions
						Understanding verbal directions
						Understanding simple conversation with one person
						Understanding television
						Understanding conversation with more than two people
						Understanding movies
						Understanding complicated verbal directions
						Understanding rapid complex conversation
READING						Reading single words
						Reading rehabilitation program card
						Reading street signs
						Reading newspaper headlines
						Reading letters
						Reading newspaper articles
						Reading magazines
						Reading books
OTHER						Writing name
						Time orientation
						Copying ability
						Writing from dictation
						Handling money
						Using writing in lieu of speech
						Calculation ability

ESTIMATED TOTAL SPEAKING VOCABULARY: 0 1-50 50-100 100-500 500-1000 over 1000

DEPARTMENT OF REHABILITATION MEDICINE. NEW YORK UNIVERSITY MEDICAL CENTER,
Speech Therapy Service, New York, New York

NYU 4/77 - PS-483

FUNCTIONAL COMMUNICATION PROFILE

This form was designed to rate an aphasic patient's functional communication skill. Whe used effectively, the Profile should tell you at a glance (I) the patient's status at th beginning of re-training, (2) functional progress made, and, (3) the course of progress. The scale makes no attempt to rate performance in response to clinically presented language tasks. Therefore, the examiner's estimated rating of function should be based on informal interaction with the patient, in accordance with the following guidelines.

The examiner should bear in mind that

"Functional" means without cues, assistance, or artificial conditions. The rating should reflect the patient's voluntary control, in the course of daily life, over a particular act of communication.

"Normal" should be considered equal to the patient's pre-morbid communication effectiveness, not only in terms of accuracy of performance, but rate of performance, latency of response, and mode of performance. "Normal", then, is not a pre-set quantity or quality of performance, but will vary in accordance with the patient's pre-morbid educational, social, and intellectual level.

"Good". "Fair", and "Poor", then, can only be defined with reference to the specific subject's "Normal" performance, thus putting a severe burden upon the clinician to develop his own stable reference framework.

INSTRUCTIONS FOR USE

A. Initial Evaluation (use Blue pencil)

1. Fully color the area from zero (0) to whatever point on the rating continue you consider the patient's functional level in each activity.

2. Count the number of filled in blocks - except for those in the 0 column - within each of the 5 dimensions (i.e., Speaking, Reading, etc.) and post each sum score in the left hand column at the top of the page.

3. Refer to Instructions for Scoring on the Conversion Table to calculate percentages, and record corresponding percentage scores in the space provided.

B. Re-Evaluation (use Red pencil)

This rating should occur at regular intervals after the initial evaluation. One month intervals are usually considered minimum re-evaluation periods.

1. Fill in additional blocks along the continuum, in those activities in which the patient has made noticeable functional gain, to the point to which you estimate the patient has progressed.

2. In ink, write the date of the re-evaluation on the highest filled in block in each activity.

3. Again, count the number of filled in blocks (both blue and red) in each dimension, and post each total in the re-evaluation column at the top of the page. Refer to the Conversion Table and record the corresponding percentage scores in the space provided.

Repeat these steps at each re-evaluation.

Please Note: In those rare cases where a patient regresses during therapy, it is advisable to complete a new FCP.

CAUTIONS REGARDING USE

A. Children: In using the rating scale with children who have limited or no development of communication function, "Normal" should be equated with "Average" for the child's particular age level in the general population. Where a child has a communication disorder superimposed upon previously normal language development, "Normal" should then be interpreted as being equal to the child's estimated pre-morbid language level.

Please Note: The Percentage Conversion Table does not apply to children's scores.

B. Clinical Experience: The FCP form has been devised for use by experienced clinicians, having access to hundreds of aphasic patients in any given year. The form may have little validity when used by inexperienced personnel having only intermittent contact with aphasics or access to