NAMING DEFICITS IN APHASICS

REG. No.M9517
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A dissertation submitted as part fulfilment of Final Year
M.Sc,(Speech and Hearing), Mysore.

All India Institute of Speech and Hearing, Mysore
May 1997

DEDICATED TO

Dad, Mama and Raqs;

It has been encouraging to have

you all as my pillars of strength

CERTIFICATE

This is to certify that this dissertation entitled

NAMING DEFICITS IN APHASICS is the bonafide work in part

fulfilment for the degree of Master of Science Speech and

Hearing) of the student with Register Number M9517.

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CERETIFICATE

This is to certify that this dissertation entitled

NAMING DEFICITS IN APHASICS has been prepared under my

supervision and guidance.

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DECLARATION

I hereby declare that this dissertation entitled NAMING DEFICITS IN APHASICS is the result of my own study under the guidance of Dr.Shyamala Chengappa, Reader and HOD, Department of Speech Pathology, All India Institute of Speech and Hearing Mysore and has not been submitted earlier at any University for any other Diploma or Degree.

Mysore
May 1997

Register Number M9517

ACKNOWLEDGEMENT

First and foremost i would like to express my deep sense of gratitude to my guide and teacher, Dr.Shyamala Chengappa, for her constant support, guidance, inspiration and concern that made this study possible. Thanks for being with me ma'am, for patiently listening to my doubts, constantly encouraging me and giving valuable suggestions.

I thank Dr.(Miss) S. Nikam, Director, All India Institute of Speech and Hearing, Mysore tor having given me the permission and opportunity to undertake this dissertation.

I would like to thank Dr. Karanth, P., for having channelised my interests into the field of Aphasia and making this work a success.

I would like to thank Dr. Prakash, tor his suggestions and guidance.

Dad, Mamma - for all the years I can recall, you have been there for me and you guided me with patience and wisdom. Thank you for moulding me into what I aw today.

Rags - A naughty brother like you brings joy to ones life. Thank you for being there for me.

A note of thanks to Suchitra - ma'am, Vijayashree ma'am and Sujatha ma'am for the help they have rendered.

My sincere thanks to all the subjects - without their cooperation my study would have been impossible.

Arpita - Thanks a million for your support throughout my dissertation. It has been fun working with you.

Susu, Raji, Raks, Jai, Prabha and Anu - Thank you for being such wonderful and lovely friends and staying by my side and sharing my troubles and happiness.

A special thanks to Binu and Kanch for filling my days with laughter and making AIISH a still better place.

Thanks to my classmates for all their help and encouragement.

Thanks to the I B.Sc, - especially Sonu, Beril, Vandi, Piyali and Sandhya - for having helped me with my dissertation.

Thanks to the library staff for having provided the required source of information.

Last but not the least, I would like to extend my thanks to
Akka for her constant source of, encouragement and efficient typing.

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INTRODUCTION

Language is the symbolic representation of thought and action. It provides us with whatever limited '... light upon the depths of unknown (George Eliot, 1974) that we have concerning mans inner state. Aphasia is a disorder which cuts across all modalities of language (Schuell, Jenkins and Jimenez-Pabon, 1964; Wepman et al. 1960).

Aphasia, as a disorder does not affect all persons in the same way in that, - in one individual comprehension may be spared, in another expression may be spared. There is general agreement however, that word finding deficits are predominant in aphasics.

Finding words for expression is a problem at times for everyone. This temporary word finding difficulty is commonly referred to as having - the sought - for word "on the tip-of-my tongue". As William James described the target word - "it tingles, it trembles on the verge, but does not come". In normal aging there occurs a gradual and slight, but perceptible and irksome increase in difficulty in finding words, specially the proper names. Although this problem of producing words appears to be almost universal the problem also occurs in normal individuals and in many types of cerebral dysfunction.

Almost all cortical and many subcortical dysfunctions, interfere, to some extent with the process of word finding. Over the years, word finding difficulty has received many names, one of which is anomia. The various terminologies used to refer to word finding difficulties are :

Anomia : In general usage anomia is simply, the state in which a person has a problem with word finding who at some prior period had the ability to produce the desired word. More elegantly, anomia has been defined as selective loss of lexical repertoire, primarily nouns and verbs, but adjectives and adverbs as well may be affected (Goodglass and Geschwind, 1976).

Word finding defect : The term is used to indicate a problem producing a specific word at the time desired. It is similar, if not identical, to anomia and the two terms are used with little differentiation.

Anomic Aphasia :Anomic aphasia is defined merely as that variety in which word finding problems are the major disturbance (Benson and Geschwind, 1971).

Semantic Anomia : Luria (1966) has described an aphasia characterized by loss of meaning for individual words; that is, the word no longer acts as a symbol for the actual object. Both the meaning of the spoken word and the ability to use the word in speech are disturbed.

Nominal Aphasia : The term introduced by Head refers to a disturbance in which naming and comprehension disabilities are secondary to a disturbance in the use of symbols.

Word finding is different in emotional expression, intentional speech, in speaking of motor series, of phrases in familial connection of words, in looking for words belonging to concrete objects or abstractions, in repetitions etc. (Goldstein, 1971).

In literature, five techniques are discussed to assess word finding difficulties in adult aphasics and children. They are :

1. Observation of conversational speech (Goodglass and Kaplan, 1972 b, 1983 b), wherein observation of conversational speech would allow a clinical decision about whether the word finding difficulty was a significant aspect of the aphasia speech pattern.

2. Observation of seriatum speech: which is a measure of the ability to rapidly name automatic sequential series of words such as counting, list of alphabets, days of week and months of year (Eisenson, 1954; Terman and Merrill, 1972).

3. Auditory condition : Developed by Barton, Maruszeuski and Urrea (1969), it requires two tasks.

a) Naming the word needed to complete an open sentence (Responsive naming).
b) Naming the word that is implied by a description.

4. Confrontation naming and rapid automatized naming confrontation naming involves naming of common pictures or objects as soon as possible after the stimulus item is exposed.

A modification of this confrontation naming task is rapid automatic naming which involves a repeated presentation and naming of a very limited number of stimuli (Denckla and Rudel, 1976, 1976a, 1976b).

5) Free and controlled associations - This task requires the spontaneous generation of words within specific time period (Generative naming/category specific naming).

Each of these tasks, elicits responses from an aphasic. The type of errors an aphasic makes gives us an idea of the level of disruption in the naming process. The incorrect responses could be errors such as phonemic errors, related words, unrelated words, extended circumlocutions and neologisms. Examination of the pattern of preserved and impaired language functions in aphasic, as well as analysis of error responses, have helped to determine the various functional sources of damage to the word retrieval system (Kohn and Goodglass, 1985; Kay and Ellis, 1987).

Word finding is a complex cognitive operation (Ellis, 1987) and it may be expected that damage to any of the component processes that are required for word retrieval may lead to naming difficulty. It is frequently observed in children as well as adults.

NEED FOR THE STUDY

The present study was an attempt to evaluate the following assumptions, some of which are well supported by literature.

1. Almost every aphasic regardless of clinical type or the anatomical localization of lesion, has some difficulty producing names (Goodglass and Blumstein, 1973). As of date, there has been no Indian study on the naming deficits in aphasics and hence the need for the present study.

2. There are reports in literature wherein deficits in naming and type of errors exhibited vary with the type of aphasia (Geschwind, 1967; Goodglass and Blumstein, 1973). This study attempts to identify these deficits and type and nature of errors across aphasics, with respect to an Indian language Kannada - a Dravidian language largely spoken in and around Karnataka in South India.

3. There are number of case reports of patients who cannot name items in certain categories but per form well in other categories (Geschwind and Fusillo, 1966; Oxbury, Oxbury, and Humphrey, 1969). There is a need to study this category specific anomia across aphasics in Indian languages (Kannada).

4. Specifications of various behaviors exhibited by aphasics as they attempt to retrieve a particular word might yield some insight to the organization of language process within the central nervous system.

5. Certain retrieval behaviors may prove to be more useful, not only for particular aphasic patients, but for the aphasic population as a whole and thereby may provide clinicians with information to design more effective therapeutic strategies. Naming accuracy for example, can be facilitated by phonemic and semantic cues (Stimley and Noll, 1981). There are reports of aphasic patients increase in word retrieval abilities following treatment (Helmick and Wipplinges, 1975; Seron et al. 1979; Wiegel-Crump and Koenigsknectit, 1973; Nation, Borsof, 1987). This study was an attempt to identify the facilitatory affect of semantic and phonemic cues on word retrieval abilities of aphasics.

Keeping the above points in view the following null hypothesis have been put-forth.

a) There is no significant difference in the performance between aphasics and normal control group for the 3 different naming tasks- (NAMELY CONFRONTATION, GENERATIVE AND RESPONSIVE NAMING)
b) There is no significant difference in aphasics performance on 3 different naming tasks- (NAMELY CONFRONTATION, GENERATIVE AND RESPONSIVE NAMING)

Attempts have been made to study the naming deficits across different naming tasks and types of aphasics comparison with normals in the present research work.

REVIEW OF LITERATURE

The ability to find names for things seen or described is central to everyday communication. Disturbances of naming and word finding are common after insult to immature, adult and aging brain (Dennis, 1980; Goodglass, 1980; Luria, 1970; and Obler and Albert, 1981; Rochford, 1971), and phenomenologies of aphasia have been proposed (eg. Geschwind, 1967; Benson, 1983).

Anomic behaviour can be described in any number of pathological states including dementia, delirium, and various psychiatric conditions (Geschwind, 1967). Naming difficulties, however are most intimately related to those conditions of central nervous system damage resulting in aphasia. Almost every aphasic, regardless of clinical type or the anatomical localization of his lesion, has some difficulty producing names for common objects (Goodglass and Blumstein, 1973). Instead, in some patients only naming seems significantly impaired, the word anomia, in fact, figuring in the diagnostic label anomic aphasia.

Studies of anomia in its more general term have focussed on many different variables. Word finding has been analyzed in relation to the word frequency (Wepmen, Bock, James and Van Pelt, 1964; Hower, 1967), as a function of the age of

acquisition of word (Rochford and Williams, 1968); and as a function of the internal structures of various semantic domains (Goodglass and Baker, 1976; Zurif, Caramazza, Myerson and Galvin, 1974). Even nonlinguistic factors have been examined in attempts to explain anomia factors such as picturability of an object to be named (Goodglass, Hyde and Blumstein, 1969) and the sensory-motor schema involved in the knowledge of a words referent (Gardner, 1973).

NAMING IN DISORDERED POPULATION

Deficits in word finding have been reported in various language disordered population such as -

- Aphasia
- Aging
- Right brain damage
- Stuttering
- Acute lymphoblastic leukaemia (ALL)
- Childhood aphasia
- Dyslexia

Aphasia

Examination of the pattern of preserved and impaired language function in aphasic patient as well as analysis of error responses have helped to determine the various functional sources of damage to the word retrieval system (Kohn and Goodglass, 1985; Kay and Ellis, 1987).

According to Dorze et al. (1989) anomia originates from a difficulty in assessing the formal lexical representation and not from a semantic problem.

However, some opine that anomic aphasics are particularly impaired in the structure of their semantic fields and this breakdown leads to inability to retrieve words (Lhermitte et al. 1971; Goodglass and Baker, 1976). Studies have been reported showing differences in naming between anterior and posterior aphasia (Goodglass and Baker, 1976).

Williams and Canter (1982) examined the naming performance of Brocas, Wernickes, conduction and anomic aphasic in confrontation naming and naming in a picture description task. Result showed Broca's aphasic performed better in confrontation naming than in picture description and opposite is true for Wernicke's aphasic. No consistent pattern was found for conduction aphasic and anomic aphasic. However, Basso et al. (1990) did not find such a pattern.

Aging

Problems of language with advancing age are associated in both the care of the general public and the clinical literature (Kral, 1962).

Word finding ability is to a large degree retained in later life (Borod et al. 1980; LaBarge et al. 1986). But according to Nicholas et al. (1985) lexical retrieval for common nouns and verbs declined with age, especially after seventy in healthy subjects.

Impairment in the ability to name is a robust characteristic of patients with dementia of Alzheimer (AD) type. However, the cause of this impairment is unclear and explanations range from lexical access problems to disrupted semantic organizations.

AD patients seem to appreciate some semantic features better than other. Superordinate relationships remain relatively intact (Chertkow, et al. 1989; Huff, et al. 1986). However, Knowledge of more specific attribute becomes impaired.

Chertkow et al. (1989) found that AD patients were impaired in their appreciation of perceptual and punctual attributes of specific nouns. Huff et al. (1988) reported AD patients significantly worse than normal controls at relating an object to its function. Grober et al. (1985) on the other hand argued that AD patients retain knowledge of an objects attributes but the saliency of these attributes is

altered such that essential features are considered to be less important. However, Nebes and Brady (1988) reported intact appreciation of semantic features in AD patients.

Sommers et al. (1990) reported following factors which may influence naming in AD.

1. Increased latencies in recognizing these semantic features.

2. Changes in the weighting or saliency of features within the conceptual structure, and

3. Problems in identifying these semantic features that differentiate between names at the same semantic structure level.

Right Brain Damage

Joanette et al. (1988) analyzed errors as the time course of production of vascular right brain damaged subjects (RBD) in a semantic based word naming task. They suggest, there are no differences between groups in terms of (a) the number of errors (b) pattern of error types. However, reduction of verbal fluency for semantic criteria was present. This was not the consequence of non-specific

factors such as preserveration or aspontaneity but reflects problems with the less automatized processes, permitting explorations of semantic organization either because scanning processes are affected or because the presence of discrete semantic impairment prevents scanning from being efficient. Thus right hemisphere contributes to some aspects of lexico-semantic processing necessary for language production.

Closed Head Injury

On word fluency tasks, brain damaged subjects do not test as many examples as do nonbrain damaged subjects (Odamovich and Henderson, 1984; Wertz, Dronkers and Shubitowski, 1986).

Subjects with closed head injury retrieve significantly fewer examples than did nonbrain damaged subjects, but perception of what category members constitute good examples is relatively intact (Lohman, Ziggas and Pierce, 1989).

Stuttering

Berry and Eisenson (1956) have suggested that stuttering as a perseverative manifestation may often represent a mild word finding difficulty, arising from irregularities in

cortical development, competition between cortical and subcortical centers concerned with language functions or damaged cortical tissue.

Rutherford and Telser (1967) described a word latency test for use in detecting minimal word finding problems in stutterers and in children with certain auditory and visual perceptual disorders.

Boysen and Cullinan (1971) found negative correlation between the time taken to name object and frequency of occurrence of the names in the language. No evidence was found to indicate that stuttering children have longer object naming latencies than nonstuttering children.

Acute Lymphoblastic Leukaemia (ALL)

Jackel et al. (1990) evaluated language abilities of a group of nine children (11.5 to 17.9 years) treated for ALL. As a group the leukaemia subjects performed significantly more than the controls, on tests such as Bosto Naming Test.

Childhood Aphasia

Diminished verbal stock or an impoverished lexicon is commonly reported symptom of acquired childhood aphasia

(Bernhardt, 1885; Alajouanine and Lhermitte, 1965). Hecarn (1983) reported that 44% of his sample of acquired childhood aphasia had naming problems which tended to persist.

Lees and Neville (1990) studied five children aged 6 to 15 years, with acute aphasia, from onset for a period of two years. All presented severe problems in confrontation naming at onset, however the error patterns were different in all children.

Dyslexia

Experienced reading specialists have made note of the expressive language of many dyslexic children.

Jansky and DeHirsch (1973) have proven that a test for naming is first among five more significant predictors of reading progress.

German (1985) compared word finding skills of dysnomic children (learning disability with word finding problems) with those of learning disability and normal children without word finding problem. Learning disabled children with word finding problems manifested significantly more errors, longer. Completion time and more secondary characteristics

on letter and colour naming tasks while performing similar to children without word finding problems on number naming.

Childhood dyslexics were reported to be slow, in accurate and in consistent on colour naming on rapid repetition naming (Denckla, 1972; Eakin and Douglas, 1972).

Wigg, Semel and Nystrom (1982) reported that language and learning disabled children take longer to name pictures and produce more errors than their academically achieving peers.

Dyslexic group best discriminated from the nondyslexic otherwise learning disability group by high percentage of dysphasic errors and prolonged times on repeated naming (Newcombe, Oldfield, Ratcliff and Wingfield, 1971).

Adolescents and adults with developmental dyslexia also made more naming errors than controls with longer naming latencies on rapid automatic naming (RAW) (Wolff, Michel and Ovrut, 1990).

WORD FINDING DISTURBANCES IN APHASICS

A classification of the anomias, has been given by Aphasia Research Centre (Boston Vesterans Administration

Hospital) along with outlines provided by Geschwind (1967) and Luria (1962). They are :

1. Word Production Anomia (a) Motor (b) Paraphasic.
2. Word Selection/Word Dictionary Anomia.
3. Semantic/Nominal anomia
4. Category-Specific anomia
5. Modality specific anomia
6. Anomia of disconnection
7. Word finding disturbances of dementia
8. Nonaphasic misnaming
9. Psychogenic aphasia

Each variety of word finding disturbances mentioned above, has been seen in pure state clinically, much more often, however, mixture of several varieties occur in single patient.

The first five varieties of word finding disturbances are associated with aphasia. They are discussed below:

1. Word Production Anomia

It refers to the inability to express the desired contributes. It is one of the more frequent source of what appears to be anomia. When an object is presented, the

patient fails to produce the name, but if prompting (cueing) is offered, many of the aphasic patients utilize the cue and produce the appropriate name. This is commonly seen in non-fluent aphasics. A somewhat analogous situation known as the "tip-of-the-tongue phenomenon" (Brown and McNeill, 1966), occurs in normal conversation. Another type of word production anomia in which the verbal output is contaminated by phonemic paraphasias and neologism. In a study of the 'tip-of-the-tongue' phenomenon, Goodglass, Kaplan, Weintraub and Ackerman (1976) demonstrated that aphasic individuals suffering from this paraphasic type of word production anomia frequently recognized the clues.

2. Word Selection/Word Dictionary Anomia

A pure anomic aphasia, one with no other disturbances of output and no problems in comprehension repetition, reading or writing, can be called word-selection anomia. Here they are unable to name objects on confrontation but readily explains or demonstrates their use, provided he recognizes the object but cannot produce the verbal symbol (name). Prompting with phonetic or contextual cues usually fails.

3. Semantic/nominal Anomia

The word finding defect in this category resembles, an apparent inability to retrieve the appropriate word from the lexicon. They also have difficulty in understanding the name when spoken or written (Goldstein, Head and Luria). This type of anomia is seen in transcortical sensory aphasia, nominal aphasia and semantic aphasia. Though the patient can indicate the use of an object here, the 'name' of the object fails to convey meaning.

4. Category Specific Anomia

Here the patient cannot name items in certain category but perform well in other categories. The most commonly reported category specific anomia is called colour anomia (Geschwind and Fusillo, 1966; Oxbury, Oxbury and Humphrey, 1969).

There are reports of impaired naming in selective semantic categories of concrete nouns such as animals or fruits and vegetables (Basso, Capitani and Laiacona, 1988; Geschwind and Fusillo, 1966; Woodglass and Budin, 1988; Wart, Berndt and Caramazza, 1985; McCarthy and Warrington and McCarthy (1983, 1987). This indicates that processing structure of the semantic system is organized along lines of categories such as "animals" and "vegetables".

5. Modality - Specific Anomia or Stimulus Specific - anomia

In this condition, the patient has difficulty naming objects presented by one sensory modality. (eg. visual) but not others. Most often the patient has a full speaking vocabulary and experiences difficulty in producing names only in response to a specific stimulus system.

Assessment of Naming Skills

The speech and language pathologist is often faced with a need to identify individuals with potentially significant word finding difficulties.

Examination of the pattern of preserved and impaired language function in aphasic patients, as well as analysis of error responses, have helped to determine the various functional sources of damage to the word retrieval system (Kohn and Goodglass, 1985; Kay and Ellis, 1987).

Various tests are available to assess naming skills. The stimuli chosen for such naming tests are often based on word frequency counts. The test items range from words that are used commonly to words that are used rarely in spoken or written language.

Five techniques are discussed in literature, which purport to describe or assess word finding difficulty in adult aphasics and children. They are -

1. Observation of conversational speech
2. Observation of seriatum speech
3. Auditory condition
4. Confrontation naming and rapid automatized naming
5. Free and controlled association.

1. Observation of conversational speech

Goodglass and Kaplan (1972 b, 1983 b) developed a seven point word finding scale (Rating Scale Profile) as a part of Boston's Diagnostic Aphasia Examination (BDAE). The authors state that observations of conversational speech would allow a clinical decision about whether the word finding difficulties was a significant aspect of the aphasics speech pattern. Wiig and Semel (1984) attempted to formulate such observations by specifying rules for analysis of a spontaneous language sample which lead to qualitative and quantitative assessment.

2. Observation of Seriatum Speech

The ability to rapidly name automatic sequential series of words such as counting, lists of alphabets, days of week and months of the year have been utilized by Eisenson (1954) and Terman and Merrill (1972). However the authors are unaware of research uses of this technique beyond clinical assessment.

3. Auditory condition

Barton, Maruszeuski and Urrea (1969) developed this assessment technique. It requires two tasks -

a) Naming the word needed to complete an open sentence.

b) Naming the word that is implied by a description.

This technique has also been used by German (1979); Rudel, Denkla, Broman and Hirsh (1980).

4. Confrontation naming and rapid Automatized naming

This task involves naming of common pictures or objects as soon as possible after the stimulus item is exposed. using a variety of stimuli, this technique has been used with both adults and children in a variety of research studies (Goodglass and Kaplan, 1973b; 19834 b; Kertesz, 1980; Porsch,

1967; Porch, 1974; Rutherford and Telsen, 1967; Schwell, 1967; Semel and Wiig, 1980; Spreen and Benson, 1969). The other confrontation tasks are visual confrontation naming of common objects (Kertesz, 1980; Newcombe, Oldfield and Wingfield, 1965); object drawing (New Combe, Oldfield, Ratcliffe and Wingfield, 1971); Symbols (Gardner, 1974); or symbolic material like colours (Denckla and Rudel, 1974).

A modification of these tasks, rapid automatic naming which involves a repeated presentations and naming of a very limited number of stimuli was initially reported by Denckla and Rudel (1974, 1976 a, 1976 b) and subsequently used by Wiig, Semel and Nystrom (1982).

5. Free and Controlled Associations

This task requires the spontaneous generation of words within specific time period. Assessment instruments that have incorporated this procedure are the Detriot tests of learning aptitude (Baker and Leland, 1935, 1958, 1967), Neurosensory centre comprehensive examination of aphasia (Spreen and Benton, 1969); BDAE (Goodglass and Kaplan, 1972a, 1983 b) McCarthy scales of childrens abilities (McCarthy, 1972); Stanford-Binet intelligence Scale (Terman and Merrill, 1972); WAB (Kertesz, 1980) and clinical evaluation of language function (Semel and Wiig, 1980).

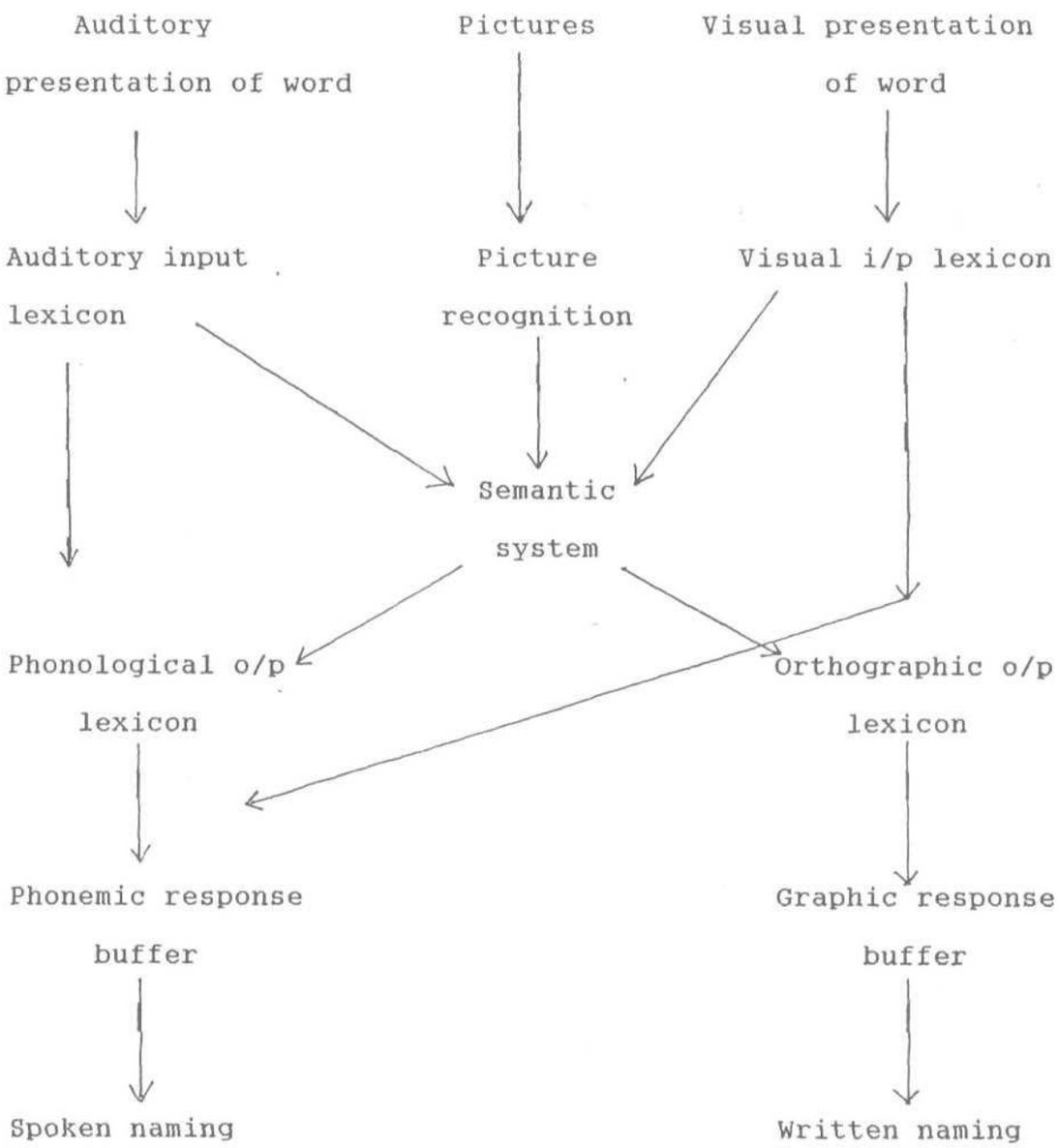
Issues such as "Is Anomia the same process in all states of brain damage in which it appears"? If not, how does it differ? Does the anomic behavior of a Brocas aphasic, for example differ from that of an anomic aphasic?

Naming behavior can be disrupted by malformation in any one of a series of stages along the information processing chain which generates the label for a visually perceived object. In the case of anomias it needs to be determined whether, the problem has to do with a disruption to mechanisms concerned with retrieving the lexical formation.

Confrontation naming is a complex process involving several stages. In the first (perceptual) stage, following the presentation of a picture, the pictorial image is analyzed for correct identification of the stimulus. The information is transmitted to the second semantic stage, where its semantic representation is activated, then to the third (label retrieval) stage, where the phonological representation corresponding to the semantic representation is retrieved. This is followed by the motor programming stage, when the articulatory sequence is activated, leading to correct naming.

Marshall, Pound, Whitethomson and Prings, 1990 proposed a model of picture naming together with some components of

comprehension and production of single words in other modalities, as shown below -



Loffur, 1975). This activation of neighbouring categories is not due simply to frequency of association, but occurs as a function of semantic similarity (Fischler, 1977). This spread of activation to related representations and subsequently to their associated labels can account for some of the misnamings documented in terms of a retrieval failure. Though the correct conceptual representation has been activated, the corresponding word form is not always readily available. Some related category, which has also been activated, may be linked to a word that is easily retrived. This alternative label, which is often a synonym of the correct word is then produced.

Forster (1979), reports that an inability to retrieve the original word, results in the activation of related representations, allowing a speaker to express something close to his intended message under conditions of failed word retrieval. This activation and subsequent word retrieval could account for various types of speech errors produced by normal speakers or by aphasic patients. These types, include substitution of blends and certain semantic paraphasias (Garrett, 1982).

Type of errors made by aphasics gives us an idea of the level of disruption in the naming process. For eg. lexical

retrieval deficit with at least partial lexico semantic structure. This can be studied under 7 headings, namely :

1. Aphasic word associations
2. Associations in the semantic field
3. Boundaries of the semantic field
4. Centrality and semantic field
5. Semantic features and the semantic field
6. Parallel deficits in production and comprehension
7. Tip of tongue phenomenon in aphasic
8. Semantic priming and semantic field

1. Aphasic Word Associations

Howes and Geschwind (1969) took a different approach to understanding aphasic naming by studying the specific word associations of anterior and posterior aphasic patients.

Their findings were :

a) Anterior and posterior patients produce different associations and posterior patients have a more severe and perhaps a different problem with the lexicon than do anterior aphasia.

Wyke (1962) also reported on the word associations of four aphasics and three non-aphasic adults. A variety of tests resembling therapeutic activities were used. For example, subjects were asked to supply synonyms, antonums, rhymes, opposite analogies (brother is a boy/sister is a .....), usage association (mom and ....), and sentence completions. All patients also completed a traditional word association task and tests of object and picture naming. The aphasic people did worse than non-aphasics on all tests and significantly on word associations, usage association, object naming and picture naming. The results indicate that aphasics performance was influenced by certain stimulus conditions because the aphasic patients performed more poorly but similarly to the non-aphasic on some tasks. This variability across task can be explained by the notion of impaired access.

2. Associations in the Semantic Field

Goodglass and Bakes (1976) investigated the integrity of semantic field in 16 non-disabled adults, 14 brain damaged adults without aphasia, and 32 aphasic adults divided into low and high comprehension groups. All subjects had to name target prior to the semantic field testing. For semantic field testing, each of the nouns was placed in turn before

the subject, who then heard a prerecorded list of words (the target, semantically related to target, and unrelated words). The related words were (a) superordinate, or the category or class to which the target belonged. (b) attribute, an adjective describing the target. (c) contrast coordinate : another number of same category. (d) function associate, verb specifying the action of the target. (e) function context, i.e. environment in which target occurs. (f) Clang, a 'sound alike word'.

Latencies and number of errors were recorded. Low comprehension aphasic person showed disturbed semantic field despite being able to identify the target itself when named. Goodglass and Bakes concluded that low comprehension patients "know what an object is, but not about it". These appears to be a constriction of the semantic field, around a concept and it is not a random constriction. According to Goodglass and Bakes, the associations within aphasic patients semantic field, seem to be organized in non-random ways. The fields inner circle contain the label, the superordinate, the most common attribute (adjective), and "terms related by situational contiguity". Verbs and other members of the same superordinate are towards the outer ring support for this, is got from the greater than normal difficulty severe aphasics had with verbs denoting the action. In addition, even

nondisabled speakers and the high comprehension aphasic speakers Mere less responsive to verbs.

3. Boundaries of the Semantic Field

Whitehouse, Caramazza and Zurif (1978) studied the semantic field integrity of five Broca's aphasic and five anomic aphasia patients. They used drawings of glass and cup that were systematically different in height and width. The aphasics were to report whether each was a glass, bowl or cup. The choice of Broca's aphasic was reasonably normal. The anomic aphasics made distinctly abnormal choices. The Brocas aphasic were helped by environmental cues, such as when a cup was pictured with coffee. The anomic aphasic were not helped by environmental cues. They concluded that anomic aphasic were insensitive to category boundaries. Broca's aphasics internal lexicon is more richly elaborated and better structured in terms of practical or functional information than is the internal lexicon of the patients suffering posterior damage.

4. Centrality and Semantic Field

Grossman (1981) has contributed to one understanding of semantic field integrity in aphasia. He used nine nonfluent,

seven fluent, eight right hemisphere damage nonaphasic and five non-disabled control subjects. He wanted "to determine the names of things to which a patient thought a word could refer". Subjects were given 60 seconds to respond with examples of each of ten superordinate terms. He scored the number of responses, their centrality" and the frequency of occurrence of words supplied. All aphasics produced significantly fewer words than the other two groups. The fluent aphasics produced a high proportion of "out of set" responses. On the other hand nonfluent aphasics stayed close to the center of each superordinator field. The fluent speakers seemed unsure "about the borders around a superordinate referential field, but they apparently do possess at least a rough idea about the nature of a superordinates referents. The nonfluent aphasics, on the other hand, show dependence on highly representative instances of a superordinate.

5. Semantic Features and the Semantic Field

Zurif, Caramazza, Myerson and Galvin (1974), working from a semantic feature view of the lexicon compared the way anterior and posterior aphasic patients grouped words such as "trout", "turtle", "women", "cook" and "mother". The anterior aphasics were similar but not identical to the nonaphasic subjects in their grouping of words.

6. Parallel deficits in production and Comprehension

Another way to think about the semantic field is to see it as a "lexical semantic component of the language system" (Berndt, Caramazza and Zurif, 1983). Gainotti (1976) studied the single word expressive and receptive abilities of 113 aphasic patients. The data seem to prove that the signs of semantic impairment observed in verbal production and in language comprehension are strongly reciprocally related, independent of severity. Gainotti, says that the results demonstrate that not all the aspects of the aphasic disturbances can be considered as due to impairment of one or more components of system of performance capabilities. They demonstrate a competence rather than a performance deficit in at least some aphasic peoples attempts at naming.

7. Tip of tongue' Phenomenon in Aphasics

Goodglass, Kaplan, Weintrub, Ackerman (1976) in a study asked aphasics to recognize the initial letter on the alphabet card and then to indicate the number of syllables on the syllable card. Following this, a word association was elicited. Finally they were made to choose the correct word by multiple choice. The results indicated that conduction aphasics were superior to Wernicke's and Anomic aphasics in

their ability to identify both first letter and syllable length of the words they could not name. All the aphasics except those with anomic aphasia found longer words were hardest to name, despite high frequency than the shorter one. All groups were equally good at identifying the word when given a choice. The study has considerable clinical relevance. The author said that word finding is usually an "all or none process" for Wernickes and Anomic aphasics, in the sense that they either recover a name well enough to produce it or they can give little evidence of partial knowledge. These patients then may be slower to respond to cueing hierarchies than Broca's aphasic. Other aphasics, may need different hierarchies, may need more extensive intensive treatment, and may profit very little from having these behaviours while trying to name, identified as strategies (Marshal, 1975) and subsequently reinforced.

8. Semantic Priming and the Semantic Field

Blumstein, Milberg and Shrier (1982) were not convinced of the presence of a disturbed lexicon even in severe aphasia. Their experiment was that of auditory priming of the semantic field. Patients were required to indicate by depressing a switch whether the second of two words presented one half. Second apart was a real word or a nonword. They found that aphasics showed priming effect, that is, they made

fewer errors when real words were preceded by semantically related words.

Aphasia - Its Affect on Naming

Goodglass and Bakes (1976) studied the latency in response in aphasics compared to normals. The results indicated that in aphasics the latency in response was greater than that in normal population. The Broca's aphasic showed a relatively normal naming profile, while posterior aphasics were unable to integrate perceptual and functional information (Whitehouse, Caramazza, 1978).

Williams and Canter (1982) compared the performance of Brocas, Wernickes, conduction and anomic aphasics performance on confrontation naming and in picture description task. Results indicated that the Drocas aphasics performed better on confrontation naming than when naming on the picture description task. In contrast, Wernickes aphasic performed better on picture description task, than on confrontation naming. Conduction and anomic aphasics, though influenced by nature of naming task being performed, neither of these groups showed a consistent pattern of performance difference on the two tasks.

Williams and Canter (1987) studied action naming in aphasic, and found a good correlation between confrontation naming and picture description task in Wernicke's aphasia, Brocas aphasia, conduction aphasia and least in anomic aphasia. For both object and action naming performance is same, but poorer performance for action picture naming. Clark and Clark (1977) explain that while nouns often represent a class of objects, verbs are representational of a class of objects undergoing change. Therefore nouns may be conceptually simpler than verbs, hence affecting their recall and or production.

Brounell, Bihrle, Michelow (1986) studied the basic (eg. chair) and subordinate level naming (eg.beach chair) of agrammatic and fluent aphasic patients. Both the groups used basic level naming for typical objects and subordinate level naming for atypical objects. However, subordinate level naming was used more by fluent aphasics without the basic level naming.

Factors Affecting Naming

Four major variables appear to influence the naming performance of aphasic patients. They are :

1. Characteristics of the referent to be named.
2. Characteristics of the referents name.

3. Type of stimulus presentation
4. The situation in which naming occurs.

An integrated understanding of the manner in which these factors may affect naming performance is essential for speech language clinicians involved in the rehabilitation of aphasic patients.

1. Characteristics of the referent to be named

a) Operativity : Utilizing concepts from Piaget's cognitive theory, Gardner (1973, 1974) suggested that an important contribution to naming performance is the operativity of the element to be named. An operative element (eg. dog) is defined as one that is clearly separate from its surrounding and can be manipulated and "operated on" in a variety of ways and through a variety of sensory modalities. In contrast, figurative elements (eg. Clouds) are in some way "continuous" with their surroundings difficult to manipulate physically and are conceptualized primarily through visual modality.

Gardner (1974) found that numbers were significantly easier to name than animals that is, it was easier for the child to name numbers (1, 2, 3, ...) than name animals (cat, dog, lion, etc.

b) Semantic category : Naming may also be a function of semantic category of the objects or symbol to be named. Goodglass et al. (1966) examined the hierarchy of aphasic patients naming difficulties across a variety of categories including objects and letters. The most striking result was that although naming was disturbed to-some extent across all categories, objects were the most difficult categories to name while the letters were most often the easiest, intermediate in difficulty were numbers and colors.

When the data were further analyzed according to the diagnostic groups of aphasia, it became apparent that the scores of the Wernicke's and anomic aphasics had accounted for this category discrepancy. On the contrary, the patients with Broca's aphasia showed no significant differences in their naming performance across the various semantic categories.

Goodglass et al. found that the hierarchy of relative difficulty of naming within various semantic categories was markedly different from the hierarchy for comprehending these same items. For example, objects were the most difficult items to name, but were among the easiest categories to comprehend. This, finding is important, as it suggests

different guidelines for controlling the difficulty level of naming versus comprehension tasks.

Williams and Canter (1987) studied the action naming performance of aphasic patients. They found a good correlation between confrontation naming and picture description task, in the order of Wernicke's aphasics, Broca's aphasics, conduction aphasics and least anomic aphasic. They found a good correlation for object and action naming performance, but poorer performance for action picture naming.

c) Stimulus Uncertainty - Uncertainty is defined as the consistency with which particular name was used by normal subjects to label a stimulus (Mills et al. 1979). For eg. a stimulus would represent low uncertainity item if at all normal individuals labelled it with the same name (a picture of cup) stimulus. Mills et al. found that stimulus uncertainty had a significant effect on the naming error rates and response latencies of the aphasic patients. In other words, low uncertainty pictures were named significantly more rapidly than high uncertainty pictures.

Mills, et al. found that stimulus uncertainity had a significant effect on the naming error rates and reponse latencies of the aphasic patients. In other words, low uncertainity pictures were named significantly more rapidly than high uncertainity pictures. However, a definite interpretation of Mills, et al.'s results is difficult, as he did not control for the word frequency of high uncertainity and low uncertainity items. Hence the precise strength of the relationship between word frequency and uncertainity value has not been determined.

Labov (1973) studied naming performance of aphasics by manipulating perceptual features (of food containers) such as height, weight, shape and number of handles. He measured the consistency of naming. He found that prototypical objects were named consistently, whereas boderline cases were named inconsistently.

2. Characteristics of the Referent's name

a) The frequency of occurrence - the frequency with which words occur in the language is probably the most documented influence on naming behaviour in both normals and aphasic patients and has been found to correlate significantly with the age at which children acquire them. Word findings from numerous investigations have indicated

that the frequency of occurrence of the target word is a significant variable influencing word finding skills of normal adults (Oldfield and Wingfield, 1965) adult aphasics (Wepman et al. 1956; Newcombe et al. 1965; Rochford and Williams, 1965) and in comparative studies between children and adults (Rochford and Williams, 1962). Adult studies appear to indicate that low frequency words are more difficult to retrieve than high frequency words.

b) Length : Word length and frequency of occurrence are not wholly independent. Because of this when considering the effect of word length on aphasic patients naming performances, word frequency must be held constant (Venus, 1975; Williams, 1988). Venus (1975), found that when frequency of occurrence was held constant, as word length increased, response latencies also increased and misnaming became more frequent.

Goodglass et al. (1976) also found that, when word frequency was controlled, naming failure rates increased with increasing syllable length. It was found that anomic aphasics were minimally influenced by word length, whereas marked relationship between word length and naming failures was observed for patients with conduction aphasia, and to a

lesser extent for the patients with Broca's and Wernicke's aphasia.

3. Variation of Stimulus Presentation

a) Type of sensory input

Goodglass, Baston and Kaplan (1968) studied the influence of mode of sensory stimulation on aphasic patients naming performance. They compared pictorial stimulus presentation with olfactory, auditory and tactile stimulus presentation. They found that aphasic patients naming performance were impaired across all of the modes of stimulus presentation.

Majority of studies that have been concerned with classic naming disturbances in aphasia have focussed on visual stimulation (and, to a much lesser extent, on verbal stimulation for naming), since naming is most often evaluated and treated via the visual modality in aphasic patients. Bisiach (1966) compared aphasic patients naming of realistic, coloured presentations of objects, outline drawings of the same objects, and outline drawings that have been defaced by jagged lines drawn through them. The results demonstrated that aphasic subjects successfully named a significantly larger number of the realistic representations of objects

than the outline drawings of the same objects. However, significant differences were not found between the naming of the realistic figures and the "mutilated" line drawings.

Benton, Smith and Lang (1972) found a small, but significant difference in performance when aphasic patients were asked to name real objects, as compared with small line drawings, the former resulting in higher levels of accuracy than the latter. However, significant differences were not found when naming elicited by large versus small line drawings was compared.

Corlew and Nation (1975) did a study on relationship between visual stimuli and naming performance in adult aphasic patients. They found no significant difference between large versus small drawings in different types of aphasics.

b. Difficulty content

An aphasic patient's success or failure in naming specific items appears to be related to whether or not the preceding items were successfully named. Results obtained by Brookshire (1972) revealed that when aphasic patients were first asked to name pictures, than, on a pretest, had been

difficult to name, they performed worse than expected on subsequent items that were easily named on pretesting. The converse also held true. When easy to name items were presented. First, performance on hard to name items was facilitated. Similar findings have been reported by Gardiner and Brookshire (1972). These authors hypothesized that emotional responses capable of influencing subsequent performance may be generated when aphasic patients were presented with stimuli that consistently evoke naming failure or success.

c. Trial time and inter trial interval

Brookshire (1971) carried out a series of experiments that provided information concerning the effects of trial time and intertrial interval on the naming performance of aphasic patients. In each treatment condition, subjects were asked to name pictures that appeared on a screen. Across treatments, the stimulus exposure time, as well as intertrial intervalwerevaried.

The effect of trial time on naming was statistically significant, as the proportion of correct response gradually increased with an increase in stimulus exposure time from 3 to 30 sec. It was noted that, while there was rapid improvement in performance with each second of increased

exposure time from 3 to 5 sec, very little improvement was noted from 5 to 30 sec. In clinical testing, the stimulus exposure time is at least 30 sec. per item and, therefore, is more than adequate to allow subjects to respond to the best of their capabilities.

The influence of intertrial interval on aphasic patient's naming was much less pronounced than that of trial time and varied across individual subjects in Brookshire's study.

d. Method of eliciting the target word

The particular method, or stimulus context, used to elicit the production of a name appears to influence aphasic patients performances. Baston, Maruszewski and Urrea (1969) investigated the variation in aphasics naming scores with respect to these different stimulus contexts. Confrontation naming, sentence completion, and naming to description. Although there was variability between diagnostic groups of aphasics with respect to the types of errors produced, a consistent hierarchy of task difficulty was revealed, regardless of type of aphasia. Sentence completion task was the easiest task; confrontation naming was more difficult;

and naming to verbal description was the most difficult of the tasks.

Goodglass and Stress (1969) studied the confrontation naming and naming to verbal description. They found that, in general naming to description was more difficult than confrontation task.

Another component of the stimulus content that has been investigated is the influence of various cueing strategies on the naming performance of aphasic patients. Stimulus variables associated with the cue, as well as subject variables associated with responsiveness to cueing have been examined.

Podraza and Darley (1977) investigated the influence of a prestimulation technique on the confrontation naming performance of aphasic patients. In the study, one of our cues were presented immediately prior to picture presentation; (1) presentation of the initial phoneme of the target word (2) presentation of an open ended sentence, (3) presentation of three words, one of which was the target word, and (4) presentation of three words that were semantically related to the target word. With the exception of the final cue, the three remaining cues elicited significantly better naming performance than the control

condition in which no cue was provided, there was no significant differences between these cues with respect to their effectiveness when the aphasic patients were considered as a unitary group.

The severity of the aphasics naming problems influenced their responsiveness to cueing. Whereas the Broca's aphasics with mild naming impairment responded equally well to all four types of cues, patients with severe naming disturbances responded differentially to the four cues. Whole word repetition was the most facilitating for these patients. The phonemic cue ranked second. Neither of the two remaining types of cues was as effective s this latter cue.

Phonemic cueing was the most facilitating, followed by sentence completion and then the remaining cues, such as rhyming word, location, superordinate, function (Pease and Goodglass, 1978; Huntley, Pindzola and Weidner, 1986).

Handlon, Brown (1990) did a study on enhancement of naming in nonfluent aphasic through gestures and found that gestures produced through activation of the proximal musculature of the right paralytic differentially facilitated naming performance in the nonfluent subgroup.

Li (1981) in a study of aphasics found that, Wernicke's aphasics were the least responsive to cues, whereas Broca's aphasic, followed by conduction and anomic aphasic, were the most responsive. This study was supported by Chinli, Cantel (1987).

3. Characteristic of visual stimuli

Town and Banick (1989) in this study revealed that the presence of colour in the visual stimuli did not result in significantly improved naming performance in aphasics. Only the additional phonemic cues resulted in improved naming performance for both the nonfluent and fluent aphasic

Corlew and Nation (1975) compared performance of aphasics on Photographed stimuli' and 'real object' - No significant difference was found between the two sets.

4. Situational context and type of aphasia

The variable referred to by Canter (1973) as the 'situational context' is the situation in which an individual must produce a word, for example, in the course of spontaneous speech, or in response to a confrontation naming task.

Williams and Canter (1982) studied the performance of aphasics on confrontation naming task and picture description task. The Broca's aphasic performed significantly better on confrontation naming than on picture description task. Wernicke's aphasic performed significantly better on picture description task. Conduction aphasics and anomic aphasics performed gave identical performance for both situational contexts.

METHODOLOGY

Aim :

The aim of the present research was to study naming deficits in adult aphasics comparing their performance with normal adults.

Subjects :

The present study revolved around an experimental group of seven aphasic patients and seven normal control group above 18. They were in the age range of 28 years to 63 years, with a mean age of 50.5 years.

The subject's selected were Kannada speakers - a dravidian Indian language. Kannada is a language spoken mainly in the state of Karnataka.

Control Group :

A control group of 7 subjects were taken up in the present research. These subjects were age, sex and language matched to the subjects in the experimental group

The following variables were taken into consideration, while selecting the control group :

- All subjects were normal, with no past/present neurological and or psychological disorders.
- All subjects were males and above 18 years of age (28 years, 32 years, 53 years, 53 years, 61 years, 63 years and 63 years respectively).
- All subjects in the study had an educational level above the primary grade.
- All subjects in the study knew Kannada as their first or second language.

Table-1: The demographic data of control group.

Control No.	Age in Yrs	Sex	Mother Tongue	Education	Occupation
1.	28	M	Kannada	B.Com	Clerk
2.	63	M	Kannada	B.A.	Rtd.School Teacher
3.	53	M	Kannada	M.A.	Accountant
4.	63	M	Kannada	M.A.	Officer
5.	32	M	Kannada	M.A.	Cli.Psychologist
6.	53	M	Kannada	Doctorate	Professor
7.	61	M	Kannada	Diploma	Rtd. Accountants

Experimental group :

Classification, diagnosis and selection of patients :

The patients were diagnosed on the basis of neurological findings obtained from neurologist as well as on the basis of clinical symptoms. For the sake of anonymity, the patient names are abbreviated as B.R., J.P., C.S., N.A., M.J., D.S., and B.A. Among these B.R., and J.P. were found to be Broca's Aphasics, C.S., N.A., and N.J., were found to be Anomic Aphasics, D.S., and B.A., (Conduction aphasics) based on Western Aphasia Battery Test, developed by Kertez and Poole, 1974).

The following variables were taken into consideration, while selecting the patients :

- All subjects were diagnosed as aphasic by speech language pathologist and neurologists.
- A post onset period of greater than 15 days.
- All subjects were above 18 years of age.
- All subjects in the study had an education level above the primary grade.
- All subjects in the study knew Kannada as their first or second language.
- Only those patients who had no known defects of hearing and vision were taken for the study. None of the patients had alexia or agraphia.

Table-2 : The demographic data of experimental group is represented

SI.No.	Patient	Age (in yrs)	Sex	Educa-tion	Mother tongue	Occupation	Etiology	Diagnosis
1.	B.R.	28	M	B.A.,	Kannada	Drama Artist	C.V.A.	Broca's Aphasia
2.	J.P.	63	M	B.A.,	Kannada	Retired School Teacher	C.V.A.	Broca's Aphasia
3.	C.S.	53	M	SSLC	Kannada	Agriculture	C.V.A	Anomic Aphasia
4.	N.A.	63	M	BA, LLB	Kannada	M.L.A.	C.V.A	Anomic Aphasia
5.	M.J.	32	M	B.Com	Kannada	Accountant	C.V.A	Anomic Aphasia
6.	D.S.	53	M	M.E.	Konkani	Professor	C.V.A	Conduction aphasia
7.	B.A.	61	M	B.Sc.,	Kannada	Retired Tahsildar	C.V.A	Conduction aphasia

Table-3: Detailed language testing was done before taking the patients for the study

Sl. No.	Patient	Age (in yrs)	Post onset	Fluency	Coapre-hension	Repeti-tion	Nail-ing	Read-ing	Writ-ing	Praxis	A.Q	Type of aphasia
1.	B.R.	28	1 month	0	4.85	0	C	0-3	-	4.2	9.7	Broca's Aphasia
2.	J.P.	63	1½ month	1	8.8	0	0.1	5-8	3.2	5.9	19.8	Broca's Aphasia
3.	C.S.	53	2 months	16	9.55	8.4	8.4	8-9	5.6	5.7	84.70	Anomic Ahasia
4.	N.A.	63	1½ month	16	10	9.8	9.5	9-1	7.5	6.0	90.6	Anomic Aphasia
5.	H.J.	32	2 months	12	9.85	8.8	7.2	-	6.0	6.0	75.70	Anomic Aphasia
6.	D.S.	53	1 month	16	6.65	8	7.1	-	-	-	-	Conduction Aphasia
7.	B.A.	61	2½ month	7	8.9	0	0.2	4-9	7-8	7.8	32.2	Conduction Aphasia

Tools :

The tools used in the present study were :

1. Confrontation naming task - A nonstandardized Indian adaptation of Boston Naming Test (BNT) to suit Kannada situation.

2. A Responsive Naming Task (adapted from Kannada version of Western Aphasia Battery).

3. A category Specific Naming Task.

Description of the tools :

1. Confrontation Naming Task
   Boston Naming Test (BNT)

The original BNT, developed by Goodglass and Kaplan (1983) has 60 pictures. For each of these pictures an 'incorrect' or no response' is followed by a semantic cueing. If here too, an incorrect response is elicited, then a phonemic cue is given.

To overcome cultural bias, the test material was developed in Kannada. Here a set of 57 picturable words based on the familiarity of the words in the language were

selected. Pictures were displayed on a 4" x 6" card. The pictures were unambiguous, culture free black-and-white drawings representing noun words.

Selection of target words :

57 words for the present test (Indian adaptation of BNT) were selected from a list of 80 words which were administered on a normal population (5 subject to check for word familiarity. The pictures rated as ambiguous and too unfamiliar were eliminated from the test material. Thus the above material was used for the confrontation naming task (see Appendix).

Test Administration :

The procedure that was followed for administration of the test was as follows :

- The patients were seated in a comfortable position, and tested in a clinical setting.
- The patient was shown the picture, one at a time and was asked to name them.

- If 'no response' was elicited in the first twenty seconds time interval, a semantic cue was given example : Target word : book, semantic cue - It is used for reading.

- A 'no response' or incorrect response' following semantic cue, is followed by a phonemic cue (first phoneme of the word). Example : Target word : book, phonemic cue - /b/.

- The instruction given to the patient was "I will show you a picture, and you shall name it". The instruction was given in the medium of testing, that is Kannada.

Response and Scoring :

The responses were scored as either :

i) A correct response, or
ii) An incorrect response.

Correct responses were given a score of one, and incorrect responses a score of zero. A correct response elicited with semantic cueing was given a score of one, and an incorrect response was given a score of zero. A response elicited following phonemic cueing was not taken for scoring.

The incorrect responses were categorized as any one of the following :

Error type	Description
1. Phonemic errors	Responses which were approximations of the target words, with one or more of the phonemes in error (eg. hu:vu (flower) - says mu:vu
2. Extended circumlocution	Refers to responses which were extended utterances related to the target words (eg. na:nu a:ta:dti:ni (I play with it) for bat.
3. Semantic errors	Refers to responses which were semantically related to the target words. (eg. for kitaki (window) - says ba:gilu (door).
4. Neologisms	Refers to responses which were neither real words nor phonemic approximations of the target words (eg.for do̤:ni (boat) - says (ʃa:hi)
5. Grammatical errors	Refers to responses that deviated from normal only by alteration of the grammatical forms (eg. for hu:vu (flower) says hu:vugalu (flowers).
6. Half words	Refers to responses that were half word representations of the target (eg. for manɻ (house) says ma.
7. Perseverations	Refers to responses which were inappropriate repetitions of previous whole word utterances. (eg. manɻ (house) says manɻ for mantʃa (bed) says manɻ .
8. Unrelated response	Refers to a response which showed no obvious phonological or semantic resemblance to the target words (eg. for manɻ (house) says hu:vu (flower).

Error type	Description
9. Interference	Refers to a response in which the target word was named in some other language (eg. for manʕ (house) says haus (English) and the response is correct.
10. No response	Refers to responses wherein the subject failed to respond or stated their inability to respond.
11. Gestural	Refers to responses wherein gestures are used. (eg. For braʃ u (brush) indicates by gesture.

Following the categorisation of responses, the latencies of response was taken into consideration. Here the minimum response latency and maximum response latency were taken into consideration, followed by the mean latency calculation.

Summary of Scores :

1. Number of spontaneously given correct responses . . . . . .
2. Number of stimulus cues given . . . . . .
3. Number of correct responses following a stimulus cue . . . . . .
4. Number of phonemic cues . . . . . .
5. Number of correct responses following the phonemic cue. . . . . .
6. Total number of correct (1+3) . . . . . .

II Responsive Naming

Selection of items :

20 Single sentence questions were taken, of which five items were adapted from Western Aphasia Battery (translated Kannada version). The questions (or test items) were simple, unambiguous eliciting a specific response.

Test Administration :

The procedure followed for test administration was as follows :

- The patients were seated in a comfortable position, and tested in a clinical setting.
- The patients were asked a question, and were given 30 seconds to give an answer. Following a correct response, or no response by 30 - seconds, the next question was asked.
- The instruction given to the patient was "I want you to give one word responses for the questions I am going to ask" For example : What do you drink milk from? (glass/cup). The testing and instructions were given in Kannada.

Response and Scoring :

The response were scored as either :

i) A correct response, or

ii) An incorrect response.

Correct responses were given a score of one, and incorrect/No response were given a score of zero (See Appendix) for the score sheet on responsive naming).

The incorrect responses were categorized under the following errors namely :

- Semantic errors
- Phonemic errors
- Neologisms
- Circumlocutions
- Grammatical and Half word responses
- Perseverations
- Gestural response
- Interference
- No response

Summary of Scores :

1. Number of spontaneously given correct responses . . . . . .

2. Types of errors made . . . . . .

III Category Specific Naming :

Selection of categories :

Four categories Mere taken up to study category specific naming. They were

- Animals
- Fruits
- Vegetables, and
- Vehicles

Test Administration

The procedure followed for test administration was as follows :

- The patient were seated in a comfortable position, and tested in a clinical setting.

- The patient was asked to name as many items as possible within each category in one minute time period.

- The instruction given to the patient was "I want to see how many different animals you can call to mind and name for a minute, while I count them. Any animal will do, they can be from the farm the jungle, house pet, etc" -For eg. dog, cat, lion, etc.

Similar instructions with examples were given for the other three categories namely : fruits, vehicles and vegetables. The instructions were given in Kannada - the medium of testing.

Response and Scoring :

- The number of items named under each category were taken down.

- A score of one was given for every correct item named.

- Incorrect responses were categorized under any one of the error types mentioned under confrontations naming task namely :

  - Perseveration
  - Category interference
  - Phonemic errors
  - Semantic errors
  - Neologisms
  - Half word response
  - Unrelated word or Interference

(See Appendix for the stimulus material on generative naming)

Summary of Scores :

1. Number of correct responses given in one minute . . . . . .

2. Types of errors made . . . . . .

Analysis :

The mean scorer, and standard deviations for the three naming tasks in both the aphasic and control group were computed. Next 't' scores were calculated to see if there is a significant difference in the performance of aphasics on comparison to the control group, for the three different naming tasks and between naming task for the aphasic group. This had been followed by a qualitative description of the 3 groups of aphasics on their performance on the 3 different naming tasks.

The results thus obtained are presented and discussed in the following chapter.

RESULTS AND DISCUSSION

The aim of the present research was to study the naming deficits in aphasics across three different naming tasks, namely Confrontation Naming, Responsive Naming and Generative (category specific) Naming in comparison with a normal control group that was age, sex and language matched. The experiment group consisted of seven aphasics (2 Broca's, 3 Anomic and 2 Conduction aphasics) and the control group of 7 subjects matched for age, sex and language.

The results of the study have been presented under the following sections :

1. Performance of the control group on the three different naming tasks.

2. Comparison of aphasic group versus control group on the three different naming tasks.

3. Comparison of the aphasics performance between the three different naming tasks.

4. A qualitative analysis of the three different aphasic groups for the three different naming tasks.

1. Performance of the control group on three different naming tasks.

The performance of the control group across the different naming tasks are represented in Table-4. The control group Mas matched for age, sex and language with the experimental group. The performance of the group on different naming tasks are described below :

Confrontation Naming Task :

The maximum number of correct responses 57 (100%). Of the 7 subjects, 2 subjects got a score of 55 (96.64%), and one subject, a score of 56. The errors were of the 'No Response' type (Table-4).

The No' responses seen in the two subjects were on the less frequent words (i.e. kaimara (compass) and ko:namapaka (protractor). The low frequency of occurrence of these words could be the reason for the No reponse' elicited. This has literature supports by Oldfield and Wingfield (1965).

Responsive Naming Task :

All the subjects obtained a score of 20/20 (100%) (Table-4). The 100% scores indicte towards the less complex nature of the naming task.

Table-4: Data for Control Group on different naming tasks.

Age/ sex	Confrontation naming		Responsive naming	Generative naming			
	No. of CR	ER		Ani-mals	Vegetables	Vehicles	Fruits
28/M	57 1 sec.	0	20/20	25	13	12	10
63/M	55 2 sec.	2	20/20	15	11	10	10
53/M	55 2 sec.	2	20/20	18	15	13	9
63/M	57 2 sec.	0	20/20	16	11	9	10
32/M	57 1 sec.	0	20/20	22	17	19	13
53/M	56 1 sec.	1	20/20	22	28	15	14
61/M	57 2 sec.	0	20/20	14	12	11	9

Generative Naming Task

Maximum items were named in the category of animals, followed by that of vegetables, that of vehicles and least items were named in the category of fruits.

2. Aphasic vs. Control Group

The scores obtained by the control group and the aphasics were tabulated and analyzed. Mean and standard

deviation were calculated. Later the t-test was applied to find out if there was a significant difference between the experimental and control group for the three different naming tasks.

Table-5 : Mean, SD and significance at 0.05 level (for t-scores) for correct response on different naming tasks in Kannada.

Task	Control Group Mean	S.D	Aphasic Group Mean	SD	Significance at 0.05 level (t-scores)
Confrontation naming	56.3	0.95	26.7	16.32	Significant
Responsive naming	20	0	11.4	5.65	Significant
Generative naming	14.4	3.33	3	1.81	Significant

Results of the 't-test' indicated that there was a significant difference between the aphasic and the control group in all the three naming tasks.

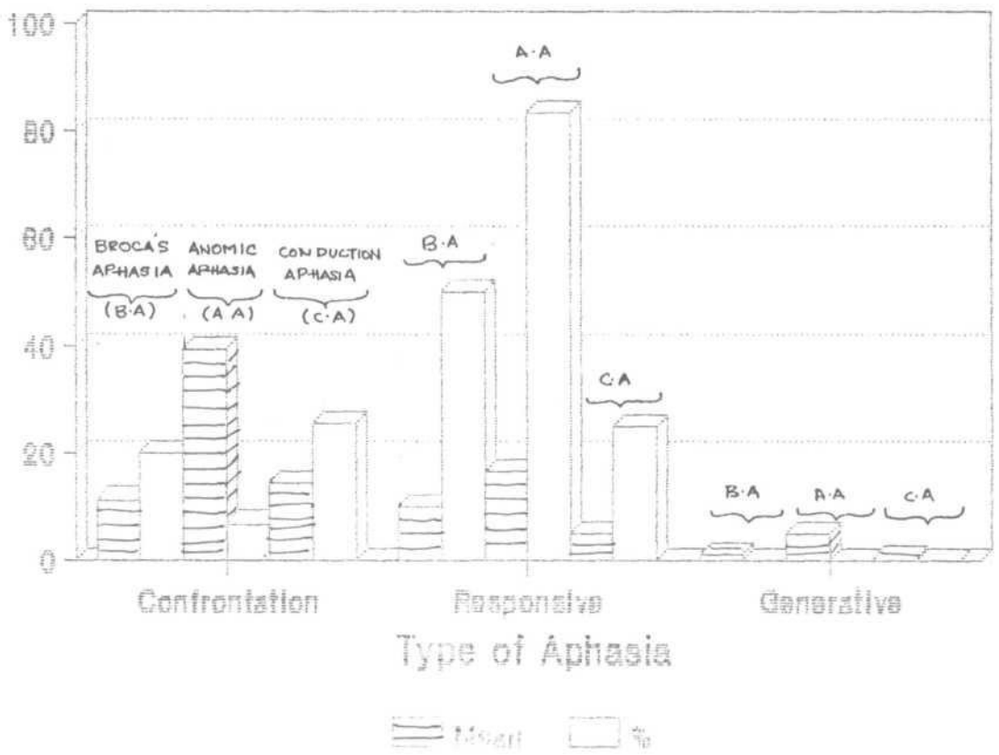
This finding is in support with literature wherein disturbances of naming have been found across aphasics (Goodglass and Blumstein, 1973; Gooldaglass and Baker, 1976; Williams and Canter, 1982).

3. Performance of Aphasics Across the naming tasks

Table-6a: Mean and percentage of different naming tasks for the different groups of aphasics.

Task	Brocas Mean	%	Anomic Mean	%	Conduction Mean	%
Confrontation naming	11.5	20.2	39.6	69.5	14.5	25.4
Responsive naming	10	50	16.6	83.3	5	25
Generative naming	1.25	-	5.1	-	0.37	-

Fig. 1 MEAN AND PERCENTAGE OF DIFFERENT NAMING TASKS FOR THE DIFFERENT GROUPS OF APHASICS.



The performance of Anomic aphasics Mas superior to that of the Brocas and Conduction aphasics in all the three naming tasks (Fig.1). This was followed by the Broca's aphasic group performing better than conduction aphasic group in responsive naming and generative naming tasks. However, the conduction aphasia group performed better than the Broca's aphasia group in the confrontation naming task (Fig.l).

Table-6b indicates the performance of aphasic and control group for the three different naming tasks Confrontation, Responsive and Generative naming.

Group	Confrontation & responsive naming	Responsive & generative naming	Confrontation & generative naming
Aphasic Group	S	NS	NS
Control Group	NS	NS	NS

S = Significant; NS = Not significant

Results of the 't' test indicated that, unlike the control group, in the aphasic group there was a significant difference between the performance on confrontation and responsive naming tasks. In the case of confrontation versus generative naming and responsive versus generative naming

although there was a difference, this difference was not significant. This could be because confrontation naming task is most complex and responsive naming task is the least complex i.e. in order of complexity confrontation naming > generative naming > responsive naming> and hence the difference).

4. A Qualitative Analysis of the Performance of 3 Aphasic Groups on the three Naming tasks :

The performance of each aphasic subject on the three different naming tasks is described below :

Table-7a: Performance of experimental group on confrontation naming task.

Case Name	Type of Aphasia	SCR		SC		CRSC		PC		CRPC		TCR=SCR+CRSC	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
BR	Broca,s	10	17.5	48	84.2	2	4.1	46	80.7	12	26.1	12	21.0
JP	Broca's	13	22.8	44	77.1	1	2.27	43	75.4	9	20.9	14	24.5
CS	Anomic	35	61.4	22	38.6	7	31.8	15	26.1	1	6.6	42	73.6
NA	Anomic	45	78.9	12	21.0	0	0	12	21.0	1	8.3	45	78.9
MJ	Anomic	39	68.4	18	31.5	4	22.2	14	24.56	1	7.1	43	75.4
DS	Conduc¬tion	6	10.5	53	92.9	1	1.88	52	91.2	2	3.8	7	12.2
BA	Conduc¬tion	23	40.3	31	54.3	1	3.2	30	52.6	2	6.6	24	42.1

Key to use the table

SCR = Spontaneously given correct responses; SC = Semantic cues given;
CSRC = Correct response following a semantic cue; PC = Phonemic cues given;
CRPC = Correct responses following phonemic cue; TCR = Total correct responses;
No = Number; % Percentage.

Table-7b : Error analysis for confrontation naming

Case Name	Type of Aphasia	Responses											
		CR	NR	PE	EC	SE	UR	NL	GE	PR	GR	CPC	IF
BR	Broca's	12	3	7	3	5	6	8	0	0	0	12	1
JP	Broca's	14	4	10	0	6	1	7	4	2	0	9	0
CS	Anomic	42	3	0	0	6	0	2	2	0	0	1	1
NA	Anomic	45	1	5	1	2	1	1	1	0	0	0	0
MJ	Anomic	43	1	0	0	4	0	1	0	0	0	8	0
DS	Conduc¬ tion	6	4	0	4	4	5	12	0	0	0	2	20
BA	Conduc¬ tion	24	1	8	0	6	1	7	0	0	1	2	7

Key to the Table

CR = Correct responses
NR = No responses
PE = Phonemic errors
EC = Extended circumlocutions
SE = Semantic errors
UR = Unrelated errors
NL = Neologisms
GE = Grammatical errors or half words
PR = Perservation
GR = Gestural response
CPC = Correct response following phonemic cue
IF = Interference

Table-7c : Analysis of response latency

Case Name	Type of Aphasia	Latency range = (Max - Min) sec.	Mean latency in seconds
BR	Broca's	6-1 = 5	3
JP	Broca's	8-1 = 7	6
CS	Anomic	11-2 = 9	2.8
NA	Anomic	15-1 = 14	3.5
MJ	Anomic	20-3 = 17	6.5
DS	Conduction	20-2 = 18	17
BA	Conduction	10-3 = 7	6

Table-8a : Summary scores for responsive naming

Case Name	Type of Aphasia	Spontaneously given correct responses		Incorrect responses	
		No.	%	No.	%
BR	Broca's	8	40	12	60
JP	Broca's	12	60	8	40
CS	Anomic	14	70	6	30
NA	Anomic	19	95	1	5
MJ	Anomic	17	85	3	15
DS	Conduction	1	20	16	80
BA	Conduction	6	30	14	70

Table-8b : Analysis of error types in responsive naming

Case Name	Type of Aphasia	Responses CR	NR	UR	SE	PE	NL	HW	GE	IF
BR	Broca's	8	9	2	0	0	1	2	0	0
JP	Broca's	12	1	2	0	2	1	2	0	0
CS	Anomic	14	3	0	1	0	1	1	0	0
NA	Anomic	19	1	0	0	0	0	0	0	0
MJ	Anomic	17	2	0	0	0	0	0	0	0
DS	Conduction	4	4	3	2	0	3	0	4	0
BA	Conduction	6	1	0	1	1	4	0	4	3

Key to the Table

CR = Correct responses
NR = No responses
UR = Unrelated errors
SE = Semantic errors
PE = Phonemic errors
NL = Neologisms
HW = Half word response
GR = Gestural response
IF = Interference

Table-9a : Summary scores for generative naming

Case Name	Type of Aphasia	Animals	Vegetables	Vehicles	Fruits
BR	Broca's	7	3	0	0
JP	Broca's	5	4	5	3
CS	Anomic	10	6	8	6
NA	Anomic	11	8	8	6
MJ	Anomic	12	0	0	0
DS	Conduction	0	0	0	0
BA	Conduction	4	3	4	2

Table-9b : Analysis of errors in generative naming

Case Name	Type of Aphasia	Categories	PR	CI	PE	SE	NL	IF	HW	UR
BR	Broca's	Animals	0	2	0	0	1	0	0	0
		Vegetables	0	0	0	0	2	0	0	1
		Vehicles	0	0	0	0	0	0	0	0
		Fruits	0	0	0	0	0	0	0	0
JP	Broca's	Animals	2	0	1	0	0	0	0	0
		Vegetables	0	0	1	0	1	0	0	0
		Vehicles	1	0	1	1	0	1	0	0
		Fruits	0	0	0	0	0	0	0	3
CS	Anomic	Animals	0	0	0	0	0	0	0	0
		Vegetables	0	0	0	0	0	0	0	0
		Vehicles	0	0	0	0	0	0	0	0
		Fruits	2	0	0	0	0	0	0	0
NA	Anomic	Animals	0	0	0	0	0	0	0	0
		Vegetables	0	0	0	0	0	0	0	0
		Vehicles	0	0	0	0	0	0	0	0
		Fruits	1	0	0	0	0	0	0	0
MJ	Anomic	Animals	1	0	0	0	0	0	0	0
		Vegetables	0	0	0	0	0	0	0	0
		Vehicles	0	0	0	0	0	0	0	0
		Fruits	0	0	0	0	0	0	0	0
DS	Conduc¬ tion	Animals	0	0	0	0	3	0	0	0
		Vegetables	0	0	0	1	4	0	0	0
		Vehicles	0	0	0	0	4	1	0	0
		Fruits	0	0	0	0	4	0	0	0
BA	Conduc¬ tion	Animals	0	0	0	1	0	2	0	0
		Vegetables	0	0	0	0	2	0	0	0
		Vehicles	0	0	0	0	0	4	0	0
		Fruits	0	0	0	0	1	0	0	0

Key to use the table

PR = Perservation	NL Neologism
CI = Category interference	IF Interference
PE = Phonemic errors	HW Half word response
SE = Semantic errors	UR Unrelated errors

A. Broca's Aphasic Group

This group included 2 Broca's aphasics BR and JP, of aged 28 years and 63 years respectively. Both the subjects exhibited aphasia following a cerebrovascular accident (CVA).

For the three different naming tasks the following results were obtained.

i) BR - A Broca's aphasic, 28 years of age tested one month post onset.

Confrontation naming task :

The responses are indicated in the tables, 7 a, b, c. The number of correct responses given spontaneously was 10 (17.5%). With semantic cueing only 2 correct responses were elicited (i.e. 4.1%). With phonemic cueing correct responses were obtained 26.1% of the time (i.e.12 correct responses). Error analysis indicated that maximum errors were neologisms followed by phonemic errors. No gestural, perseverative or grammatical error responses were exhibited (Table-7b). The mean latency of response was 3 seconds (Range 6 sec to 1 sec i.e. 5 seconds).

Responsive Naming Task :

The scores are represented in Table-8a. The number of correct responses Mas 8(40%). Error analysis indicates maximum no responses (for 9 stimuli) followed by 2 UR (unrelated), 2 HW (half word), 1 NL (Neologism) errors (Table-8b).

Generative Naming Task :

The scores are represented in Table-9a. maximum items named were in the animal category, followed by the category of vegetables. Error analysis indicates, maximum category interference (2) and Neologisms (Table 9b). For the vehicle and fruit category no items were named.

ii) JP - A case of Broca's aphasia, 63 years of age, tested one and half months post onset.

Confrontation Naming Task :

The responses are indicated in the tables 7 a, b, c. The number of correct responses given spontaneously was 13 (22.8%). With semantic cueing only one correct response was obtained (2.27%). Following phonemic cueing 9 correct

responses Mere obtained (20.9%). Error analysis indicated that maximum errors were phonemic errors followed by neologisms. Interference and grammatical errors were not present (Table-7b). The mean latency of response was 6 seconds (range 8 to 1 i.e. 7 seconds).

Responsive Naming Task :

The scores have been represented in Table-8 a. The number of correct responses were 12 (60%). Error analysis indicated maximum unrelated errors (2), phonemic errors (2) and half words (2) (Table-8b).

Generative Naming task :

The scores are represented in Table-9a. Maximum items were named in the categories of 'Animals' and vehicles. Error analysis indicates maximum phonemic errors and perseverations (Table-9b).

The results of the two Broca's aphasics on the Confrontation Naming Task indicate that phonemic cueing results in better performance than semantic cueing. This finds support from literature in Love and Webb (1977); Goodlglass and Stuss (1979); Li and Canter (1983). This

better performnce could probably be due tocumulative effects of semantic and phonemic cueing. Phonemic errors and neologisms Mere the most common error types seen. Error analysis of the responsive naming task indicates unrelated words and neologisms as the most common errors made. The different types of errors exhibited by the aphasics receive support from brown and McNeill (1966); Ackerman, et al. (1976). The Generative naming task indicates that the maximum items named belong to the animal category. Category specific naming deficit was seen in the first subject BR. This is in support with literature by Basso, Capitani and Laiacona (1988), Goodglass, et al. (1988), Warrington, et al. (1989).

B. Anomic Aphasia Group :

This group had 3 aphasics, CS, NA and MJ aged 53 years, 63 years and 32 years. All three subjects exhibited aphasia following stroke.

The performance of each of the anomic aphasics on 3 different naming tasks is detailed below :

i) CS - An anomic aphasic, 53 years of age, tested two months post onset.

Confrontation Naming Task :

The responses are indicated in the tables, 7 a, b, c. The number of correct responses given spontaneously Mas 35 (61.4%). Semantic cueing elicited 7 correct responses (31.8%). Phonemic cueing elicited only one correct response (6.6%). Error analysis indicated maximum semantic errors followed by no responses (Table-7b). The mean latency of response was 2.8 seconds (Range from 11 to 2 i.e. 9 seconds).

Responsive Naming Task :

The scores have been represented in table-8a. The number of correct responses were 14 (70%). Error analysis indicated maximum no response, followed by semantic errors, neologisms and half word responses (Table-8b).

Generative Naming Task :

Table-9a represents the performance on Generative naming. The maximum number of items named correctly was in the category of animals followed by that of vehicles. Error

analysis indicates a maximum of 2 errors (perseverative errors). No other types of error was noted (Table-9b).

ii) NA - An Anomic Aphasia, 63 years of age, tested one and half months post onset.

Confrontation Naming Task :

The responses are indicated in the tables 7 a, b, c. The number of correct responses given spontaneously was 45 (78.9%). Semantic cueing did not have any effect on the responses. Phonemic cueing was followed by one correct response (8.3%). Error analysis indicated that maximum errors were phonemic errors (%), followed by 2 semantic errors (Table-7b). The mean latency of responses was 3.5 seconds (Range of 15 to 1 sec. i.e. 14 seconds).

Responsive Naming Task :

Table-8a, gives scores for the Responsive naming task.' The number of correct responses was 19 (95%). Error analysis indicates one no response (Table-8b).

Generative Naming Task :

Table-9a, gives scores for the Generative naming task, Maximum items were named in the 'Animal' category (11 items) Error analysis indicated one perseverative error (Table-9b)

iii) MJ - An anomic aphasic of age 32 years, tested two months post onset

Confrontation Naming Task :

The responses are indicated in the tables 7 a, b, c. Correct responses were given for 39 stimuli. Semantic cueing gave 4 correct responses (22.3%). Phonemic cueing was followed by one correct response (7.1%). Error analysis indicated maximum semantic errors (4), followed by one no response and one Neologisms (Table-7b). The mean latency of response was 6.5 seconds (Range of 20-3 i.e. 17 seconds).

Responsive Naming Task :

The responses are indicated in Table-8a correct response were given for 17 stimuli (85%). Error analysis indicates a maximum of two no responses (Table-8b).

Generative Naming Task :

The responses for Generative naming indicate maximum responses in the animal category (Table-9a). Error analysis (Table-9b) indicates a maximum error of one perseverative error. Category specific naming deficit was seen for the category of vegetables, vehicles and fuits.

The results of the three Anomic aphasics on confrontation naming tasks indicates a high percentage of correct responses in comparison to the other types of aphasia. This betterment in anomic aphasics performance could be because they tended to give correct responses for familiar words. Semantic cueing elicited correct responses in two of the three subjects. Phonemic cueing was also found to elicit correct responses. This effect of phonemic cueing on anomic aphasic was better thanfor the conduction aphasia, but poorer than the Brocas aphasia group. This finds support fromliterature in Love and Webb (1977); Goodglass and Stuss (1979); Li and Canter (1983). On Responsive naming tasks, two of the 3 anomics gave no response' as error, while CS gave 2 perseveative errors. The Generative naming task indicates that like the Broca's aphasic group, maximum items named belonged to the animal category. Category specific naming deficit was seen inthecase MJ. This receives support

inliterature by Basso, Capitani and Laiacona (1988); Goodglass, et al. (1988); Warrington, et al. (1989).

C. Conduction Aphasia Group :

This group included 2 conduction aphasics DS and BA of age 53 years and 61 years. Both the subjects developed aphasia following stroke.

The responses of each of the conduction aphasics is described below :

i) DS - A case of conduction aphasia, 53 years of age, tested one month post onset.

Confrontation Naming Task :

The responses for this task have been tabulated in the tables 7 a, b, c. The number of correct responses was 6 (10.5%). Semantic cueing resulted in one correct response (1.88%). Phonemic cueing resulted in 2 correct responses (3.8%). Error analysis indicates maximum neologisms (12 in number) (Table-7b). The mean latency of response was 17 seconds (Range of 20-2 i.e. 18 seconds).

Responsive Naming Task :

The response scores are tabulated in table-8a. The number of correct scores was 4 (20%). Error analysis (Table-8b) indicates a maximum of no response' and gestural responses.

Generative Naming task :

The scores for Generative naming are represented in table-9a. Category specific naming deficits was seen inall the four categories for case DS. Error analysis indicates maximum neologisms (Table-9b).

ii) BA - A case of conduction aphasia, age 61 years tested two and half months post onset.

Confrontation Naming Task :

The scores for this naming task are given in tables 7 a, b, c, correct responses were obtained for 23 stimuli (40.3%). Semantic cueing gave one correct response (3.2%) and phonemic cueing gave 2 correct responses (6.6%). Error analysis indicated maximum phonemic errors (8) followed by 7 neologisms, and 7 interferences (Table-7b). The mean latency

of response was 6 seconds (Range of 10 to 3 i.e.7 seconds) (Table-7c).

Responsive Naming Task :

The scores for this naming tasks are represented in table-8a. The number of correct responses was 6 (30%). Error analysis indicates a maximum of 4 neologisms and 4 gestural responses (Table-8b).

Generative Naming Task :

The scores for this naming task are tabulated in table-9a. The maximum items names belonged to the category of animals and vehicles. Error analysis indicates a maximum of 6 interference followed by Neologisms (Table-9b).

Thus, the conduction aphasic group performed poorer than the Broca's and Anomic aphasic groups. However, there was great variability in the performance of the 2 subjects included in the conduction aphasic group. This goes in accordance with literature wherein Kertesz (1980), reports of variability across conduction aphasics innaming tasks. Maximum errors exhibited by both the subjects was that of

neologisms. Gestural responses Mere seen only in conduction aphasics. This probably could be attributed tofailure of conduction aphasics to integrate perceptual and functional informationtoelicit a verbal response (Whitehouse, Caramazza, 1978).

On looking into the performance of the different groups of aphasics on the 3 different naming tasks a trend seems to be emergent as described below:

In confrontation naming task, the performance of the Anomic aphasic group was superior followed by conduction aphasic group, then the Brocas aphasic group. As the frequency of occurrence of the word decreased the naming errors increased. This also finds support in literature by Wepman, et al. (1956); Newcombe, et al. (1965); Rochford and Williams (1965). Cueing, both semantic and phonemic had a facilitatory effect on word retrieval abilities. This has also been reported in literature by Podraza and Darley (1977); Pease and Goodglass (1978); Huntley, Pendzola and Weidner (1986); Stimley and Noll (1981); Howard and Lisle (1984); Town and Banick (1989). Of the two types of cueing phonemic cueing was more effective than semantic cueing for all the three aphasic group. Similar effects were reported by Podraza and Darley, (1977); Pease and Goodglass (1978);

Hunter, Pindzola and Weidner (1986). Latency of response was maximum for conduction apahsic group followed by Anomic and Brocas aphasic group. The greater latency in Anomic aphasic group demonstrated by subject MJ could be because a written response was elicited from the case. The different error types exhibited receive support from Brown and McNeill (1966), Ackerman, et al. (1976).

The performance of aphasics was better on Responsive naming task than for confrontation and Generative naming task. Similar findings were reported by Naruszewski and Urrea in 1969. Between aphasics, anomic group demonstrated best performance followed by Brocas aphasic and then conduction aphasic group i.e. nonfluent aphasics performed better than the fluent aphasics. This was also found by Whitehouse and Caramazza (1978) who opined that nonfluent aphasics performed better than the fluent aphasics on a responsive naming task.

In Generative naming task, best performance was exhibited by Anomic aphasics followed by Brocas and then conduction aphasia group. In all the aphasic groups maximum responses were got for animal category and vehicle category. The number of items named under category of vegetables and

fruits was less, probably indicating towards selective impairment of these categories. Sex and culture differences might have contributed to the variation but the exact nature of the deficit was not explored.

Thus, the effect of aphasia on different naming tasks appear to be unequivocal, although it affects all types of aphasia. The naming deficits across different types are widely varying and hence, call for focussed research in this area.

SUMMARY AND CONCLUSION

The present study was undertaken to study the naming deficits in aphasia for three different naming tasks namely - Confrontation Naming, Responsive Naming and Generative naming task in comparison with a control group of age, sex and language matched normal adults.

In the present study 7 aphasics (2 Broca's, 3 Anomic and 2 Conduction aphasics) and 7 normal control subjects were studied for their performance on three different naming tasks. The naming tasks wore - Confrontation Naming, Responsive Naming and Generative naming tasks.

Results indicated the following :

i) There was a significant difference in naming abilities of all three aphasic groups from normals on all the three naming tasks.

ii) Phonemic cueing was more effective than semantic cueing across the three aphasic groups.

iii) Nonfluent aphasics had shorter latency than fluent aphasics in confrontation naming task.

iv) In Responsive Naming task, Anomic aphasics performed, better than the Broca's and Conduction aphasia group.

v) In Generative naming tasks anomic aphasics performed superior to the Broca's and Conduction aphasia group.

vi) A significant difference in the performance of aphasics was found for Confrontation naming and Responsive naming task. No significant difference in aphasics naming performance was found between Confrontation and Generative naming task, and Responsive Naming and Generative naming task.

To conclude, naming deficits are found among all aphasics demonstrating better performance in Responsive naming task than Confrontation naming and Generative Naming task. The effectiveness of cueing in eliciting correct naming responses indicate that it can be efficiently used during an aphasia therapy programme.

LIMITATIONS

This study has its limitations because of the following:

1. Sample size is small.
2. Only male subjects were studied.
3. All subtypes of aphasia have not been included.
4. Number of subjects (aphasics) under each subtype of aphasia studied was small.

SUGGESTIONS FOR FURTHER RESEARCH

Further studies can be done considering the following :

i) Inclusion of all subtypes of aphasia in order to study if there are variation in the naming deficits exhibited by these sub-types of aphasias.

ii) By taking larger samples under each subtype of aphasia.

iii) Study inclusive of other naming tasks too such as observation of seriatum speech.

iv) Study of variables affecting naming (such as word frequency and stimulus ambiguity) can be taken up.

v) Effectiveness in determining prognosis canbe studied.

vi) A study of naming deficits in other language disorders (such as dyslexia, childhood dysphasia) can be taken up.

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SCORING SHEET FOR CONFRONTATION NAMING IN ENGLISH

Name : Age/Sex Date of testing

Type of.Aphasia Language of testing

Sl. No.	Picture stimuli (Semantic cues	Correct with out cue	Latency secs	With seman-tic cue		With pho nemic cue	
				Correct	Incorrect	Correct	Incorrect
1.	Flower (offering to God)						
2	Pencil (use for writing)						
3	House (kind of building)						
4	Bed (a piece of furniture)						
5.	Book (used for reading)						
6.	Window (seen in a room)						
7	Whistle (makes sound)						
8	Comb (used for fixing hair)						
9	Bus (a vehicle)						
10	Bat (used for playing)						
11	Flute (a musical instrument)						
12.	Horse (used for riding)						

13. Brinjal (purple vegetable)

14. Train (runs on track)

15. Ear (used for hearing)

16. Boat (used in water)

17. Shirt (men's clothing)

18. Eye (we see with it)

19. Frock (young girls wear)

20. Tree (give us wood)

21. Scissors (used for cutting)

22. Cactus (plant of deserts)

23. Rangoli (drawn in house)

24. Compass (for drawing)

25. Wall (found in building)

26. Tortoise (animal with shell)

27. Socks (worn on feet)

28. Bicycle (has two wheels)

29. Camel (a desert animal)

30. Wheelchair (seen in hospitals)

31. Tabla (a musical instrument)

32. Stethoscope (used by doctors)

33. Snake (a poisonous animal)

34. Saw (used by carpenters)

35. Rhinoceros (a wild animal)

36. Crocodile (an animal)

37. Garland (made of flower)

38. Peacock (a bird

39. Apple (a fruit)

40. Plate (used for keeping food)

41. Broom (used for cleaning)

42. Grapes (a fruit in bunches)

43. Clock (tells the time)

44. Aeroplane (flies in air)

45. Arrow (used with a bow)

46. Tap (seen in bathroom)

47. Leg (used for walking)

48. Pen (used for writing)

49. Fish (found in water)

50. Pillar (seen in building)

51. Lamp (gives us light)

52. Garlic (a vegetable)

53. Globe (used in geography)

54. Parrot (a bird)

55. Soap (used while bathing)

56. Brush (used for cleaning teeth)

57. Protractor (used for drawing angles)

NOTE : 1. The description in the brackets in the column two are the semantic cues given.

STIMULI FOR RESPONSIVE NAMING

S.No.	Stimuli questions
1.	What color is grass?
2.	What tells you time?
3.	What do you hear with?
4.	What do you write with?
5.	What do you smell with?
6.	What do you wear when you are feeling cold?
7.	What color is milk?
8.	How many days are there in a week?
9.	Where do doctors work?
10.	What do you do with a pencil?
11.	What do we cut paper with?
12.	What color is apple?
13.	What do you cut vegetables with?
14.	Where do you sleep on?
15.	What do you use when it rains?
16.	Which ornament do you wear on your finger?
17.	Where do you cook in?
18.	Where do you eat from?
19.	Where do cars move?
20	What do you wear on your foot?

SCORING SHEET FOR CATEGORY SPECIFIC NAMING

Categories	No.of items named						
	Subject						
	1	2	3	4	5	6	7
Animals							
Vegetables							
Vehicles							
Fruits							

SCORING SHEET FOR CONFRONTATION NAMING IN KANNADA

Name | Age/Sex | Date of Testing

Type of aphasia | Langauge of Testing

Sl.No.	Picture Stimuli (semantic cues)	Target word in IPA	Correct without cue	Latency Cues	With semantic cues		With Phonemic cue	
					Correct	Incorrect	Correct	Incorrect
1.	ಹೂವು (ದೇವರಿಗೆ ಅರ್ಪಿಸುವಂಥದ್ದು)	hu:vu						
2.	ಪೆನ್ಸಿಲ್ (ಬರೆಯುವ ಸಾಧನ)	pɛnsilu						
3.	ಮನೆ (ಒಂದು ರೀತಿಯ ಕಟ್ಟಡ)	manɛ						
4.	ಮಂಚ (ಮಲಗಲು ಉಪಯೋಗಿಸುವಂತದ್ದು)	mantʃa						
5.	ಪುಸ್ತಕ (ಓದುವ ವಸ್ತು)	pustaka						
6.	ಕಿಟಕಿ (ಕೋಣೆಯಲ್ಲಿ ಇರುವಂಥದ್ದು)	kiṭaki						
7.	ಸೀಟಿ (ಶಬ್ದ ಮಾಡುವಂಥದ್ದು)	si:ṭi						
8.	ಬಾಚಣಿಗೆ (ತಲೆ ಕೂದಲು ಬಾಚುವ ಸಾಧನ)	ba:tʃaṇige						
9.	ಬಸ್ಸು (ಒಂದು ವಾಹನ)	bassu						
10.	ಬಟ್ಟು (ಆಡುವ ವಸ್ತು)	bɛṭṭu						
11.	ಕೊಳಲು (ಸಂಗೀತ ವಾದ್ಯ)	koḷlu						
12.	ಕುದುರೆ (ಒಂದು ಪ್ರಾಣಿ)	kudure						
13.	ಬದನೆ (ಪಲ್ಯೆ ತರಕಾರಿ)	badaṇekaːi						
14.	ರೈಲು (ಕಂದು ಮೇಲೆ ಓಡುವಂಥದ್ದು)	rɛlu						
15.	ಕಿವಿ (ಕೇಳಲು ಸಹಾಯ ಮಾಡುವ ಅಂಗ)	kivi						
16.	ದೋಣಿ (ನೀರಿನ ಮೇಲೆ ತೇಲುವಂಥದ್ದು)	doːṇi						
17.	ಶರ್ಟ್ (ಗಂಡಸರ ವಸ್ತ್ರ)	ʃarṭu						
18.	ಕಣ್ಣುಗಳು (ನೋಡಲು ಸಹಾಯ ಮಾಡುವ ಅಂಗ)	kaṇṇu						
19.	ಫ್ರಾಕು (ಚಿಕ್ಕ ಹುಡುಗಿ ಧರಿಸುವ ವಸ್ತ್ರ)	frɔku						
20.	ಮರ (ಮರ ಬೀಡುವ ಹಸಿರಾದ ಜೀವಿ)	mara						
21.	ಕತ್ರಿ (ಕತ್ತರಿಸಲು ಉಪಯೋಗಿಸುವ ವಸ್ತು)	katri						
22.	ಪಾಪಸುಕಳ್ಳಿ (ಮರಳುಗಾಡಿನಲ್ಲಿ ಕಾಣುವಂಥದ್ದು)	paːpaːsukaḷi						
23.	ರಂಗೋಲಿ (ಮನೆಯ ಮುಂದೆ ಬರೆಯುವಂಥದ್ದು)	raŋgoːli						
24.	ಕ್ಯಾಮಾಕ (ಚಿತ್ರ ಬಿಡಿಸಲು ಉಪಯೋಗಿಸುವಂಥದ್ದು	kaːmaːra						

Sl.No. Picture Stimuli (semantic cues)	Target word in IPA	Correct without cue	Latency Cues	With semantic cues Correct	With semantic cues Incorrect	With Phonemic cue Correct	With Phonemic cue Incorrect
25. ಗೋಡೆ (ಕಟ್ಟಡದ ಭಾಗ)	go:d̪e						
26. ಆಮೆ (ಚಿಪ್ಪಿನೊಳಗಿರುವ ಪ್ರಾಣಿ)	a:mɛ						
27. ಕಾಲುಚೀಲ (ಕಾಲಿಗೆ ಉಪಯೋಗಿಸುವಂಥದ್ದು)	ka:ltʃi:lə						
28. ಸೈಕಲ್ಲು (ಎರಡು ಚಕ್ರ ಇರುವಂಥದ್ದು)	sjkalu						
29. ಒಂಟೆ (ಮರಳುಗಾಡಿನಲ್ಲಿರುವ ಪ್ರಾಣಿ)	onṭe						
30. ಚಕ್ರದಕುರ್ಚಿ (ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ನೋಡುತ್ತೇವೆ)	tʃkradakurtʃi						
31. ತಬಲ (ಒಂದು ಸಂಗೀತ ವಾದ್ಯ)	t̪abala						
32. ಸ್ಟೆತಸ್ಕೋಪು (ವೈದ್ಯರು ಉಪಯೋಗಿಸುವಂಥದ್ದು)	stɛthɛsko:pu						
33. ಹಾವು (ವಿಷಕಾರಿ ಪ್ರಾಣಿ)	ha:vu						
34. ಗರಗಸ (ಮರದ ಆಚಾರಿ ಉಪಯೋಗಿಸುವಂಥದ್ದು)	gara:gasa						
35. ಘೇಂಡಾಮೃಗ (ಪ್ರಾಣಿ)	gɛṇdamriga						
36. ಮೊಸಳೆ (ಪ್ರಾಣಿ)	mo:saḷe						
37. ಮಾಲೆ (ಹೂವಿನಿಂದ ಮಾಡಿದ್ದು)	ma:le/ha:ra						
38. ನವಿಲು (ನರ್ತಿಸುವ ಪಕ್ಷಿ)	navilu						
39. ಸೇಬು (ಒಂದು ಹಣ್ಣು)	se:bu						
40. ತಟ್ಟೆ (ತಿನ್ನಲು ಉಪಯೋಗಿಸುವಂಥದ್ದು)	t̪aṭɛ						
41. ಪರಕೆ (ಸ್ವಚ್ಛಗೊಳಿಸುವ ವಸ್ತು)	p̪arkɛ						
42. ದ್ರಾಕ್ಷಿ (ಹಣ್ಣಿನ ಗೊಂಚಲು)	drakʃi						
43. ವಿಮಾನ (ಆಕಾಶದಲ್ಲಿ ಹಾರುವಂಥದ್ದು)	vima:na						
44. ಗಡಿಯಾರ (ಸಮಯ ತೋರಿಸುವಂಥದ್ದು)	gadija:ra						
45. ಬಾಣ (ಬಿಲ್ಲಿನ ಜೊತೆ ಉಪಯೋಗಿಸುವಂಥದ್ದು)	ba:ṇa						
46. ನಲ್ಲಿ (ಸ್ನಾನಗೃಹದಲ್ಲಿ ಇರುವಂಥದ್ದು.)	nlli						
47. ಕಾಲು (ನಡೆಯಲು ಉಪಯೋಗಿಸುವಂಥದ್ದು)	ka:lu						
48. ಪೆನ್ನು (ಬರೆಯಲು ಉಪಯೋಗಿಸುವಂಥದ್ದು)	pɛnu						
49. ಮೀನು (ನೀರಿನಲ್ಲಿ ಸಿಗುವಂಥ ಜೀವಿ.)	mi:nu						
50. ಕಂಬ (ಕಟ್ಟಡದಲ್ಲಿ ಉಪಯೋಗಿಸುವಂಥದ್ದು)	kamba						
51. ದೀಪ (ಪ್ರಕಾಶ ನೀಡುವಂಥದ್ದು.)	di:pa						
52. ಬೆಳ್ಳುಳ್ಳಿ (ಒಂದು ತರಕಾರಿ)	bɛḷuḷi						

Sl.No.	Picture Stimuli (semantic cues)	Target word in IPA	Correct without cue	Latency Cues	With semantic cues		With Phonemic cue	
					Correct	Incorrect	Correct	Incorrect
53.	ಭೂಮಂಡಲ (ಪೂರ್ತಿಭೂಮಿಯನ್ನು ಇರುವ ಹಾಗೆ)	bhu:maṇḍala						
54.	ಗಿಣಿ (ಒಂದು ಪಕ್ಷಿ)	giṇi						
55.	ಸಾಬೂನು (ಸ್ನಾನ ಮಾಡಲು ಉಪಯೋಗಿಸುವಂಥದ್ದು)	sa:bunu						
56.	ಬ್ರಷ್ಷು (ಹಲ್ಲುಜ್ಜುವ ಸಾಧನ)	bra su ∘						
57.	ಕೊಡೆ (ಕೊಡೆಯನ್ನು ಬಿಡಿಸಲು ಉಪಯೋಗಿಸುವಂಥದ್ದು)	ko:ṇmapaka						

STIMULI FOR REPONSE NAMING IN KANNADA

Sl.No.	stimuliquestions with IPA	Expected response
1	ಹುಲ್ಲಿನ ಬಣ್ಣ ಯಾವುದು? hullina baṇṇa yə:vadu?	hasiru
2	ಗಂಟೆ ಹೇಳುವುದು ಯಾವುದರಿಂದ? gaṇṭe heḷuvoḍu yə:vadarinda?	gaḍiyara
3	ನಿಮಗೆ ಕೇಳಿಸುವುದು ಯಾವುದರಿಂದ? nimage ke:liso̲du yə:vadarinda?	kivi
4	ನೀವು ಬರೆಯುವುದು ಯಾವುದರಿಂದ? ni:vu bareyuvaḍu yə:vadarinḍa?	kai
5	ನೀವು ಸಾಸಿವೆಯನ್ನು ಗ್ರಹಿಸುವುದು ಯಾವುದರಿಂದ? ni:vu və:sanɛyannu grahisuvudu yə:vadarinḍa? mu:gu.
6	ನಿಮಗೆ ಚಳಿಯಾಗುವಾಗ ಏನು ಹಾಕಿಕೊಳ್ಳುತ್ತೀರಾ? nimage ʧaḷia:guvaga e:nu hə:kukoḷti:rə:? svɛṭṭar.
7	ಹಾಲಿನ ಬಣ್ಣ ಯಾವುದು? hə:lina baṇṇa yə:vadu?	biḷi
8	ಒಂದು ವಾರದಲ್ಲಿ ಎಷ್ಟು ದಿನಗಳಿವೆ? ondu: və:rədalli eʃṭu dinagaḷu ide? yi:ḷu.
9	ಡಾಕ್ಟರು ಎಲ್ಲಿ ಕೆಲಸ ಮಾಡುತ್ತಾರೆ? ḍaktəru yɛlli kelasə m:aḍutare? ə:spaṭre.
10	ಪೆನ್ಸಿಲಿನಿಂದ ಏನು ಮಾಡುತ್ತೀರಾ? Pensilininda e:nu m:aḍuṭi:rə? bareyuṭi:vi
11	ಕಾಗದವನ್ನು ಯಾವುದರಿಂದ ಕತ್ತರಿಸುತ್ತೀರಾ? kə:gadəvannu yə:vadarinḍa kaṭarisutirə? kaṭariyinḍa.
12	ಸೇಬಿನ ಬಣ್ಣ ಯಾವುದು? Se:bina banna yə:vadu? kɛmpu.
13	ತರಕಾರಿಯನ್ನು ಯಾವುದರಿಂದ ಕತ್ತರಿಸುತ್ತೀರಾ? ṭarəkariyannu yə:vadarinḍa kaṭarisuti:rə? ʧə:ku.

Sl.No.	stimuliquestions with IPA	Expected response
14	ನೀವು ಯಾವುದರಲ್ಲಿ ಮಲಗುತ್ತೀರಾ? niːvu yaːvadaralli malagutiraː mantʃa.	
15	ಮಳೆ ಬರುವಾಗ ನೀವು ಏನು ಉಪಯೋಗಿಸುತ್ತೀರಾ? maḷe baruvaːga niːvu eːnu upayogastiːraː tʃaṭri.	
16	ನೀವು ಬೆರಳಿಗೆ ಯಾವ ಆಭರಣ ಧರಿಸುತ್ತೀರಾ? niːvu beraḷige yaːva aːbʰaraṇa dʰaristiːruː uŋgura.	
17	ನೀವು ಯಾವುದರಿಂದ ಅಡಿಗೆ ಮಾಡುತ್ತೀರಾ? niːvu yaːvadaralli adige maːḍutiːraː? pːaṭra	
18	ನೀವು ಯಾವುದರಿಂದ ಊಟ ಮಾಡುತ್ತೀರಾ? niːvu yaːvadarinda uːṭṭa maːdutiːra? taṭṭe	
19	ಕಾರುಗಳು ಎಲ್ಲಿ ಹೋಗುತ್ತವೆ? kaːrugaḷu elli hoːgatte ?	raste.
20	ಕಾಲಿಗೆ ಏನು ಹಾಕಿಕೊಳ್ಳುತ್ತೀರಾ? kaːlige eːnu haːkikoṭtiraː?	tʃapalli.

SCORING SHEET FOR CATEGORY SPECIFIC NAMING IN KANNADA

Categories in Kannada with IPA	Number of items named						
	SB=1	SB=2	SB=3	SB=4	SB=5	SB=6	SB=7
ಪ್ರಾಣಿಗಳು pra:ni							
ತರ್ಕಾರಿಗಳು tarka:ri							
ವಾಹನಗಳು va:hana							
ಹಣ್ಣುಗಳು hannu							