A STUDY OF DIFFICULTIES IN BASIC LANGUAGE SKILLS IN MALAYALAM AMONG PRIMARY SCHOOL CHILDREN WITH DYSLEXIA

P.V. HAPPY, M.A., M.Ed.

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DECLARATION

I, Happy, P.V., do hereby declare that this thesis entitled **"A Study of Difficulties in Basic Language Skills in Malayalam among Primary School Children with Dyslexia"** submitted to the University of Calicut for the award of the degree of Doctor of Philosophy in Education, has not been submitted by me for the award of a degree, diploma, title or recognition, before.

Calicut University Campus,
4th June, 2002.

HAPPY, P.V.

Dr.K. Karunakaran
Head
Department of Adult and Continuing Education & Extension Services
University of Calicut

Calicut University P.O.
Dated: 04-06-2002.

CERTIFICATE

I, Dr. K. Karunakaran, do hereby certify that this thesis entitled **"A Study of Difficulties in Basic Language Skills in Malayalam among Primary School Children with Dyslexia"** is a record of bonafide study and research carried out by **Kum: Happy, P.V.,** under my supervision and guidance.

Dr. K. KARUNAKARAN
(Supervising Teacher)

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HAPPY, P.V.

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Chapter 1

INTRODUCTION

INTRODUCTION

Learning is normally considered as a natural process by which a child acquires various kinds of knowledge, which in turn contributes to his development. Research and experience show that learning is a continuous process involving both natural and cultural functions. Cultural here means, the knowledge one acquires by psychic or physical effort or by both. It is a fact that environmental conditions influence a child to a great extent, in the path of his progress, intellectually or otherwise. Therefore it becomes essential to give proper training, coupled with congenial environments, to every child and help him to develop mentally and physically so as to make him a valuable asset to himself, his family and the community at large. As we know that the child is the father of man, in the sense that today's child is the maker of tomorrow and he will be responsible for the advancement of future generation in every field of human existence. Hence it is our duty to provide all possible encouragements and facilities with a view to improving the conditions of learning opportunity to every child. In the absence of such provisions the potentials of most of such children will remain underdeveloped. Unfortunately adequate facilities required for the total development of the child are not being provided to most of our children. So they happen to remain isolated from the main stream.

It is a fact that a developing country like India has a large population of which the vast majority is illiterate and is living below poverty line. As such, they do not get

enough chances for providing their children with proper care and educational facilities. It is also unfortunate to note that even in schools, from LKG level itself, lack of attention and care is a common feature. In other words, children do not get opportunities to improve his mental or physical abilities so as to cope with the learning process of other children of their age in developed countries. In this context, it is to be noted that a number of children lag behind in their studies merely due to certain psychic conditions which are normally not observable. However such conditions are not always diagnosed and remedial measures adopted. It is under the grip of such conditions, children who have equal potentials with that of many, fall very back, for reasons not often identified and rectified in time. In the west, educationists and psychologists have made innumerable studies in this field and have formed at strategies for identifying such disabilities and for making proper diagnosis leading to adopt remedial measures, which are helpful to bring them up on par with those having no such disabilities. Certain psychic disabilities are experienced by some children and as such their scholastic achievement is comparatively very low than that expected of the age, schooling, and level of intelligence. The frequency of such children is rather high and hence, it is high time to develop a tool to identify them. For this, teachers should have proper understanding of learning disabilities and its causes of low achievement among children.

It is a fact that wide disparity, in academic achievements among pupils is a usual feature found in our schools. It is noticed that a few pupils achieve very high,

some are average performers and yet others perform very poorly. It is found that, usually, in every class nearly twenty percentage of pupils score comparatively poor marks. Such pupils are considered educationally low performers. The reasons for the low performance may be varied. Some of the pupils though intelligent score low marks in spite of their earnest efforts. But there are pupils with certain behavioural problems who are not keen in taking pain or efforts and hence perform badly. Yet another group effected by physical or psychic problems, do not take initiative or efforts in studies and thus scores low marks in examinations. But unfortunately we brand them as 'lazy' or 'stupid'. If a child gets poor marks, it is to be verified as to whether he suffers from certain learning problems before branding him 'stupid'. Therefore poor performance may be taken as a symptom of certain underlying educational problems of serious nature. A number of investigations have been made to identify the attributing factors of low academic performances. They are physical problems, poor intelligence, psychoneuro imbalances, emotional imbalances etc. Later it is identified that the psychoneuro imbalances; as Dyslexia-causing reading difficulties, Dysgraphia – resulting writing difficulties, Dyscalculia – resulting numerical difficulties etc. are the major causes of low performance. Among the psychoneuro imbalances major one is Dyslexia.

Dyslexia refers to learning disability in reading. But some dyslexics may also have difficulties in writing and spelling. Some others may face speaking or numerical difficulties. The main problem experienced by dyslexics is of language. So in the

present study, emphasis is given to the problems faced by dyslexics in basic language skills. Listening, speaking, reading and writing are usually considered as the basic language skills. Of these, speaking skill has completely been omitted due to certain practical difficulties in testing. Even though spelling is not considered as basic language skill, it is the fundamental unit of language which is directly or indirectly associated with all the basic language skills. Hence in the present study by the term basic language skill, the investigator refers to skills like listening, reading and writing including spelling ability.

DEFINITIONS OF LANGUAGE

There are a number of definitions for language. According to Sapier (1921) "Language is a purely human and non-instinctive method of communicating ideas, emotions and desires by means of voluntarily produced symbols." The main point to be noted in Sapier's definition is that Language is, purely human and non-instinctive.

According to Bloch and Trager (1942) "A language is a system of arbitrary vocal symbols by means of which social group co-operates." What is striking about this definition in contrast with Sapiers', is that it makes no appeal, except indirectly, by implication, to the communicative function of language. It puts all the emphasis upon its social function.

In his essay on Language, Hall (1964) states that "Language is the institution whereby humans communicate and interact with each other by means of habitually

used oral-auditory arbitrary symbols." Hall, like Sapier, treats language as a purely human institution, and the term 'institution' makes explicit the view that a language is used by a particular society as a part of that society's culture.

What is noteworthy in Hall's definition, however, is his employment of the term 'habitually used', that indicates historical reasons as well. Linguists and psychologists have been strongly influenced, for about thirty years or so, especially in America; by the stimulus – response theories of the behaviourists. Within the theoretical framework of behaviourism the term 'habit' has acquired a rather special sense.

Chomsky (1957) remarks that "from now on I will consider a language to be a set (finite or infinite) of sentences, each finite in length and constructed out of a finite set of elements."

The definitions quoted are intended to introduce some of the properties which some linguists have taken to be essential features of languages. Most of them viewed that languages are systems of symbols designed for the purpose of communication.

THE NATURE OF LANGUAGE

Language is the term by which we refer to the specific languages used in all communities. When we call language as a system of arbitrary vocal symbols, we

refer to some important aspects of its nature. According to linguists and scholars the following are the important characteristics of language.

LANGUAGE AS A SYSTEM

As a system, language is not different from other forms of non-material culture. A system can not be observed without analyzing orderly its features of behaviour. A system is a complex whole, like the human body with a set of connected parts of things, so is language system. The system of the body functions through different organs like the heart, lungs, brain, ears, eyes, etc. The various body organs are interconnected and work in co-ordination and in unison. Similarly the system of language functions through sounds, words and structures. These are integrated with one another and constitute the complex organic whole which is language. When some one says 'My friend is reading a book' he uses a language. That is he uses sounds (m, ai, f, r e), he uses words (my, friend, is, reading) and an accepted sentence pattern. He should not have communicated the message he used, only with one of the elements of language, that is either sounds, or words or structures.

LANGUAGE – A SYSTEM OF SYMBOLS

The utterances of speakers are correlated symbolically and associated with objects or events of phenomenal world. The utterances 'stand for' various features of

experience, or as we say, they have meanings. In spite of the superstitious veneration often accorded to mere words even in civilized societies, it is important to note that words are only symbols, not mystically identical with the objects and events they symbolize. For example, the Railway guard uses certain symbols. The green flag, the green lamp, the red flag and red lamp. The train does not start until the driver sees the guard showing the green flag or the green lamp, for they are symbols of all clear, go. This system works effectively because the symbols used are known to both the guard and the driver. Similarly, the system of language works through symbols, the symbols being words. Language functions effectively when the symbols used are known to the speaker and the listener, the writer and the reader. These symbols have the aspects of sound and meaning. For communication, there should be a meaning attached to the sound or sound constituting a symbol.

LANGUAGE SYMBOLS ARE VOCAL SYMBOLS

There are nefarious kinds of symbols of varied importance in human activities. Gestures, more or less conventionalized pictures, signal flags and traffic lights are common visual symbols. Drum-beats, church bells and bugle calls are auditory but not vocal symbols. But none of these, even when they make up a fairly complicated system, is language. We reserve the term 'language'exclusively for a system in which the symbols are vocal sounds – sounds produced by human beings through the movements of the vocal organs.

LINGUSTIC SYMBOLS ARE ARBITRARY

There is necessarily no philosophically valid connection between a vocal utterance and its meaning. This is very clear to every one knowing more than a language. To refer to an animal of the species Equuseaballus, an English man says horse, a French man Cheval, a German Pferd – peoples of other languages use still different words. All these words are equally appropriate and at the same time, arbitrary. Nevertheless a few words retain a universally accepted meaning with a more or less similar vocal sounds.

LANGUAGE – A FORM OF BEHAVIOUR

An infant knows no language. It has to learn over a long period of time. The starting point in language learning begins with crying in a state of distress or making soft guagling sounds in a state of delight. During the second month of birth the baby enters the second stage of language learning – babbling. At this stage he learns to make various isolated sounds. This period lasts up to 8 or 9 months. Finally the baby develops his babbling sound into speech sound of his group. He does it by imitation. It is often found that during the 9^{th} month the child speaks his first word. By six years of age he usually learns almost all the sounds and grammatical construction of his mother tongue.

LANGUAGE – CULTURAL EXPERIENCE

Every language is said to be the product of a particular society and culture. It carries meaning in relation to that society and culture. Every society possesses a distinct cultural and historic background. Therefore the language developed by each society has a close relationship with the evolution and progress of its civilization with social and cultural *locus standi*. A language invariably sprouts into existence in a complex phenomena of the peoples' habits and customs, ethical and theological insights and even geographical peculiarities. On a close study it can be seen that the mixed experiences of any group of people residing in a particular region is the soil in which their language is germinated and developed into its present form and vigour.

LANGUAGES ARE DYNAMIC

Language is constantly changing and developing and hence dynamic in nature. New words are being coined and words from other languages are being adopted in it and forms are changed. Change is an inevitable aspect of human languages. It takes no man's permission and waits for no man's approval. Language is the one gift that sets man apart from all other creatures and binds the human beings together above all the geographic barriers. According to John Dewey (1929) "The heart of language is not 'expression' of something antecedent, much less expression of antecedent thought. It is communication, the establishment of co-operation in an activity in

which there are partners and in which the activity of each is modified and regulated by partnership."

LANGUAGE – ITS ROLE IN COMMUNICATION

Language is an indispensable medium for acquiring knowledge. Any human record transmitted from one individual to another makes use of sounds, signs or symbols. Language is used to convey a fact, idea, feeling or emotions. Even those records which are, non-linguistic in ordinary sense of word, artistic, architectural, musical or even gestural have to be translated in terms of language to be fully understood. Every one contributes to the language by mere fact that he makes use of language for oral or written communication. The lexical meaning suggests language as "human and non-instinctive method of communicating ideas, feelings and desires by means of a system of sounds and sound symbols." As Emerson (1963) put it "language thus becomes the tool and product of all human society. It is a vital part of everything we do as it involves any means, vocal or other, of expressing or communicating feelings or thoughts."

Through language that human beings communicate with each other and share each others thoughts, feelings and emotions. Language is a vehicle through which the human thoughts are passed over from individual to individual and generation to generation. No society can build up or pass over its culture to future generation if it does not have a language. Hence language is considered not only as an element in the

culture of a society, but also as an essential basis for building it up. Gestures, pictures and symbols are modes of communication. They do serve some purpose on certain occasions. They can prove effective only if they reflect a certain language.

To many, language is the most important form of human communications. To others language is the first and foremost form of symbolism. Language is a learned arbitrary system of vocal symbols, through which human beings interact in terms of their common cultural experience and language habits. They are more important than motor skills of tongue and lips, since they unite thoughts and units of sound established in physical form within the brain.

Language functions as a symbol system permitting man to learn about his environment. It is true that we are able to communicate our ideas or desires by gestures and signs to a great extent. The concept of language is basically different from the above since it employs sound as the medium of expression of human thoughts and desires in words, either in written or spoken form.

Language is the most important means of communication among human beings, although not the only form. Trager (1942) remarks that, when a person talks of his vocal activity may be called speaking or speech, forming language. Human language differs from animal language, not only in the unique way of exploiting sound and the substance of expression, but also in the enormous subtlety of variation of content and its formal structure.

We know that our entire social structure is well mediated through language. It is language which makes human culture possible and it is a cultural activity

LANGUAGE DEVELOPMENT

Language development primarily refers to the child's acquisition of his first language. The child acquires his first language under informal and natural conditions. According to Psychologists by the end of the fourth year of age, children master the essentials of the language. The evaluation of a child's mastery of language is basic to his intellectual and social development.

Child's language development has been an active target of scientific enquiry at least for the last 200 years. Perhaps the earliest attempts to collect normative data on language acquisition was by the German philosopher Tiedemann, who published his observations in 1787, followed by physiologists in the mid 19th century. The first systematic and detailed chronicle of language development was published by Preyer in 1882. The subject also attracted serious consideration from Darwin and other scientists engaged in the study of the development of human species. Understanding the nature of language development in children, has ever been regarded as a key to understanding the phylogeny of mankind itself. The process of language acquisition has been studied within a wide range of disciplines including philosophy, psychology, anthropology, education and linguistics; with wide perspectives.

LANGUAGE AND EDUCATION

Children have to make use of language in the entire school programme. It is the instrument by which they learn the school subjects. It, therefore, becomes imperative to make them learn to read well, write efficiently, talk effectively and listen with reasonable degree of understanding. Disabled children have difficulty both in expressive and receptive languages. Therefore, it is necessary to analyse the role of language in communication and the interdependence of the four basic language skills, viz., listening, speaking, reading and writing.

Language is a vehicle of ideas being communicated, in the form of expressions, and those relating to experiences of self-realisation and is, perhaps the most peculiar human characteristic. In the use of language words stand for concepts. These concepts help to build up connected thinking capacity. This is the primary necessity of language learning. Above all language is a skill subject. It is a patterned form of learning activity of human beings, viz., listening, speaking, reading and writing.

Mother tongue is a language that a person acquires in his childhood days. A child born into a society is given every opportunity to acquire its language. It begins mingling with the members of the first social group, the family. This interrelationship helps the child in the learning process. A child who is deprived of such a social stimulation will have underdeveloped language ability.

Language is primarily a tool of communication. It is to be mastered for functioning meaningfully and effectively in society. Language belongs to, and is shaped and coloured by the society. Every world languages essentially bears the stamp of the society and the culture of the people who speak it. Human speech is originated in verbal imitation. Language is indispensable for civilized human life. It acts as a tool for thinking and communication as well; and is effectively used for acquiring and mastering all types of knowledge. Development of language is a marvellous achievement of man.

LANGUAGE SKILLS

The concept of language teaching centres around the proficiencies in Basic Language Skills. The modern skill based language teaching begins with the works of Palmer during the early phase of the 20th century. He tried to define language skills with a view to deriving certain instructional procedures for functional language teaching. Palmer (1922) viewed that language learning is essentially a habit forming process, during which we must acquire new habits.

Palmer tried to classify language skills with a view to identify the aims of language teaching in terms of skills. According to him the important aims of language teaching are:

- To understand the language when spoken rapidly by natives;
- To speak the language in the manner spoken by natives;

- To understand the language as written by natives (i.e. to read the language);
- To write the language in the manner natives write.

Language is a "skill subject" and that learning a language involves acquiring proficiency in certain specific skills, as pointed out by most of the early language experts.

GENERAL NATURE OF THE BASIC LANGUAGE SKILLS

A. Listening

Listening as a language skill refers to the understanding and interpreting of the messages being received in the form of spoken language. The listener hears the spoken form of language from an external source and interprets what has been presented and comprehended. Listening is explained by experts like Duker (1969) as receptive communication skill. Though listening depends on hearing, the two terms are not synonymous. Hearing involves the conversion of pressure waves into neural impulses moving to the brain for interpretations. Listening is the process of interpretation of the idea contained in the spoken language. The listener tries to relate an intelligent message to his past experience.

Sub-Skills of Listening

Listening skills are Receptive and Reflective. Wilkinson (1970) refers to the taxonomy of listening skills drawn up by Nicholas and Brown and attempts to distinguish between 'receptive' and 'reflective skills'.

Receptive Skills refer to the following types of abilities:

- Ability to keep related details in mind,
- Ability to observe a single detail,
- Ability to remember a series of details,
- Ability to follow oral directions.

Reflective Skills relate to the following types of abilities:

- Ability to use contextual clues,
- Ability to recognize organizational element,
- Ability to select main ideas as opposite to subordinate ideas and details,
- Ability to recognize the relationship between main ideas and subordinate ideas.

Rivers (1972) classified the sub-skills of listening. He has distinguished between two levels of activity in listening skill.

1. The recognition level and
2. The Selection level.

He has also listed the specific proficiencies for the listeners: recognition of sound patterns, levels of pitch, word groupings, grammatical sequences and tenses, modifiers and function words, clichés, level of discourse, emotional overtones and social or dialectical variations.

Valatte and Disick (1972) classified the sub-skills of listening as follows:

a) Mechanical skills – perception

b) Knowledge – recognition

c) Transfer – reception

d) Communication – comprehension

e) Criticism – analysis

f) Criticism – evaluation.

Listening can be classified according to its purpose in different situations. Listening connected with conversation in social situation is known as social listening. Secondary listening means listening to music that follows rhythms or folk dances. Listening to music, poetry or drama heard on radio or on recording is known as Aesthetic listening. Critical listening includes noting correct speech habits, word usages and sentence elements of others. Creative listening is the listening associating meanings with all kinds of listening experiences.

Listening is one of the most significant areas connected with teaching of mother-tongue. Listening requires engagement of thinking process by an active participant. If the listener's cognitive abilities are not properly engaged he can not retain anything.

Listening is the first and foremost of language skills. Through listening the learner must be able to recognize the sounds of the language and understand their

true meanings. As regards the proficiency in handling language, one must have a high degree of expertise in particular language skill such as listening.

Listening comprehension is also an important language skill. Some techniques are now available for group tests on auditory comprehension. The importance of listening in communication has long been recognized.

Listening is a skill related to thinking. Thinking is an integral part of good listening. All of the language arts require skilled listening ability. Listening provides the vocabulary, the sentence patterns, and the auditory discrimination that build a foundation for children to speak, read, spell and compose.

Our pupils do not know how to listen to teachers and understand their words. It is also true that teachers do not provide the pupils with any systematic, deliberative and intensive training in listening comprehension.

B. Reading

Reading refers to a process in which meaning is endorsed to written symbols by the recipient, which serve as stimuli for the recall of meanings built up through past experience, and further the construction of new meanings through the readers manipulation of relevant concepts already in his possession. According to Jeinnings (1965) reading begins with the management of signs of things. It begins when the

mother, holding the child's hand, says that a day is 'beautiful' or 'cold' or that the wind is 'soft'.

Reading means getting meaning from certain combinations of letters. Teach the child what each letter stands for and he can read. Reading is not a simple mechanical skill, nor is it a narrow scholastic tool. It should be developed as a complex organization of patterns of higher mental process.

Reading Comprehension

Reading without comprehension is not reading at all. Comprehension and reading must go hand in hand. Hafner and Jolly (1972) suggest that "the word comprehension in its broadest sense, refers to one's ability to comprise, to understand, to grasp with the intellect." Mac Millian (1965) defines comprehension as understanding what is written within, between and beyond the lines. It is an intelligent interpretation and it includes:

a) reading to get the main idea

b) reading to get the important details

c) reading to answer specific questions

d) reading to following the logical sequence and development of idea

e) reading to apply what is read.

Comprehension involves assembling the meaning of individual symbols and words and integrating and interpreting the several meanings in order to obtain a meaningful whole.

Sub-Skills of reading

Strang (1967) made a list of five levels of reading comprehension, as follows:

a) Receptivity and understanding

b) Literal comprehension

c) Critical enquiry or evaluating reading

d) Creative reading

e) Pragmatic application in real life.

Harris (1972) analysed the three variables of reading-developmental, functional and recreational into three large divisions of elements.

1) Skill in the mechanics of reading

2) Word recognition and comprehension skills

3) Ability to locate reading materials relating to one's interest and tastes.

Major Elements in Reading

Physical health, mental health, intelligence, maturity, background of experience and attitude towards reading are some of the elements important to improve reading.

Fortunately, nearly all the children come to school already possessing most of these elements in some degree. A minority of children learn to read in spite of the lack of some of these elements.

Excellence in the teaching of reading is related to insight into the interplay of various aspects of reading. Some of these aspects, which deserve balanced attention in reading instruction are; word recognition, comprehension and reflection. Many educators have pointed out that word recognition and comprehension do not comprise the total of the reading act. Reading involves a two fold process. The mechanical process involved in bringing the stimuli to the brain, and the mental process involves in interpreting the stimuli after they are got into the brain. Reading is the process of giving significance intended by the writer to the graphic symbols relating them to one's own experiences.

Nearly 85 to 90 per cent of learning disabled children have reading problems resulting in poor academic achievement. The problems include mispronunciation, skipping, adding or substituting words as well as problems in memory, reversing letters or words and blending sounds together may be thought of as critical reading. Like many other specialists in the field of reading Gray (1985) emphasises the four aspects he identified – word recognition, comprehension, reaction and fusion bearing on each other.

C. Writing

In language, art of reading and listening constitute input, and speaking and writing are output. Writing skill in language refers to forming of symbols representing sounds of language. It is the process of encoding messages in the medium of letters and words so that one conversant with the language can read and comprehend it by decoding the symbols. Writing, as an expressive skill of language, is primarily a means of recoding speech, says Morris (1976). Otto (1960) looks upon writing as the visible record of thought, the residual of human thought.

To master writing, certain amount of practice and effort is required. Besides spelling and reading, writing actually represents the first difficult and complicated skill that a child has to master.

Handwriting involves a complexity of factors. It is sensory motor skill based on factors of external conditions, muscular adjustments of arm, hand, wrist, fingers, mental power of intelligent perception and memory.

In writing, two essential factors are involved-quality and speed. The form, in fact, is more important. The two factors usually go together though various combinations such as quick legible writing, slow legible writing, quick illegible writing and slow illegible writing.

Sub-Skills of Writing

Writing is a highly sophisticated skill combining a number of diverse elements.

Valette and Sisick (1972) have identified the following sub-skills of writing.

a) Reproduction

b) Recall

c) Application

d) Self-expression and

e) Synthesis.

Writing is translating of thoughts on to paper. It is a very important skill, particularly during the school years. Schools lay much emphasis on written communication.

There are three major areas of written language. They are hand writing, spelling and written expression. Johnson and Myklebust (1967) spoke of three main types of difficulties in written language. They are:

1. Disorder in visual motor integration (Handwriting difficulties)
2. Disorders in revisualization (spelling disorders) and
3. Deficiencies in formulation and syntax (written expression)

When a student is unable to transduce visual information to the motor system, disorders in visual motor integration (handwriting difficulties) occurs. Such students experience much difficulty in writing or copying letters, words and numbers. This condition was often called dysgraphia.

D. Spelling

Ideally there should be one symbol for each sound and one sound for each symbol to aid spelling. Correlation between spelling and reading are relatively high. The process of learning the spelling of new words having thoroughly investigated during years of research, the essential steps of procedure have been formulated and standardized. They are 1) Look at the word, pronounce it and think of its meaning, 2) Mentally divide the word into syllables, pronounce it and look closely at the sound and letter grouping in each syllable, 3) close your eyes and recall the word by syllables, repeating the letters, 4) look again to check your visual impression, 5) write the word from memory check, 6) write the word several times. It will be observed that the pupil starts with the whole word recognition, meaning, pronunciation, then proceeds to the study of parts and finally returns to the whole word in writing. Visualization and actual writing are important parts of the process. Practice is an important phase of word mastery. It is commonly done by independent study, to some extent supervised and checked by the teachers.

Process of spelling

First, we may sound the word to ourselves. Secondly, we may break the word down into the constituent parts – syllables and to sounds (Phonemes). Thirdly, we may visualize the written form of the constituent parts, and associate written letters (graphemes) with them. Fourthly, when alternative graphemes are possible we need to decide amongst them. Fifthly, we may visualize the whole word to see if it looks right. Finally, we apply our motor skills and write the word down.

Poor spelling may be due to many a cause. If a child has weak auditory skills he may not be able to represent the sound of a word to himself, or analyse it into its constituent parts. Such a child will make 'unphonetic' errors and may also be experiencing difficulty with his reading. A child may have a poor visual memory, so that he can make the phoneme—grapheme link, but can not visualize how the word should 'look'. This will result in 'phonetic' misspellings and will not affect his reading. A vast majority of spelling mistakes among adults and an elder children having adequate auditory and visual memory are of this kind.

E. Vocabulary

The development of vocabulary in early years of the child's life is associated with the process of growing up. From a very few words at one year of age, the vocabulary increases to thousands as the child progresses through elementary school.

Vocabulary is the stock of words used by a person, class or profession in a broad sense.

Good (1959) has given the meaning of vocabulary under different sections. He classifies vocabulary in thirty six categories and gives the meaning of each one. Among them the following are considered to be important.

1) Basic reading vocabulary

1. The fundamental vocabulary essential for effective reading.
2. The vocabulary that is systematically taught in the basic reader, as contrasted with vocabularies of supplementary readers and the school subjects.

2) Listening Vocabulary

The number of words an individual can understand when they are heard, as contrasted with reading vocabulary, the number of words he can identify and understand by reading.

3) Meaning Vocabulary

1. The words which one understands and the meaning of which he knows.
2. List of meanings represented by words in a given amount of materials.

4) Recognition vocabulary

Those words which a person can recognize in context but that he may not be able to use in his own speech and writing.

5) Spelling vocabulary

1. The words to be taught in spelling
2. The words that one is able to spell correctly.

6) Comprehension vocabulary

Words having meaning when heard or seen even though not produced by the individual himself to communicate with others.

Inter-relationship of Basic Language Skills

Language is an art as well as a science. Proficiency in using a language is gained through experience. Learning is facilitated by giving special attention to the factors and elements that contains the way the child listens, talks, reads, writes and masters the basic language skills.

The language skills; listening, speaking, reading and writing, have much in common. All have a common purpose. One skill contributes to another. Reading develops vocabulary and thereby contributes to a better appreciation of literature. It is language ability, which correlates all language skills. Language skills do not develop independent of each other. The force governing group life is what we call culture. The culture determines the meaning that children attach to words and statements. It also determines the time when learning experiences should be initiated and the sequence in which skills should be developed.

NEED AND IMPORTANCE OF THE STUDY

Children with learning disabilities or handicap are often seen with frustration. The Indian Constitution guarantees equality of educational opportunity to all irrespective of caste, creed, colour, sex etc. One of the rights of every child is that he should have enough opportunity to learn to the best of his ability. But unfortunately children with learning disabilities like dyslexia is not having such opportunity. They form about five to ten percent of the school population. They are often discouraged by the society. These children can be infused with self confidence and self-esteem by teaching them using multisensory methods. But in our schools we are following traditional methods of teaching only. Special programmes for teaching children with learning disabilities with special reference to dyslexics are of recent origin in the state of Kerala. Identification of dyslexics is possible, only by identifying the functional disabilities underlying dyslexia. But most of the teachers are unfamiliar with the way of identification of dyslexics. Learning disabilities like dyslexia are to be detected and diagnosed in childhood itself. Diagnosing learning disabilities early in childhood is of great relief for the parent, the teacher and above all the affected child.

In our country most of the parents are unaware of the concept of dyslexia and are not giving proper attention to dyslexic children. They often label the children as lazy or stupid without considering the real nature of the problem. There were many

eminent persons who are dyslexics, but because they were provided with effective environmental and academic facilities they could overcome the disabilities. Such Famous dyslexics include Edison, Einstein, Woodrow Wilson and Winston Churchill. At the age of 19, Thomas Alwa Edison wrote a letter to his mother in his own handwriting, which is given as Appendix I. From this, it is clear that the person like Edison had dyslexic problems in writing. By identifying such problems in time and providing enough facilities he could overcome such difficulties and thus the world could obtain renouned scientist. In our country too there may be such children having caliber to develop normally, but due to our ignorance we are not able to find out their potentialities and develop them. Therefore the investigator has decided to study the problem in depth and to suggest ways to identify the defects.

If we diagnose dyslexics in the early stage itself, remedial programmes can be provided and it will invariably improve their self esteem. No such studies have been carried out in Kerala to identify dyslexics so far. Hence there is a need to develop proper methods and strategies for the identification of dyslexics so as to provide them with special care and attention according to their special needs. In the present study, the investigator intended to develop a tool to identify the dyslexics.

Children with dyslexia find it difficult to read and write. In the normal classroom we can see such pupils experiencing difficulties in reading and writing. And some of the children may write the alphabets in reverse order. But due to lack of

knowledge about the disabilities due to dyslexia, teachers are not able to identify these children at the right time. So an attempt is made in the investigation to find out the types of errors normally committed by dyslexics for easy identification by the teachers.

A close examination made by the investigator of the different aspects of learning disability, it is convinced that dyslexia is prominent among the primary school children. Though they are not mentally retarded we often consider them as mentally retarded. If we diagnose and identify the dyslexics in the early stage, remedial programmes can be provided with to improve their condition. Dyslexia is a universal phenomenon and it is found in people of all languages. Many studies have been carried out by researchers in English language to identify, diagnose and to take remedial measures. In India it has been done in Kannada by Ramaa (1993). No studies have been carried out in Kerala to identify dyslexics so far. Hence the investigator intends to carry out a study – "A Study of Difficulties in Basic Language Skills in Malayalam among Primary School Children with Dyslexia." The investigator earnestly believes that the outcome of the study will be useful for educational planners, administrators, educators, parents and those who are concerned with the welfare of the dyslexic children.

STATEMENT OF THE PROBLEM

"A STUDY OF DIFFICULTIES IN BASIC LANGUAGE SKILLS IN MALAYALAM AMONG PRIMARY SCHOOL CHILDREN WITH DYSLEXIA."

DEFINITION OF KEY TERMS

Language Skill

By language skill is meant the acquisition of the techniques of symbolic communication including the identification of the meanings that have been assigned to a series of sounds or other symbols, the recognition and reproduction of the symbols used in the customary linguistic orders and structures and the acquisition of the motor skills (pronounciation, spelling, reading and writing) necessary to use the symbols learned.

Basic Language Skills

The skills that are fundamental to the effective use of mother-tongue are considered as basic language skills. Thus the skills in Malayalam, viz., listening, speaking, reading and writing are considered as basic language skills. In the present investigation, basic language skills means the skills in listening, reading and writing including spelling ability.

Dyslexia

In the dictionary the term dyslexia means severe reading difficulty. But in the present study the investigator refers to disability of pupils in listening, reading and

writing including spelling in the language of Malayalam. The pupils who are affected are called dyslexics.

Primary School Children

Pupils who are studying in standards I, II, III and IV in the state of Kerala.

OBJECTIVES OF THE STUDY

The objectives of the study are the following.

1. The objective of this study is to find out the difficulties faced by the dyslexics in four basic language skills, viz., listening, reading, writing and spelling.
2. To find out the difficulties faced by the normal pupils in four basic language skills.
3. To compare the difficulties faced by the dyslexics and normal pupils in four basic language skills.
4. To find out the type of errors committed by dyslexics in four basic language skills.

HYPOTHESES

The present study has been proposed to verify the following hypotheses.

1. There is significant difference between dyslexic and normal pupils in

   a) Listening

   b) Reading and

   c) Writing including Spelling ability.

2. There is no significant difference between normal girls and normal boys in

   a) Listening

   b) Reading and

   c) Writing including Spelling ability.

3. There is no significant difference between dyslexic girls and dyslexic boys in

   b) Listening

   c) Reading and

   c) Writing including Spelling ability.

4. There is significant difference between dyslexic girls and normal girls in

   a) Listening

   b) Reading and

   c) Writing including Spelling ability.

5. There is significant difference between dyslexic boys and normal boys in

   a) Listening

   b) Reading and

   c) Writing including Spelling ability.

DESIGN OF THE STUDY

The present study is essentially an experimental cum descriptive study.

SAMPLE

Sample of the present study was drawn from Malappuram district. Twenty schools belonging to Vengara educational sub district were selected randomly. From these schools, 1880 IVth standard students were selected for the present study.

TOOLS USED

Tools Adopted

Identification of Dyslexics:

a). Intelligence Test (Ravens coloured progressive Matrices)

b). Questionnaire prepared by Association for Learning Disabilities.

Tools Prepared

Tools for measuring Language Skills:

a). Tool for measuring Listening Skill

b). Tool for measuring Reading Skill

c). Tool for measuring : (i) Writing skill, (ii) Spelling ability

TECHNIQUES OF ANALYSIS

The data has been carefully analysed by employing appropriate statistical techniques. Descriptive statistics such as Mean and Standard Deviation have been used to describe the distribution of scores. Graphical representations are also made suitably to test different hypotheses. The inferential statistical techniques such as t-

test have been employed to test different hypotheses. The obtained numerical results have been interpreted meaningfully. Detailed analysis of the data and discussion on the results are presented in the succeeding chapters.

SCOPE AND LIMITATIONS OF THE STUDY

Tools constructed for the study would help the teachers, researchers, planners and administrators to measure the basic language skills. This study would also help teachers to identify dyslexics on the basis of the criteria specified in the study.

The study was limited to IVth standard pupils only due to certain practical problems. The area selected for the study was twenty schools of Vengara panchayat. Sample of the study was 1880 pupils only. Listening, speaking, reading and writing are considered the basic language skills. Of these speaking has been completely omitted. In the present study the investigator analysed only the types of errors committed by dyslexics in listening, reading and writing including spelling ability. Limitation of time and other facilities impose the restriction.

CHAPTER SCHEME

The thesis is organized in five chapters. First chapter contains a brief introduction of the problem, a theoretical background about language development and interrelationship between four basic language skills, need and significance of the study, statement of the problem, definition of key terms, objectives of the study, design of the study, scope and limitations of the study.

Second chapter consisted of two parts. Part A and Part B. Part A deals with a theoretical overview of learning disability with special reference to Dyslexia. Such as the concept of learning disability, types of learning disabilities, concept of dyslexia, levels of dyslexia, types of dyslexia, causes of dyslexia, problems of dyslexics in listening, reading and writing including spelling ability and various methods of treatment. Part B deals with empirical studies conducted abroad. It consists of studies related to Neuropsychological dysfunctions of dyslexia, analysis of reading errors committed by dyslexics, remediation of dyslexia and studies related to basic language skills.

Third chapter describes the design of the study. It gives a detailed picture of the tools used, selection of sample, data collection procedure, scoring and consolidation of data and statistical techniques used for analysis.

Fourth chapter deals with the analysis and interpretation of data obtained for the study.

Fifth chapter offers conclusions arrived at from the study, suggestions for improvement and area for further research.

REVIEW OF RELATED LITERATURE

P.V. Happy “A study of difficulties in basic language skills in malayalam among primary school children with dyslexia ” Thesis. Department of Adult and Continuing Education and Extension services,University of Calicut, 2002

Chapter II

REVIEW OF RELATED LITERATURE

REVIEW OF RELATED LITERATURE

This chapter consisted of two parts. Part A and Part B. Part A contains a theoretical overview of learning disability with special reference to Dyslexia; such as the concept of learning disability, characteristics of learning disability, types of learning disabilities, concept of dyslexia, levels of dyslexia, types of dyslexia, causes of dyslexia, problems of dyslexics in listening, reading and writing including spelling and various methods of treatment.

Part B, is dealt with emperical studies. It consists of studies related to neuropsychological dysfunctions of dyslexia, analysis of reading errors committed by dyslexics, remediation of dyslexia and studies related to basic language skills.

PART A

DYSLEXIA – A THEORETICAL OVERVIEW

Learning disabled children involves a widely divergent group of individuals of strengths and weaknesses. It is observed that every one in five, primary school children would likely to have learning disability at some time in their school career. It has been noticed that due to lack of diagnosis and attention, the disabilities are often left unnoticed. The children effected by some psychological or neurological disorders or both; may become low performers not because of they are being intellectually backward but for want of identification and rectification of such

disorders. There are many bright children who are considered disabled by the society simply because of their disabilities have not been identified in time for remediation.

Reading difficulty caused by neuropsychic imbalances or disequllibrium, could be corrected by adequate training, imparted in the right direction. Dyslexia is a term used for the difficulty experienced by the children in reading. The dyslexic children may otherwise be normal in all intellectual functions; and perhaps par excellence, in their performances. Dyslexia being a neuropsychic disorder, unless identified in time and corrective measures taken, may develop into serious problems in the personality development of the child. The dyslexic child often tries to keep himself away from others due to the problem of neuropsychic disorders known to him. Ever so many researches have been done in this field and many corrective measures suggested for the rectification of the disorder. Educational researchers, on the basis of their continuous research on the subject, attributed many a reason for low academic performance of children. Though there are physical problems.; dyslexia a neuropsychic disorder causes learning problems and emotional disequillibrium. Dyslexia, affecting the language abilities, often found in primary school children is to be identified early and remedial measures taken.

CONCEPT OF LEARNING DISABILITY

The term 'Learning Disability' indicates inadequate ability in learning. When a person has inadequacy or limited ability in learning a wide variety of tasks

involving different levels of intellectual functioning, he can be considered to be of general mental retardation. On the other hand if the limitations are restricted to certain areas of learning, especially language and a number related areas, he can be considered to have learning disability. In order to differentiate the two, "General Learning Disability" is suggested as an equivalent for mental retardation and the term "Specific Learning Disability" for disabilities observed only in certain areas of learning. The specific learning disabilities are usually indicated as reading disability, writing disability etc.

The terms; 'learning disability', 'the slow learner' and 'the handicapped learner' describe the child who, though intellectually normal, appears less capable than the average one. At the outset, it is important to distinguish between 'disability' and 'incapacity'. In the learning disabled child, the capacity to achieve exists. The problem lies in the disability to actualize what might be of a high or even very high intellectual potential. To be even more explicit, the learning disability can now be looked at as a discrepancy between ability and achievement, between potential for learning and the level of learning attainment. A learning disability is a type of under achievement, not due to lack of effort or opportunity.

Learning Disabilities are defined by the National Joint Committee on Learning Disabilities (January 30, 1981) as "a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the mastery of one or

more of the following; listening, speaking, reading, writing, reasoning, mathematical and other skills and abilities that are traditionally referred to as academic." The term learning disabilities is also appropriately applied in instances where persons exhibit significant difficulties in mastering social and other adaptive skills and abilities. In some cases, investigations of learning disabilities have yielded evidence that would be consistent with hypotheses relating to the influence of central nervous systems dysfunction on the disabilities. Even though a learning disability may occur concomitantly with other handicapping conditions or environmental influences, it is not the direct result of those conditions or influences. However, it is possible that emotional disturbances and other adaptive deficiencies may arise from the same patterns of central processing assets and deficits that generate the manifestation on academic and social learning disabilities.

Learning disability involves a group of disorders. It may be in the form of disabilities in reading, writing, spelling, arithmetic or of social skills. These disorders may be due to the inadequate development of some areas of the brain. If brain and psychic mechanisms function properly, normal learning takes place. In children with learning disabilities, brain and psychic mechanisms present do not function properly. Learning disability is a life long disorder which affects the selection, retention and expression of information. It can be noticed in children with average or above average intelligence. The incoming and outgoing information may be scrambled as it

travels between the senses and the brain. The child has significantly definite disorders in one or more aspect of learning process, resulting in a gap between his potential and achievement. Each child, adolescent or adult with learning disorder is unique, in that, each shows a different combination and severity of problems.

There exists a lot of confusion among educationalists regarding the concept of learning disability. Many of them do not consider it as a neurological disorder. They consider it as a simple difficulty in learning, leading to scholastic backwardness. They even have the belief that with a little more hard work these children can overcome the learning disabilities.

The child, thus is considered as learning disabled if (i) he has considerable difficulty in understanding or using spoken language, reading, writing, spelling or arithmetic during the developmental period. (ii) he is free from visual, hearing or motor disability, mental retardation, severe emotional problems, and (iii) he has adequate facilities, interest and motivation to learn.

Characteristics of Lerning Disabilities

Learning disabled children generally may have normal or above average intellectual ability. It means that they reach most of the developmental milestones at the appropriate age level or even sometimes earlier. Usually they are not easily differentiated from normal population. But a closer look at them reveals that they

have certain peculiar characteristics. If we observe them among other children of same age and intelligence, it can be seen that these are manifested in their behaviour to a significantly greater extent. The knowledge of such characteristics and their behavioural manifestation are useful in identifying the learning disabled at a very early stage itself. The table below gives a list of most commonly observed problems among learning disabled children, the nature of such problems and a few illustrations indicating their specific difficulties.

Table 1

Nature of the problems and their behavioural manifestations among learning disabled children

Kinds of problems			Description	Examples of behaviour in which the problem is manifested
I	Abnormal Activity Level			
	a)	Hyperactive	Constantly engaged in some form of motor (physical) activity	Restless tapping of finger or foot, jumping out of seat or skipping from one task to another before completing it.
	b)	Hypoactive	The opposite of hyperactivity. Fails to read to the environmental changes or seems to do everything in slow motion.	Do not show interest even in sports or games. When all the other children are engaged in some activity, may sit quietly. Takes more time to do even simple tasks.
2	Attention problems			
	a)	Short attention span easily distractible	Easily distracted by what is going on in the surroundings. e.g. Lizard moving on the wall, foot step outside the classroom, etc. Unable to concentrate on tasks for the required amount of time	In the classroom, may concentrate on what is being taught for a few minutes, then start doing something which he likes drawing some picture, looking outside, etc.

	b)	Preservation (too much over doing)	Attention becomes fixed upon a single task. That task will be repeated over and over even if it is unwanted. It may be a motor activity or verbal task.	If the child starts drawing a picture, he may repeat the same several times, certain lines of a poem may be reproduced continuously, while playing toys also same kind of act may be repeated. Even after noticing that a particular way of solving a mathematical problem, he is wrong, still try to do the same way.
3	Motor Problems			
	a)	Inadequate coordination	Physical activities are generally clumsy or awkward .	Day to day activities are not done systematically, cannot handle utensils or instruments, or play materials properly. Finds difficulty in playing games appropriate to age, cannot draw or paint properly, write legibly.
	b)	Poor tactile kinesthetic discrimination	Has difficulty in discriminating shapes, textures sizes only through touching. Lacks adequate visual motor memory.	Experiences difficulty in identifying subjects by touching. Cannot write or draw spontaneously. This leads to poor writing.

4	Visual perceptual problems			
	a)	Poor visual discrimination	Unable to distinguish between visual stimuli, that means can not find out the similarities or differences between objects, shapes, symbols only through seeing them.	Has difficulty in differentiating shapes which have some similarity – rectangle and a square and symbols like + and x; < and >, b and d; p and q etc. Has difficulty in sorting out objects in terms of size, shape, colour etc.
	b)	Difficulty in visual figure ground differentiation	Unable to perceive a foreground figure against a back ground. That means unable to attend to important visual stimuli by pushing all other visual stimuli into the background.	While reading or writing may skip lines, unable to print within the outline, interpreting pictures, stores or social situations
	c)	Difficulty in visual closure	Cannot fill in missing parts when only part of a word or object is seen.	Has difficulty in identifying 'hidden shapes or pictures, (the sort of puzzle given in popular magazines). Cannot complete the figures on letters written in dots. Has difficulty in identifying the missing parts in pictures of common objects.

5	Auditory perceptual problems			
	a)	Poor auditory discrimination	Unable to distinguish one sound from another.	Cannot determine whether non language sounds – horn sounds of vehicles for example are same or different. Has difficulty in distinguishing non language sounds from language sounds. Unable to hear the differences or similarities in initial or final sounds of words, consonant blends or vowels.
	b)	Poor Auditory Reception or Comprehension	Unable to gain meaning from auditory symbols.	Has trouble in listening or attending to auditory stimuli. Unable to answer yes or no to a question containing one concept, e.g. Can you sing? Do trees walk? etc.
	c)	Difficulty in auditory figure ground differentiation	Unable to attend to important auditory stimuli by pushing all other auditory stimuli into the background.	Cannot concentrate on verbal discussion for long time, easily distracted by other environmental sounds.
	d)	Deficiency in Auditory closure	Cannot fill in missing sounds when only part of the word or sentence is heard.	Has difficulty in fill in the gaps when the miss parts of words or conversations, completion of words and sentences.

	e)	Deficiency in Auditory memory – auditory recognition, reauditorization, auditory sequential memory	Children with auditory memory problems often have difficulty in retaining or recalling auditory experience. Some children with this difficulty may find it hard to recognize auditory stimuli they have already heard. Some others can easily recognize but cannot recall the auditory signals needed to produce the desired sound. Reauditorization and auditory sequential memory problems are most frequently observed among learning disabled.	Persons with a reauditorization problem knows what he or she wants to say but is unable to recall from memory how he desired sound or word can be vocalized. They may substitute the sound produced by the animal or by the object for its name ('barking' for the word 'dog') or drawing pictures to express their ideas, may wait several seconds before responding; may write the word as a means of communication. Children with inadequate auditory sequential memory fails to learn songs, stories, rhymes, names of weeks, months, multiplication tables, etc.

6.	Language problems			
			Delayed or slow development of speech; difficulty in formulation and syntax – unable to organize words to form phrases, clauses or sentences in the appropriate way.	The kinds of difficulties noticed in case of children with reauditorization, and auditory sequential memory deficits can be noticed here also. In addition to that defects in sentence structure can also be easily noticed.
7	Faulty work habits			
			May organize work poorly, work slowly, frequently confuse directions, or rush through work carelessly.	Do not plan work properly, thus there is no systematicity in work; may start drawing, painting or writing from a wrong direction
8	Social – emotional behaviour problems			
	a)	Impulsive	Fails to stop to think about the consequences of behaviour.	Gives answers to questions without trying to see whether they are right or not, fails to observe rules while playing; cannot wait for his turn for anything.

	b)	Explosive	Displays rage reaction or exhibit temper transtrumes when needs are not met with.	Exhibit physical or verbal aggression on others, may throw away objects
	c)	Inadequate social competence	Often below average social competence for age and ability, lack social skills.	Unable to accept leadership; fails to complete the responsibility accepted.
	d)	Difficulty in adjusting to changes	Take more time than others to adjust to changes in place, time, persons, nature of task, programmes etc.	Routine things have to be done at a particular time; things have to be kept or arranged in a particular place, change in class timings, sitting arrangement, change in class teacher all may upset them. Similarly change in type of questions, objective type to short answer type vice versa, different kinds of strategies for solving a mathematical problem many disturb them.
	e)	Drastic change in mood	Mood varies from hour to hour without obvious reason.	
9	Orientation Problems			
	a)	Inadequate spatial organization	Poorly developed concept of space; distorted body image, trouble in judging distance and size, and difficulty in	Cannot understand spatial concepts like top, bottom, inside, outside etc. unable to point out left hand, right eye etc, can

			discriminating figures from ground, parts from the whole and left from right.	not judge the distance between himself and the ball coming from the opposite direction while playing, cannot understand concepts like more, less, some, several, widest, biggest, etc.
	b)	Inadequate temporal concepts	Disoriented in time.	Experiences trouble in relating concepts like before and after, now and when, today and tomorrow, etc.
10	Academic Disabilities			
			Problems in reading, writing, spelling and arithmetic.	Difficulty in reading and writing letters, words and sentences correctly and with optimum speed. Has difficulty in fundamental arithmetic operations number concepts, addition, subtraction, multiplication and division.

Every learning disabled child does not obviously demonstrate all the above characteristics, rather each exhibits a unique combination of such tracts. Depending upon such a combination they experience different kinds of learning disabilities.

Types of Learning Disabilities

Learning disabilities noticed among children can be broadly classified into various categories depending upon the major or primary problem experienced by them. The table below indicates different types of learning disabilities, the nature of these disabilities in terms of major or primary problems and the possible causes for such problems as well as the remedial measures relating to each type of learning disability.

Table 2

Types of Learning Disabilities, Major Problems Encountered and Implications for Remediation

Types of Disability			Major or Primary Problems and Possible causes	Implications for remediations
I	Oral – Language Disabilities			
	a)	Dysphasia	Partial inability to comprehend the spoken word (receptive dysphasia) and to speak (expressive dyspheria) which is believed to be the result of injury, disease or maldevelopment of the brain.	Intensive training in language and speech development is required. This should be done in a clinical set up.
	b)	Aphasia	Loss of the ability to comprehend, manipulate, or express words in speech, writing or gestures. Usually associated with injury or disease in brain. Auditory aphasia refers to the inability to comprehend the spoken words. Formulation aphasia refers to inability to formulate sentences properly. Confusion occurs in relationships and tenses rather than in words themselves (e.g. Uma gives flowers).	Same as in the case of dysphasia. But needs more intensive training than dysphasia.

2	Reading Disabilities			
	a)	Dyslexia	Partial inability to read or to understand what one reads silently or aloud. Condition is usually, but not always associated with brain impairment. May be also due to hypoglycemia (Low blood sugar) or protein, vitamin and mineral deficiencies. Familial dyslexia is a form of reading disability believed to be caused by hereditary factors. It is assumed that boys with reading problems possess a type of delayed neurological and perceptual development arising from neuropsychological characteristics which they have inherited from their reading disabled fathers. Dyslexia is mainly due to deficiency in visual verbal association (relating visual features of a stimulus with its name, e.g.letter and its name, symbol and its name, etc.) In addition they may have deficiency in visual and	Medical intervention to control sugar level in the blood, and to correct malnutrition and vitamin deficiencies. Systematic exercises to enhance neurological and perceptual development in the clinical set up. Remedial teaching to overcome reading and other associated difficulties.

			auditory, perceptual problems, word analysis and synthesis (analyzing the word into its component sounds and blending the component sounds into words).	
	b)	Alexia	Lose of the ability to read, write or printed language	Same as in the case of dyslexia. Development of underlying psychological processes – perception, word analysis and synthesis should proceed remedial teaching.
3	Writing Disabilities			
	a)	Dysgraphia	Dysgrapia refers to partial inability to write which is due to visual – motor integration disorder that interferes with the memory and execution of the motor patterns needed to write or copy letters, words and numbers.	Thorough training should be given to enhance visual motor integration. Remedial teaching to improve writing skill should be provided.
	b)	Agraphia refers to the total inability to write. It is the inability to copy, which differentiates agraphic children from other		

		disorders of writing. The conditions are usually associated with brain dysfunction		
	c)	Revisualization problems	It is the inability to revisualise the image of letters or words. Children with this type of visual memory deficit can speak, read and copy, but have difficulty in writing the letters and words by memory.	Intensive training should be given to develop revisualisaiton skills. Till they develop these skills spelling and arithmetic should be tested through recognition type of questions.
	d)	Formulation and syntax disorders	Formulation disorders refers to the inability to organize the ideas into a clear, concise pattern of words. Syntax disorders refers to the difficulty in ordering the words to form phrases, clauses or sentences. Formulation and syntax disorders may involve both spoken and written language or may be limited to the production of written language.	Remedial teaching in formulation and syntax skills. Intensive training should be given to improve them.

	e)	Spelling problems	Most of the disabled children have spelling problems. It is observed that spelling problems are secondary to reading and revisualization problems. Thus, as reading improves spelling improves and as revisualization improves, spelling improves.	Remedial teaching to improve reading and writing. In addition specific exercises should be given to improve spelling.
	f)	Arithmetic Disabilities	This refers to reading and writing numbers whose names are not written the way they are spoken (twenty one =21, not 201), recognizing the categorical structure of numbers (units, tens, hundreds, thousands) and doing computational operations. Arithmetic disability mainly refers to difficulty in quantitative thinking. Acalculia denotes the inability to perform calculations. Dyscalculia is a form of acalculia which involves a partial inability to perform calculations.	Oral language and reading skills have to be developed first, if any deficiency in them is noticed. Remedial teaching to improve arithmetic skills.

From the above facts it can be understood that oral language disabilities are of more serious type as they affect the day to day interactions of children with others. They result in to overall difficulty in academic performance of such children. However, as the problem is quite obvious, children with such disabilities can be identified at the early stage itself and proper remediation can be given for reducing further problems. Reading disabilities constitute another kind of serious disabilities that interfere with the academic performance of children. This kind of problems may remain unnoticed until children experience failure in the classrooms. Knowledge about the possible causes of different types of learning disabilities imply that through medical examination and psychological testing of all the children at the pre-primary school stage itself or even earlier, the learning disabled can be identified. An identification at the early stage itself followed by medical, psychological and educational intervention makes it possible either to prevent or reduce the difficulties faced by such children.

CONCEPT OF DYSLEXIA

The word 'dyslexia' is of Greek origin and means, loosely translated ' difficulty with words'. The word was coined by Berlin (1887), but was introduced into literature by Orton (1937) and since then has been substituted for 'word blindness'.

The term 'dyslexia' has been interchangeably used with many other terms like 'word blindness', 'strephosymbolia,' 'reading disability', 'reading difficulty', 'primary reading retardation', 'learning disability', 'poor reading', 'inadequate reading' etc.

Dyslexia is the learning disability in the area of reading.Some dyslexics also may have difficulty in learning to write, to spell, and, sometimes, to speak or to work with numbers.A person with dyslexia is one with average or above average intelligence whose difficulty in reading is not the result of emotional problems but due to lack of proper motivation, poor teaching or inadequate vision or hearing deficits.

One of the real tasks that the children facing at school is learning to read and write. Most manage reasonably well, but some do not. One possible reason for this is that they may be dyslexic.

In 1968 the World Federation of Neurology proposed the following two definitions for 'dyslexia' (Critchley, 1970).

"Dyslexia is a disorder in children who, despite conventional classroom experience, fail to attain the language skills of reading, writing and spelling commensurate with their intellectual abilities."

"Developmental dyslexia is a disorder manifested by difficulty in learning to read, despite conventional instruction, adequate intelligence, and socio cultural opportunities. It depends upon fundamental cognitive disabilities which are frequently of constitutional origin."

It is noticed that developmental dyslexia occurs in childhood, when a child finds difficulty with learning to read or to spell. The acquired type of dyslexia occurs, in a formerly normal adult, usually as the result of a stroke.

Myklebust and Johnson (1962) considered dyslexia as a complex syndrome associated with psychoneurological dysfunctions, such as disturbances in the orientation period, written language, spelling, memory, auditory or visual perception, motor skills and other related sensory abilities.

Orton (1928) designated dyslexic children as a group including those who are retarded in reading much below their achievement in other subjects and whose attempts at reading are characterized by frequent reversals and by confusion between words such as saw and was and show a greater tendency like mirror reading than normal readers. The frequency of reversals caused, Orton to suggest the word strephosymbolia, meaning twisted symbol.

In modern life, reading is one of the essential skills. Even those with the lowest aspirations need to understand road signs, and fill up different forms.

Unfortunately society makes no allowance or consideration for those who can not read. It is therefore a social obligation that dyslexia be diagnosed at an early stage, and appropriate remedial training given in time.

When we come across with a child facing difficulty with reading, we shall first of all make sure that there is no deficit of vision or hearing. The child who can not see the print or hear his teacher speaking will have difficulty with all forms of learning. Similarly, the child whose overall level of intelligence is low, will not only be slow to read but also be weak in other functions. The dyslexic child has normal sight, hearing or overall intelligence, but has a specific difficulty with reading and spelling. Most dyslexic children can follow complex arguments and can express themselves verbally without any sort of difficulty.

If the diagnosis is not made at an early stage, the child is likely to be punished for being lazy. The parents may also adopt a similar attitude.The result is that the child feels confused and frequently be developing secondary psychological reactions, such as refusing to co-operate, tempertantrums, nail biting, bed wetting and other delinquent behavioural abnormalities. It is therefore imperative to understand what the child's problems are and to provide it with some means of overcoming the difficulties. Once the diagnosis of dyslexia is correctly done, both parents and child should be made aware of it. Most of the parents are bewildered over the inability of their offsprings in reading, writing and their emotional imbalances. They are gratified

only even it is learnt that the reason has been found and that effective and logical treatment can be started.

The dyslexic child can usually learn to identify single letters, but, when the letters are presented to him in a set – as a word – they often find it difficult to identify and grasp them meaningfully. He is unable to pronounce the word fully either to himself or loudly ie. he can not read the word. The normal person, on the other hand, learns to recognize words by their overall pattern and not by spelling out to himself each individual letter. If a dyslexic child is told to write down a word he is unable to do so. He is however, fully able to carry on it in conversations, and understand the meaning of the terms.

The teacher, of a dyslexic child, must first establish a good personal relationship both with the child and with his parents. Treatment is arduous for all concerned, but a good relationship helps to mitigate the inevitable difficulties and frustrations. The child should be encouraged to become articulate about his difficulties. While teaching a dyslexic child of nine or ten it is important to make available suitable books in which the vocabulary is simple although the subject matter is reasonably advanced. Most children are best helped by adopting a phonic method of reading. In this, they are required to sound the individual letters and hence to build up the complete word. It must always be remembered that a normal child

recognizes words rapidly without sounding out the individual letters, but the dyslexic child does not.

Considering the difficulties faced by the dyslexics, the investigator proposed to take up a study to identify the difficulties in Basic Language Skills in Malayalam among primary school children with Dyslexia.

LEVELS OF DYSLEXIA

It is important that a certain point of view be maintained as we think of dyslexia. No two dyslexic persons display exactly the same patterns, and not all dyslexic persons show the same level of severity. The cluster of dyslexic patterns must be seen along a continuum from mild to severe. Many dyslexics show only mild or moderate problems, while others are severely disabled. Dyslexia should be seen along the following continuum.

0	1 2 3	4 5 6 7	8 9 10
None	Mild	Moderate	Severe

In one sense, it would be correct to say that each of us is dyslexic at level 1 or level 2. Dyslexia becomes an educational problem when it begins to interfere with classroom performance and academic success. Moderate dyslexia at level 4 or level 5 would mean continual mistakes in spelling, punctuation, and capital letters; grammar errors, mistakes in reading comprehension; and many small errors in mathematical

computation. A moderately dyslexic student would struggle with every written assignment, but he could finally do good work by trying hard enough and rewriting papers two or three times. With enough effort, level 4 and level 5 dyslexics can make top grades, but they must maintain a high level of self-discipline to do so.

When dyslexia is at level 6 or level 7, a major struggle is seen in all areas of academic performance. Spelling is always faulty, text book reading is slow and difficult, much more time than usual is required to finish homework assignments, and a high level of personal frustration is experienced. Level 6 and level 7 dyslexics reach burn out before they can finish their assignments. They must continually deal with a sense of failure and discouragement. It is seldom possible for a level 6 or level 7 dyslexic student to win praise for academic achievement. It is possible for a dyslexic student at this level to finish a college degree, but it requires great effort and courage to do so.

When dyslexia exists at the severe level (Level 8 or Level 9), academic achievement is often impossible unless teachers modify the curriculum for those students. Occasionally we find a level 10 student, where the disability is so severe that academic learning is impossible. That condition is referred to as alexia. A dyslexic student at level 8 or level 9 will be several years below grade level in skill achievement. Reading is a massive struggle. Handwriting is poor and messy. It usually requires two to three times lower than normals for a level 8 or level 9

dyslexic to finish typical assignments, and he or she must have continual help to do so. It is virtually impossible for these students to attain independent study skills. They must have continual tutoring and coaching to prepare for tests, do assignments, master new information, and fill in gaps in their skills and knowledge.

MAJOR TYPES OF DYSLEXIA

Four major types of dyslexia are recognized.

a. Inner Language Dyslexia
b. Auditory Dyslexia
c. Visual Dyslexia
d. Intermodal Dyslexia

a) Inner Language Dyslexia

Inner language dyslexia is the most severe form of dyslexic disorder. There exists notable deficiencies in both auditory and visual verbal processing and decoding. The child sees graphemes and transduces them into their auditory equivalent evidenced by his ability to 'read' aloud. But despite these perceptual and transducing skills, he can not learn to read because cognitively the level of meaning is by-passed. In Inner Language Dyslexia break occurs in the information processing system. Because information cannot be coded, what is read or seen is not words, there is no meaning. This kind of dyslexia appears commonly in autistic and educable

mentally retarded children, but its existence in children who are otherwise less handicapped is not ruled out.

b) Auditory Dyslexia

Both auditory and visual cognitive processes must show integrity if reading is to be achieved normally. When the child learns to read he must be able to visualize and auditorize words. Gates (1900) observed a long time ago that in the early stages of learning to read the child often moves his lips, saying the words to himself—sometimes even saying them aloud. He both 'hears' and 'sees' the words. A dyslexia can occur because of a disorder in either or both the 'seeing' and 'hearing' phases of the reading process. The visual dyslexic cannot cognitively visualize graphemes properly and the auditory dyslexic cannot cognitively auditorize them properly. The deficit is in language ability to symbolize and code the read words. This deficiency in auditory processing is not receptive aphasia because the disorder is in the auditorization of graphemes and does not involve comprehensive of a spoken language.

The auditory language form, the most basic form, serves as a foundation for the visual verbal form. It is difficult to read unless the auditory form has been acquired.

c) Visual Dyslexia

Children with visual dyslexia can usually identify letters by name. Often they may write profusely but what they write is jargon and non-readable. They are capable of discriminating the letters visually but cannot read them as meaningful words. As is true in all dyslexia, the deficit is in attainment of meaning, in encoding words on the page as words. Hence visual dyslexia is visual verbal agnosia.

d) Intermodal Dyslexia

Reading is a very complex process involving the functioning of various parts of the brain. Four types of cognitive functioning are necessary for successful learning to read (i) integrity of auditory processes, (ii) integrity of visual processes, (iii) integrity of the processes required for transmodal learning and (iv) integrity of the processes required for integrative learning. The auditory and visual dyslexia are caused by disturbance at the intra-neuro-sensory learning. Auditory dyslexia can occur without a visual dyslexia, and vice-versa. In many cases of childhood dyslexia there may not be any deficit in intra-neuro-sensory learning. Both auditory and visual cognitive processes are achieved but one can not be transferred into the equal form of the other.

Intra-auditory processes serve as the fundamental basis for learning to read. But developmentally visual processes in relation to the auditory must become

operational at an early stage. After the auditory and the decoding from the auditory to visual has been established the task is to learn reverse this process and decode from the visual to the auditory. Finally, to achieve the highest level of reading, the child must process the graphemes only visually he must learn to read by processing on a visual to visual basis. He must be able to read with only occasional interaction with auditory processes. In the early stages of lerning to read, there is in essence total dependence on transducing graphemes into their equivalent spoken forms. But gradually the successful reader is less and less dependent on the auditory. Although never achieved with perfection, he is able to byepass the auditory and read by only visual process.

CAUSES OF DYSLEXIA

Even though much research is being done to determine the problems underlying dyslexia, the basic cause of dyslexia is not yet known. Research indicates that in many cases, dyslexia is inherited and may occur in several members of a family. The brain cells are inherited in the same way as aspects of personality and physical characteristics, and it is seen that 85 per cent of dyslexics have immediate relatives with the same disorder. Thus dyslexia is genetically inherited. Studies are done to determine whether there are slight differences in the brains of people with dyslexia. Now most experts agree that a number of factors probably work in

combination to produce the disorder. Possible causes of dyslexia, may be grouped under three broad categories. They are:

a. Educational,

b. Psychological and

c. Biological.

a) Educational Causes

Some experts believe that dyslexia is caused by the methods used to teach reading. In particular, they blame the whole word method that teaches children to recognize words as units rather than by sounding out letters. These experts think that the phonetic method, which teaches children to names of letters and their sounds first, provides a better foundation for reading. They claim that the child who learns to read by the phonetic method will be able to learn new words easily and to recognize words in print that are unfamiliar as well as to spell words in written form after hearing them pronounced. Other reading authorities believe that combining the whole word and the phonetic approaches is the most effective way to teach reading. Using this method children memorize many words as units but they also learn to apply phonetic rules to new words. Whatever method they support, experts think that instructional practices may cause dyslexia. They have the view that strengthening the reading programmes in all schools would significantly decrease the number and severity of reading problems among school children.

b) Psychological causes

Some researchers attribute dyslexia to psychological or emotional disturbances resulting from inconsistent discipline, absence of a parent, frequent change of schools, poor relationships with teachers or other causes. Obviously a child who is unhappy, angry, or disappointed with his or her relations with parents or other children may have trouble in learning.

c) Biological causes

Many investigators believe that dyslexia results from alternations in the function of specific parts of the brain. It is now widely accepted that a dyslexics brain cells are arranged differently or function differently from a normal persons. They claim that certain brain areas in dyslexic children develop more slowly than in the case of normal children, and that dyslexia results from simple lag in brain maturation. Others consider the high rate of left handedness in dyslexics as an indication of differences in brain function. Another theory is that dyslexia is caused by disorders in the structure of the brain. Few researchers accepted this theory until very recently when brains of dyslexics began to be subjected to post mortem examination. These examinations have revealed characteristic disorders of brain development. It is now widely accepted that structure disorders may account for a significant number of cases of severe dyslexia.

THE BRAIN AND DYSLEXIA

The Central Nervous System (CNS) has two major components: i) the spinal cord and ii) the brain. The brain is comprised of three major parts, a) brain stem, b) cerebellum, c) cerebrum (cerebral cortex). The major functions of the brain stem involves the integration of several visceral functions (for example, control of heart and respiratory rates) and control of a variety of motor reflexes. The cerebellum coordinates the voluntary muscle system and plays a role in controlling balance and coordinated muscle movements. The cerebrum is concerned with conscious functions – language, thinking and reasoning processes, memory etc. The study of brain stem and the cerebral cortex is important in understanding learning disabilities.

Brain Stem

The brain stem is composed of four regions which have discrete functions. These are i) the medulla oblongata, b) pous, c) mid brain, and d) diencephalon. The medulla, a continuation of the spinal cord has cell bodies and tracts (axous) which have functions in controlling respiration and the cardio-vascular system. The pous is associated with sensory input and output flow to the face, and is located at the upper limit of the medulla. The midbrain has a huge pair of tracts which carry messages down from the cerebral hemispheres and it has the sensory tracts which start in the spinal cord and go to the brain stem. The mid brain is associated with wakefulness or

the conscious state of the entire brain. Some theorists attribute attentional deficits in learning disabled children to break downs in the mid brain (Dykman, 1971).The diencephalon, the upper portion of the brain stem, is a major centre for the passage and integration of sensory information.

Cerebral Cortex

The cerebral cortex is divided into right and left hemispheres which are connected by the corpus callosum. This is a large tract of fibres which connects the two sides and keeps them at least reasonably well informed as to their mutual activities and interests (Mountcastle, 1962). The surface of the cerebral cortex has many convolutions, an economical spatial arrangement for cramming many cells into a relatively small area. The convolutions have been labelled as gyri (ridges), sulci (valleys) and deep sulci (fissures). Some of the gyri and sulci have been linked to behavioural functions.

The organization of activities in the cortex differs for various behaviours. Certain functions, such as vision and audition, are controlled by both the left and right sides of the cortex. Motor movements, such as of the arms and legs, are coordinated by both sides, but in a contra lateral fashion, the left side of the brain controls the right side of the body while the right side controls the left side of the body. There are some skills that are not represented in these fashions but are

controlled largely by one hemisphere. For example, across cultures there is a great preponderance of right-handedness and left-hemisphere dominance for language. About 93 per cent of the adult population is right-handed and about 96 per cent has left hemisphere dominance for speech and language functions (Curtis et al., 1972). The right hemisphere is purported by more in control of making complex visual discriminations and processing of non verbal and perceptual information, such as music and mathematical symbols, than the left hemisphere (Milner, 1962).

For many years it was assumed that only the cerebral cortex was involved in the learning process. The cerebral cortex has been divided into four major regions. These are the frontal, temporal, parietal and occipital lobes.

James Hinshelwood began publishing in 1895 on a mysterious affliction known as acquired word-blindness, sudden loss of the ability to read. Hinshelwood (1917) had an explicit theory of the role of the brain in reading, and he tested it clinically. His theory was that there must be separate places in the brain for a) visual memory of the general every day type, b) visual letter memory, and c) visual word memory.

Hinshelwood (1917) suggested that the 'angular gyrus' region of the left hemisphere was a critical site in dyslexia. Damage to the left hemisphere produced word blindness.

In 1925, Samual T. Orton published a paper entitled "word-blindness in school children" in the Archives of Neurology and Psychiatry. He presented his new theory of dyslexia—one based on the notion of hemispheric imbalance.

Orton believed that something was wrong with the brains of the dyslexic children, but, unlike Hinshelwood, he thought the disorder to be functional in nature rather than structural. He found an important clue, he thought, in the mirror writing of certain children.

Orton believed that written production were something like a 'print-out' of information stored in the brain. The prevalent view at that time was that the left hemisphere was responsible for the storage and production of language. Less was known about the functions of the right hemisphere, but Orton believed that it reflected the activities of the left. The right hemisphere contained a mnemonic record, a reflected duplicate of information in the left hemisphere. According to him the reversal letters (d as b) commonly noticed in children's writing was due to this mnemonic record.

DIFFICULTIES OF DYSLEXICS IN LISTENING, READING AND WRITING INCLUDING SPELLING

LISTENING DIFFICULTIES

Within the dyslexic population is another specific pattern we call it as auditory dyslexic. This has nothing to do with hearing as such. Most of these strugglers have

excellent ability to hear. The problem is that what these students hear is not correctly interpreted by the language processing centres of the left brain. Auditory dyslexics cannot tell differences between certain speech sounds. They continually miss chunks of sound as they listen. They often cannot rhyme words successfully, and they have great difficulty connecting sounds to letters from memory.

Most auditory dyslexics have keen hearing skills except with phonics. Auditory dyslexia refers to the inability to hear the separate sounds of spoken language in correct sequence. Since the student does not hear the building blocks of oral language accurately, he can not connect speech sounds to letters correctly. This disability makes it difficult for students to write their thoughts.

SYMPTOMS OF AUDITORY DYSLEXIA

a) Confusion with words

One of the earmarks of auditory dyslexia is the students inability to tell whether words are the same, or whether they are different. Mishearing of words creates constant problems for auditory dyslexics as they respond to what goes on around them.

b) Confusion with spelling

Auditory dyslexia is usually the primary cause for poor spelling. The student does not hear separate sounds accurately there is no way to remember how to spell. One of the surest symptoms of auditory dyslexia is chronic erasing, crossing out, and

marking over (overprinting) to correct written mistakes. A dyslexic writer usually 'thinks out loud' as he works, whispering over and over, trying it several ways, erasing then writing another combination of letters.

c) Need for speaker to repeat

Auditory dyslexic students are insecure, especially in the classroom. They often feel very ill-at-ease in school because they cannot make letter or sound connections accurately when writing from dictation or following a series of oral instructions, dyslexic students simply can not cope with a sustained flow of oral material. Because of their extremely slow rate in changing speech into writing, auditory dyslexics lose the sequence of what is heard. Since they are seldom sure that they have heard accurately, dyslexics continuously ask the speaker to repeat.

d) Other Symptoms

An auditory dyslexic is also handicapped in naming rhyming words, applying phonics rules, and pronouncing words accurately. One of the earmarks of auditory dyslexia is garbled pronunciation of familiar words. This tendency toward garbled speech is called echolalia.

READING DIFFICULTIES

One of the major problems confronting educators today is the difficulty some children have in learning to read. Despite developments in methods of general and

remedial education, between two and seven percent of children of normal intelligence fail to learn to read.

Reading retardation relates to the concept of mental age. If reading age is significantly below mental age then the child is retarded in reading. In the National Child Development Study the incidence of reading retardation was given as 18%.

The concept of reading retardation is linked to the concept of specific reading disability . The term refers to a group of children of average or above average intelligence who, despite adequate school attendance and normal teaching, fail to learn to read. The Department of Education and Science, in the Tizard Report (1972), use the term specific reading disability:

> to describe the problems of a small group of children whose reading (and perhaps writing, spelling and number) abilities are significantly below the standards with their abilities in other spheres would lead one to expect. (DES Report, 1972).

Usually such children are called children with specific dyslexia or developmental dyslexia. However, as discussed by Clark (1970) and in the Tizard Report (DES 1972) the terms seem to refer to children with similar, if not synonymous, problems. The term 'specific reading disability' is the term preferred by the Tizard Report (DES,1972) and the Warnock Report (1978).

CLASSIFICATION OF READING DISABILITY

Any classification of reading disability must take into account those problems encountered by children who are backward readers with specific reading disability. The distinction is linked to ideas regarding the causality of reading disabilities. Many give environmentalist explanations for reading backwardness and neurological or maturational lag type explanations. Theories of the causality of reading disability will be explained first. A second important area on the classification of reading disabilities is the explanation of the reading task itself. Thirdly, research on the adult dyslexia and alexia's may be of relevance.

Theories of Causality

Broadly speaking, there are three theories about the causality of reading disability. The three major view points referred to are organic or neurological explanations, functional explanations including developmental lag and environmentalist explanations.

Organic or Neurological Explanations

One of the earliest researchers into reading disability was Hinshelwood (1917) who described three types of word blindness in adults which were caused due to damage in certain areas of the brain. One of these types was very common and formed the basis of his theory concerning congenital word blindness in children.

Later Hermann and Norrie (1958) equated children with reading disability with brain damage. Adults with Gerstmann's Syndrome where right-left confusion problems with finger localization and writing problems are evident. Their ideas were further extended by Kinsbourne and Warrington (1966) who considered that there were two types of children with specific reading disability – the Gerstmann group and the language group.

A problem with auditory-visual integration was first described by Birch and Belmont (1965) and forms the basis of a neurological theory put forward by Geschwind (1964). As integrative and associative functions of an auditory –visual nature are normally localised in the inferior parietal region, a congenital defect in this area could account for reading disability.

A fairly recent neurological theory has been put forward by Witelson (1977). She maintains that dyslexic children have a different kind of hemispherical dominance or laterality pattern due to a neural deficit. The theory attempts to account for the differing incidence of reading disability in boys when compared with girls; there being four boys to every one girl with a reading problem.

Functional Approaches

Samuel Orton, who worked in the 1920s and 1930s, is renowned for his ideas concerning the imbalance in the functioning of the two cerebral hemispheres. The problem was that the two hemispheres were often in conflict so that at one time left

hemisphere might recognize a letter and at another time the right hemisphere. As the right hemisphere recognized as identical mirror images of visual impressions received by the left hemisphere this led to letter confusions and reversals or, in Orton's terms, Strephosymbolia (literally, twisted signs). In normal readers such a problem does not arise as the left hemisphere is functionally dominant.

Another development is that the brain of children with reading disabilities might function differently from normal children according to the theory of maturational lag.

Satz and Sparrow (1970) have expanded the theory of maturational lag. They maintain that the slow development of cerebral dominance might have different behavioural expressions at different ages. For example, hand dominance will be established in a four or five year old, but not right-left awareness which normally develops at about eight or nine years of age. The older dyslexic child is likely to have more problems in the language and conceptual areas.

Environmentalist Explanations

Merrit (1972) suggested that various unfortunate circumstances would effect the child's learning. For example, the child may have been taught to sound out letters, but when he applies this process to some words it is inappropriate, so he abandons the idea. Other circumstances; the teacher not being available to reinforce correct responses, may also play their part. The child may respond to the situation by

developing a reading neurosis. To do him justice Merrit does not claim that all children with reading problems have difficulties of this nature, but they account for about 20% of the children.

Factors associated with the school environment have also been mentioned by Morris (1966), Chall (1967) and Rutter, Tizard and Whitmore (1970). Clark (1970) in a study of backward readers seemed to suggest that factors in the home environment could also account for reading failure. In a subsequent study of preschool children who could read, Clark (1976) found that children who read early had parents who themselves enjoyed reading and who were involved with the child in his education.

Theories of Reading

One of the most comprehensive theories of reading is that given by Gibson (1965) Gibson and Levin (1975). She describes learning to read as a three step process, which are :

1. Learning to differentiate graphic symbols.
2. Learning to decode letters to sounds.
3. Using progressively higher order units of structure

Gibson and her colleagues have shown by a series of experiments that the ability to differentiate graphic symbols makes rapid progress between the ages of four and eight. For ages five or six years the child begins to recognize letter-to-

sound correspondences. As the child gets more proficient he learns to read 'chunks' of graphic stimuli at a single fixation. Gibson believes that the smallest Chunks correspond to spelling patterns. That is, words can be perceived at a glance when they follow regular spelling patterns. Gibson thinks that reading is an adaptive process, in that the child gradually learns to adapt to the text.

Smith's (1978) theory of reading is rather different from Gibsons in that learning to read is seen as similar to learning the spoken language. The language of books is a different language from the spoken one and the child must recognize this fact. Once he does so he learns to 'read by reading' by getting the meaning out of passages. This account by no means exhausts theories of reading development, it give some account of the two major approaches. A skills model is provided by Gibson's theory and Smith's account typifies the psycholinguistic approach.

Dyslexia in Adults and Children

Research with the required alexis and dyslexia can give us some insight into the possible types of reading disability. Notable amongst the contributions has been Coltheart, Patterson and Marshall (1980) and Coltheart (1982). Coltheart has described four types of required dyslexia. These are:

1) Pure alexia or alexia without agraphia.

The patient can not read but can write and spell by a letter-by-letter approach.

2) Phonological dyslexia

In this the patient recognizes whole words but cannot tell you the sounds of various letters and he or she can not read non words.

3) Surface dyslexia

The patient can read regular words (e.g. Rub, steam, pure) but not irregular words (e.g. Sew, yacht, steak, pint) and he can read regular non words (e.g. rad)

4) Deep dyslexia

The patient can read concrete words (e.g. Lamp, man) quite well but not more abstract words (e.g. Lazy).

Coltheart maintains that surface dyslexia quite commonly occurs as a developmental problem, where a child has difficulty in learning whole word recognition though letter-to-sound correspondence rules one learnt quite well. Phonological alexia also occurs in children who have difficulty in learning letter-to-sound (or grapheme-phoneme) correspondence rules.

Subgroups of Developmental Dyslexia

Vernon (1979) described five types of retarded readers with reference to the reading problems encountered. The five types of retarded readers, who are unable to:

a) analyse complex visual shapes

b) analyse whole words into phonemes

c) make regular grapheme-phoneme associations

d) grasp irregularities on grapheme-phoneme associations

e) group words into phrases and sentences.

Petrauskas and Rourke (1979) described four groups of retarded readers. They are:

a) Language disturbance including poor auditory – verbal memory and auditory – perceptual skills.

b) Sequencing difficulties both in language, number and visual-perceptual tasks. The children also had difficulties in finger localization (finger agnosia).

c) Defects in conceptualization especially where verbal coding and verbal reasoning is concerned.

d) This group was like group, but without finger agnosia.

From this it would appear that most dyslexic children are deficits in the language –verbal area. No visual perceptual problems are in evidence but this may be because the sample of children may have out grown that particular problem in line with Satz and Sparrows (1970) theory.

In contrast, Mattis, French and Rappin (1975) identified a visuospatial subtype. 90% of their 82 dylexic children exhibited one of the three following syndromes:

a) Language disorder typified by difficulty in naming comprehension and speech.

b) Articulatory and graphomotor difficulties including sound blending

c) Visuospatial difficulties. The children in this group had problems with visual memory.

Similarly, Hicks and Spurgeon (1982) identified three important factors in a study of 180 dyslexic children. The problem areas are:

a) Auditory problems. Children had difficulties discriminating sounds and sound blending.

b) Verbal labelling. Children had difficulties with phonics, grapheme-phoneme correspondence, left-right discrimination and vocabulary.

c) Visual problems. Children had difficulty with visual memory and labelling.

Whilst these last two pieces of research demonstrate that visual – motor difficulties may occur in children with reading disability.

Symptoms of Reading Disability

The specific errors that are indicative of reading disability, though, vary from language to language, certain common kinds of errors or difficulties can be noticed among disabled (dyslexic) children, while reading. Thus these errors or difficulties

can be considered as symptoms of reading disability. Brueckner and Lewis (1947) have listed the following behavioural symptoms of reading disabilities.

1. Slow rate of oral or silent reading
2. Inability to answer questions about what is read showing lack of comprehension.
3. Inability to state the main topic of a simple paragraph or story.
4. Inability to remember what is read
5. Faulty study habits, such as failure to re-read or summarize or outline.
6. Lack of skill in using tools to locate information such as index and table of contents.
7. Inability to follow simple printed or written instructions.
8. Reading word by word rather than in groups, indicating short perception span.
9. Lack of expression in oral reading.
10. Excessive lip movement in silent reading.
11. Lack of interest in reading in and out of school.
12. Excessive physical activity while reading, as squirming, head movements.
13. Mispronunciation of words.
    a) Gross mispronunciation, showing lack of phonetic ability.
    b) Minor mispronunciations, due to failure to discriminate beginning and endings.
    c) Guessing and random substitutes.
    d) Stumbling over long, unfamiliar words; showing inability to attack unfamiliar words.

14. Omission of words and letters
15. Insertion of words and letters.
16. Substitution of words in oral reading.
17. Reversals of whole words or parts of words.
18. Repetition of words or group of words when reading orally.

From the above list of difficulties it can be understood that the problems are cumulative. If the children do not learn letter names and sounds properly, they can't recognize words. The recognition of words depends upon letter knowledge and ability to analyse and synthesize words (word attacking skills). The difficulty in recognizing words lead to difficulty in reading sentences at an optimum speed. The slow rate of reading affects comprehension which in turn affects other skills of reading. More importance should be given to development of word attacking skills (letter knowledge, word analysis and synthesis) and automaticity in reading (optimum rate of reading). Then proper guidance and help can be given for the development of other higher order skills of reading.

DIFFICULTIES WITH WRITING

Writing is a complex activity requiring the coordination of several skills. First, the writer has a body of material which he or she wishes to write about. Secondly, he has some ability to translate this information into meaningful language. Thirdly, there is appropriate execution of this meaningful language in handwriting. The last aspect,

handwriting, is a highly developed skill which the young child executes slowly and with intense concentration. In the adult 'the fine discriminations, integrations, memory and coordination of hand, mind and eye required for the act of writing are infinitely complex (Hughes, 1955).

By the time, the child is five or six, he would develop enough to begin to learn to write. Initially this seems to be a visual – motor activity requiring the accurate copying of name and simple phrases. Gradually as the child is more and more able to execute letters and words automatically, cognitive and linguistic aspects become important. The child begins to his own sentences and phrases. As he matures and learns, the written composition becomes increasingly more abstract and phrasing becomes more complex.

Learning Difficulties in Writing

Writing is a complex activity requiring the integration of several different skills. Broadly speaking there are three steps.

a) Planning and selection of material

b) Linguistic representation of this material in

i) Sentences and paragraphs

ii) Words (correctly spelt)

c) Motor execution in handwriting (or typing)

Difficulties in writing may occur in any of these three areas, which are broadly covered in the three types of writing difficulty discussed by Johnson and Myklebust (1967):

a) Deficiency information (planning and selection, linguistic representation)

b) Defect in visualization (spelling)

c) Disorder of visual – motor integration (handwriting).

According to Johnson and Myklebust, these areas of difficulty are similar to ones seen in adults with brain damage. A more recent description of difficulties seen in adults is given by Marie (1983) who describes five areas of deficit in adults. These are:

a) Agraphia with agrammatical aphasia – a problem with syntax construction.

b) Agraphia with aphasia of phonemic production – largely a spelling problem.

c) Apraxic agraphia – largely a complete loss of handwriting movements.

d) Agraphia with sensory aphasia – Understanding of words affected.

e) Pure agraphia – a writing disorder in which defects in speech, reading or gestures are affected.

The last two involve language or the understanding of language. Agraphia with agrammatical aphasia is very similar to one aspect of deficiency in formulation, namely, the problem in sentence construction. Agraphia with aphasia of phonemic

production is one aspect of a spelling problem. Apraxic agraphia may be like the handwriting disorder seen in children.

Ellis (1982) thinks that children with writing problems or developmental dysgraphia are really not different from normal children and adults, who also have 'slips of the pen'. Ellis classifies the various types of writing error as follows:

a) Reversals, e.g. 'gosd' for 'gods'.

b) Orientation errors, e.g., 'bogs' for 'dogs' (This occurs with letters 'pq', 'nm', 'ao', 'ru', 'hk', 'db')

c) Contaminations – the fusion of two adjacent letters which is seen in adults when writing quickly.

SPELLING DIFFICULTIES

Spelling is a phonological skill and reading a visual one. Normally, by the age of seven or eight years these visual and phonological elements become fused and the child uses both processes.

There are four steps in the spelling process.

a. Analysis of speech sounds

b. Conversion of phonemes to graphemes

c. Writing of graphemes

d. Visual check.

Nelson and Warrington (1974) describe two types of spelling-disabled child. Those who have a reading and spelling difficulty combined and those who have only a spelling difficulty. Children with a spelling problem alone tended to have difficulty in visualizing the word. Children with a reading and spelling difficulty tended to have an underlying language problem and made both visual and phonological errors. Boder (1973) also describes two main types of reading or spelling disabled child. The first type, the dyscidetic dyslexic, has a visual problem and attempts to write words phonetically. The second type, the dysphonetic dyslexic, makes errors which are similar to the original word visually, but bears no phonetic resemblance. The first type, the dyscidetic dyslexic, is obviously attempting to use the phoneme-grapheme conversion route, where the second type, the dysphonetic dyslexic, is attempting to use the lexical route.

Although we can differentiate these two types of spelling difficulties, many children show errors of both and it would be difficult to classify them as having one difficulty or another. So we can recognize that a child's spelling difficulties may occur because of an inability to use the two routes available, or a failure to recognize that different routes can be used, or both.

TREATMENT

Educators and psychologists are of the view that if we modify teaching methods and educational environment we can improve the condition of learning disability to a great extend.

Children suspected of being dyslexic should be tested by trained educational specialists or psychologists. By using a variety of tests, the examiners can identify the types of mistakes the child commonly makes. If the child is dyslexic, make specific recommendations for treatment such as tutoring, summer school speech therapy, or placement in special classes. While arranging remedial programmes the teacher should take into account the child's educational strengths and weaknesses, estimated scholastic aptitude, behaviour pattern, learning style, etc.

Treatment programmes for dyslexic children falls into three general categories, developmental, corrective and remedial.

In developmental approach more or less the teacher is following the same approach that he followed earlier. Teachers use the methods that have been previously used believing that these methods are sound , but the child needs extrta time and attention.

The corrective reading approach uses small groups in tutorial sessions.

The remedial approach was developed mainly for rectifying the defects of developmental and corrective approach. The proponents of this method try to resolve the educational and psychological problems that interfere with learning. Remedial teachers first try to identify the skills which are most difficult to the dyslexic child and try to give instructions to remedy deficits in those skills.

PROCEDURE TO BE FOLLOWED WHILE DEALING WITH DYSLEXICS

Madras Dyslexia Association has put forward the following procedures, while dealing with dyslexic children.

1. Praise the child whenever possible.

2. Concentrate on what the child is good of.

3. Help the child to read longer words by dividing syllables with a pencil line.

4. Teach the child to pronounce words correctly.

5. Give the child plenty of time for reading with your help.

Avoid the following while dealing with dyslexics

1. Ridiculing the child of the inadequacy of the reading skills.

2. Comparing the child with other children, especially with brothers and sisters.

3. Over doing remedial work.

4. Thinking that the child is dreaming if he deviates his attention while reading.

The above theoretical overview throws some light to the fact that a greater challenge faced by today's classroom teachers is that of dealing with dyslexic children. To meet this challenge effectively, they should have a clear understanding of the nature, characteristics and causes of dyslexia which necessitate the investigator to review the empirical studies made in this regard.

PART B

EMPIRICAL STUDIES

Dyslexia is treated as a complex syndrome. It consists of three strata: the lowest holding the etiological factors, the middle one functional disabilities and the upper behavioural symptoms. And each stratum has many distinct segments. This implies to have a clear perspective of dyslexia, various aspects of it shall be studied in isolation and in conjunction with the remaining.

The review of the whole volume of research work done so far, reveals that investigators of different disciplines; medicine, psychology and education have attempted to diagnose and treat dyslexia. For convenience the research works done hitherto in the subject, can be discussed broadly under different categories on the basis of the objectives and approaches,.such studies can be discussed as under:

1. Studies related to neuropsychological dysfunctions of dyslexics.
2. Studies related to the analysis of reading errors of dyslexics.
3. Studies related to the remedial measures of dyslexics involving direct teaching of reading.

STUDIES RELATED TO NEUROPSYCHOLOGICAL DYSFUNCTIONS OF DYSLEXICS

A number of studies have been attempted to verify whether dyslexia can be attributed to deficiency in any one of the following neuropsychological processes.

a. Visual discrimination
b. Visual recall and recognition
c. Visual sequential memory
d. Auditory discrimination
e. Auditory sequential memory
f. Word analysis and synthesis and
g. Visual verbal association.

Visual Discrimination

Certain errors being committed by dyslexics are considered due to deficiency in visual discrimination and that there are several studies attempting to verify this.

Morley (1949) found that learning and substitution of non-reversible symbols by dyslexics required considerably less time than learning of the reversible symbols. These results are interpreted as supporting the hypothesis that reversals in reading are

due to problem in space perception. But, the problem of learning reversible symbols by dyslexics may not be due to space perception but may be due to the increased complexity of learning their names because of greater similarity in their visual features. So also the study suffers from a limitation that it has not been possible to assess visual perception in isolation as the measures appear to get contaminated with association ability.

Similar limitation can be observed in the interpretation by Waiter, Lucius (1980). In study with 198 dyslexic children he has found that 40 per cent were still unable, even at the age of 10, to write the alphabet without errors. On the basis of such a finding he has just inferred that dyslexic children have a primary difficulty in manipulating language symbols in space, without taking into consideration of the other factors like visual sequential memory, auditory sequential memory, association ability which might influence the learning of alphabet correctly.

The study reported by Coleman (1953) gives inconsistent results. The study is an investigation of the gross development of visual perception in a group of reading disabled cases. He has found that 20 out of 40 subjects were retarded in perceptual development to the extent of 10 or more months. This finding could not be extended to the rest of the group as in the same study, he has found that a minority of subjects showed considerable advance in perceptual development beyond their age. The author has suggested that it would be futile to ascribe functional significance to perceptual factors in the reading disabled cases and one must look for other factors.

Similar suggestion has been given by Gross, Karen and Rothenberg, Stephen (1979) as they pointed out that "visual perceptual dysfunction may account for some form of stimuli of dyslexia. Visual perceptual deficits must be ruled out as an explanation for poor performance by dyslexic children on tasks using visual before 'higher order' deficits in cognitive processing can be reasonably postulated."

The above studies suggest two ideas. Although it appears at the surface that dyslexics possess lower visual discrimination visual perception ability as compared to normals (Stanley, 1976; O'Neill and Stanley, 1976; and Lucis, 1980) there have been dyslexics in the same studies (Coleman, 1953 and Stanley, 1976) who did not show such a trend. This suggests that dyslexics can be of different types. On the basis of observations some investigators (Coleman, 1953; Gross and others, 1979) have supported that some form of dyslexia can be accounted for visual perceptual dysfunction although they did not agree on it as a generalized factor for dyslexia.

Investigators like, Fuller and Shaw (1963), Ellis and Miles (1978), Liberman, Shankweiler, Orlando, Harris and Berti (1971) disagree that visual perception difficulty is responsible for dyslexia and have tried to give alternate explanations.

On the basis of their study Fuller and Shaw (1963) have suggested that reading difficulties among non brain damaged children, are not associated with difficulties in visual orientation as measured by perceptual tasks but are likely to be related to difficulties in symbol associations.

Liberman, Shankweiler, Orlando, Harris and Berti (1971) found that sequence reversals (e.g. was/saw) and orientation errors (e.g. b/d) accounted for only a small proportion (25 per cent) of the errors in word lists containing words that could be easily confused (e.g. bad/dad; not/ton). Moreover, the sequencing and orientation errors recorded for the same group of children were not highly correlated with each other, contrary to what would be predicted by directional-confusion theories like Orton's. The authors concluded that the positional and directional errors commonly observed in poor readers are linguistic intrusion (mislabelling) errors rather than perceptual inaccuracies.

Studies reported by Stanley (1976) and O'Neill and Stanley (1976) were on the processing of digits and of straight lines by dyslexics. In the first study the children had to identify digits formed of dots, tapping a key with the numeral on it. The dyslexics correctly identified more figures than the controls and were not slower at the task than the control group. However, analysis of error patterns showed that more than half of the dyslexics confused digits with curved features.

In one study (quoted in Goodcare, 1977) Stanley has suggested that dyslexics may have been responding in terms of a visual trace which led to the confusions on the curved figures. It can be drawn from the study that there were some dyslexics who did not confuse digits with curved features. This finding suggests the heterogeneity among dyslexics, as far as visual discrimination is concerned. Whereas the findings of the two experiments reported by O'Neill and Stanley (1976), that is, dyslexics needed longer stimulus exposure

than their controls to detect differences in pairs of straight lines suggests that all dyslexics are having difficulty in visual discrimination.

Ellis and Miles (1978) have reported a series of experiments based on the view that there is a distinctive limitation in dyslexics which reduces their ability to process information. They have tried to determine the sources of this limitation by comparing dyslexics and normals on visual matching tasks, where naming was or was not, involved. They reported that dyslexics were slower when naming was involved. In matching shapes, even when this involved orientation differences, dyslexic were not inferior to normal readers.

Nicolson and Fawcett (1994) compared deficits in Cognitive and Motor Skills among children with Dyslexia with normal students. Children with dyslexia (mean age 8, 12 and 16 years) and control groups of normally achieving children matched for IQ and for age or reading age, were tested on a range of primitive skills. The authors suggested that children with dyslexia performed significantly worse than the same age controls on most tasks, and significantly worse even than the reading age controls on phoneme segmentation, picture naming speed, word tachistoscopic, word recognition, speeded bead threading and some balance tasks.

Brachacki, Nicolson and Fawcett (1995) conducted a study to identify impaired recognition of traffic signs in adults with dyslexia. Ten adults with dyslexia and eleven

controls were tested on their ability to differentiate between real and false traffic signs. The stimuli, computer presented colour pictures, were chosen to minimize the applicability of verbal or written linguistic skills to the task. The adults with dyslexia recognized the traffic signs significantly less well than did the controls. Furthermore, for the controls there was a significant correlation between traffic sign recognition and driving experience and that no such correlation was found for the adults with dyslexia.

Cornclissen (1998) has studied the difficulty in detecting flickering and moving visual stimuli by children with reading disabilities. The author has shown that there is a positive relationship between children's motion detection thresholds and the likelihood of them making a letter recognition error. Phonological factors were also found to have an effect on explaining children's error.

Though there is apparent contradiction in the findings of the various studies quoted above, there is considerable agreement among the investigators in the inference they have drawn from those findings. Most of the investigators concluded that visual discrimination difficulty is not responsible for dyslexia in all the cases, and rather dyslexia may be attributed to factors like association or naming ability.

VISUAL RECALL AND RECOGNITION

Several investigators have claimed that not only spelling but also reading achievement is related to memory for visual shapes. Lunzer, Dolan and Wilkinson (1976)

showed that the short term visual memory of five and half to six year old children for shapes and pictures correlated significantly with their performance on word recognition tests one year later. It has also been found that visual memory for shapes was particularly deficient in poor readers (Trieschman, 1968; Naidoo, 1972). Audley (1976) has indicated that poor readers have no impairment in visual memory for single letter shapes.

Vernon (1977) has inferred that for some disabled readers, the deficiency must be in the imagery of word structures and not that of single letters. The results of several studies by(Dochring,1968; Lyle,1968) have demonstrated difference between poor and average readers on measures of visual memory. Vellutino(1977) has commented that these studies have yielded inconsistent results, finding differences between poor and average readers on some measure of visual memory and no differences on other measures assessing the same function. Further, he has pointed out that these studies frequently compared groups on tasks employing printed letters and words and they did not typically control for the possible effects of deficiencies in verbal coding. Vellutino (1977) has also given examples of a study where previous experience with letters and words were controlled. In a study of comparably selected readers groups from grades two to six (Vellutino, Pruzek, Steger and Meshoulam, 1973) poor readers performed as well as others on tasks requiring immediate visual recall of varying length words printed in Hebrew, an unfamiliar orthography. However, none of the children in these studies performed as well as average children familiar with Hebrew's orthographic and linguistic characteristics.

Additional support for the contention is that poor and average readers have comparable visual abilities as derived from several other studies wherein it was found that there were no differences between reader groups on measures of long-term memory employing novel visual stimuli (Vellutino, Steger, Deselto and Phillips, 1975). Joachin, Krapp-Raabe, Birgitta and Dieter (1976) have investigated the hypothesis that dyslexia is partially attributable to a deficit in memory capacity. Twenty three, 11 year-old dyslexic children of average non-verbal intelligence and a control group with just below average spelling ability (matched for age, sex, intelligence and socio-economic status) were administered several sub tests of a standardized memory test. Results did not support the notion of a generalised memory deficit in dyslexic children. But both groups scored below average on a sub test requiring the learning of visual paired associates.

Fawcett and Nicolson (1995) have studied the deficiency in motor skill of children with dyslexia, and compare them with that of normally achieving children. They developed three tests of motor skills. They inferred that children with dyslexia have persistent and unexpectedly severe problems in motor skill.

Nicolson and Fawcett (1995) compared the performance of dyslexic and non-dyslexic children on primitive skills. The dyslexic children showed deficit in most of the skills – naming speed, bead threading and on some balance tasks. The authors concluded that the difficulties of dyslexic children are not limited to phonological skills.

Selley E. Shengwitz (1998) examined the functional disruption in the organization of the brain for reading in dyslexia. In this study , the investigator used functional magnetic resonance imaging to compare brain activation patterns in dyslexic and non-impaired subjects. Brain activation patterns differed significantly between the groups with dyslexic readers showing relative underactivation in posterior regions and relative overactivation in an anterior region. These results support a conclusion that the impairment in dyslexia is phonologic in nature and that these brain activation patterns may provide a neural signature for impairment.

Fawcett and Nicolson (1998) developed a Hyper card environment for dyslexic children. It encourages them to construct their own rules for the spelling of their problem words. The interesting feature of the software is that the user is encouraged to identify and then fix his own 'spelling bugs' by creating a specific 'bug card' for each mistake. Each bug card contains a description of the error and the correct spelling, and the user then has to create a rule which helps the correct spelling. A controlled evaluation of the effectiveness of the software has indicated substantial and lasting improvements in the spelling and motivation of a group of dyslexic children of average age 13 years.

From the above studies it is inferred that dyslexics are not inferior to average readers as far as visual recall—whether long-term or short-term is concerned after exercising necessary control over effect of verbal coding. But in these studies, visual recognition as a

differentiating factor between average readers and dyslexics, has not been studied specifically.

VISUAL SEQUENTIAL MEMORY

There are less number of studies which attempted to test the hypothesis that dyslexics have deficiency in visual sequential memory.

Stanley and Hall (1973) have examined differences in the performance of dyslexic and normal children in the recall of letter arrays that were presented for varying durations. Thirty three dyslexic and thirty three normal, 8-12 year old served as subjects. Results showed significant differences in the level of performance rather than differences in the kind of visual information processing. Therefore, the authors have concluded that the results support the notion of a developmental lag in visual memory among dyslexics.

The studies carried out by Gordon, Ida and Charles (1975) and Thomson and Wilsher (1978) also indicated that dyslexics were inferior to age matched control in visual sequential memory. Whereas, Hicks, Carolyn (1980) on the basis of his experiments tried to give an alternative interpretation for the performance of dyslexics on visual sequential memory test (ITPA).

Four experiments with ninety eight, 8-9 year old normal and dyslexic readers were examined and the recall strategies employed in visual sequential memory test (ITPA). Results were as follows: The first experiment suggested that competent readers tended to

use a verbal labelling strategy in the recall of visual stimuli, rather than visual memory. Experiment II suggested that the retention of the visual stimuli could be improved by the adoption of a verbal labelling strategy. Experiment III showed that when verbal labelling was suppressed, the performance of competent readers on the visual sequential memory task deteriorated to a level similar to that of poor readers. Experiment IV suggested that if retarded readers, were instructed to use a verbal labelling strategy, their retention of visual symbols could be improved significantly. Overall, results showed that good and poor readers might differ not with respect to visual memory but by their differential ability to employ a verbal labelling strategy in the retention of visual stimuli. However, a review of studies related to visual sequential memory test of ITPA, by Coles (1979) has revealed that the sub test visual sequential memory of ITPA did not differentiate poor readers from normal readers.

From the studies as reviewed above it is observed that the number of studies related to identifying visual sequential memory as a factor responsible for dyslexia have been inadequate. Although deficiency in visual sequential memory among dyslexics have been observed by some investigators (Stanley and Hall, 1973; Stanley and others, 1975; Thomson and Wilsher, 1978) there has been no such difference as observed by others (Hicks, Carolyn, 1980). Lack of consensus calls for a need to explore this further. Some investigators have tried to probe into the variables underlying the performance on visual sequential memory on ITPA. But, even such studies are very few in number and inadequate.

AUDITORY DISCRIMINATION

There are only a few studies which attempted to test the hypothesis that 'dyslexics problem of letter confusion is associated with deficiency in auditory discrimination.'

The study by Lingren (1969) shows that eight of the 20 disabled readers, but none of the 20 normal readers, were below the normals on the Wepman Auditory Discrimination Test. This indicates that in individual cases of reading disability there may be difficulty in auditory discrimination. But the study by Flynn and Byrne (1970) showed some degree of environmental influence on one's auditory discrimination ability. Findings that cast doubt about the inability of dyslexic to perceive the sound properly have been reported by Larsen, Rogers and Sowell (1976) and Goetz (1971) who failed to notice any difference between dyslexics and normals in auditory discrimination test scores and reading achievement.

Steinhagen, Klaus and Gutezeit, Gunter (1971) tested 25 dyslexic and 25 normal third and fourth graders with the Seashore Measures of Musical Talents. Dyslexic children did poor than the normals with respect to tonal memory but did not differ on pitch loudness, rhythm, tone, length or timbre. But, in the report itself, there is some contradiction, that in dyslexic children correlations were found between score on timbre and kind of dyslexic error. The authors have suggested that acoustic discrimination training be included in the treatment of dyslexia.

Jason and Jeffrey (1980) also investigated the possibility that phonological confusions may underlie some difficulties in processing written language using four speech perception tasks. Twelve dyslexic and four normal, 8-12 year old were identified and discriminated synthetic speech syllables that varied either in voice-onset time or direction of formal transitions. Both normal and dyslexic children perceived these sounds categorically. The authors have pointed out that linguistic disturbances at other stages of the grapheme-to-meaning transformation underlie misreading.

Even the study by Johnson (1982) supports the above finding. He has studied the ability of nine, twelve and fourteen year old dyslexics to recall auditorily presented rhyming and non-rhyming letter strings. These children showed a normal phonemic confusability effect, although their overall recall was much poorer than that of their chronological age controls. The author argues that though earlier studies concluded of poor readers showing a weak phonemic confusability effect, this findings does not appear to be generalisable to older poor readers.

Brachacki, Fawcett and Nicolson (1994) compared voice recognition, perceptual and motor skills of dyslexics and non-dyslexics. A group of 7 dyslexic students and 8 non-dyslexic students matched for age and IQ were tested on recognition of computer presented voices and faces. The authors suggested that the dyslexic group were significantly impaired on the recognition of voices.

Schwippert, Koopmans and Van Leeuwen (1999) examined the auditory perception of phonemes and phoneme boundaries in adults with developmental dyslexia. Categorical perception experiments were done to establish whether dyslexics process phoneme boundaries differently from normal readers. In a first experiment, discrimination skills were tested on a stop-consonant continuum and on a stop-consonant approximate continuum. The stimulus material was based on natural speech of a female voice. The results of 12 dyslexic adults and 12 control subjects show that the dyslexic group is less skilled and slower in discriminating between stimulus pairs as compared to the control group.

It may be observed in the studies reviewed above that although earlier studies might have shown phonemic confusability effect be present among poor readers (Johnson, 1982), most of the studies conducted of later have failed to demonstrate any such deficiency in them (Jason and Jeffrey, 1980; Johnson, 1982). But, it is interesting to note in some studies (Lingren, 1969) that only some dyslexics do have problem in auditory discrimination. This suggests that there could be different types of dyslexics classified on this variable. Some investigators like (Flynn and Byrne, 1970) suspected environmental influence on one's auditory discrimination. The above observations need further exploration in different cultural contexts.

AUDITORY SEQUENTIAL MEMORY

Verification of the hypothesis that dyslexics have primary impairment in auditory sequential memory has been the focus of some of the studies.

A study by Golden and Steiner (1969) revealed that among second grade children good readers were significantly superior to poor readers on auditory sequential memory sub-tests of the ITPA. Many other studies, such as those by Bryden (1972), Ealck (1973), Spring (1976) and Badian (1977) point out the existence of significant auditory memory deficiencies in dyslexics.

Gordon, Ida and Charles (1975) found that dyslexics were inferior to controls on auditory sequential memory. Belmont and Birch (1966) have also observed the same. The work by Tallal (1976) has inferred that dyslexics suffered from a primary impairment in auditory temporal processing.

Thus, it can be seen that the findings of all the studies quoted above agree with each other as far as the deficiency of dyslexics in auditory sequential memory is concerned.

WORD SYNTHESIS AND ANALYSIS

Zigmond (1966) has conducted a study of sensory processing in non-dyslexic and dyslexic children. He found that the auditory functions that most often differentiated the groups were auditory blending and oral spelling.

Golden and Steiner (1969) found that among second grade children good readers were significantly superior to poor readers on sound blending

In a study Savin (1972) observed that children fail to learn to read in the first grade were particularly poor at analysing word sounds into phonemes.

Hammil and Larsen (1974) saw that in the primary grades sound - blending skills had positive correlation with word recognition and it was even more significant in grades seven through twelves. Sound blending (word synthesis) in first-grade was also found to predict select reading ability in the third grade.

Nicolson and Fawcett (1994) have tested five groups of children, including two groups of dyslexics (aged 15 and 11 years) on sample reaction, selective choice reaction, and lexical decision tasks. In simple reactions to a pure tone, the dyslexic children responded as quickly as their chronological age controls and significantly faster than their reading age controls. In selective choice reactions to pure tones, the dyslexic children were significantly impaired compared with their chronological age controls and no faster than their reading age controls. In by-item analysis of lexical decisions to spoken words, the dyslexic children were significantly impaired compared even with their reading age controls. Results suggests that at least two factors contribute to slowness of dyslexic children, a general deficit reflected in slower stimulus classification speed and a linguistic deficit reflected in slower lexical access speed.

Since there are a few studies, there is a need for further research before arriving at any conclusion that dyslexics are inferior to normal readers in word analysis and synthesis. Moreover, it appears that the amount of ability needed to perform such tasks varies with the nature of the script, i.e., highly phonetic or less phonetic. So the hypothesis has to be verified in different languages and conclusion has to be postponed till then.

VISUAL VERBAL ASSOCIATION

Several studies, directly or indirectly, support the hypothesis that the dyslexic's main problem lies in establishing association between visual and verbal stimuli which is very much essential to learn the names of letters. But there is a lot of scope for confusion as the methodology of various experiments conducted in such studies have differed considerably suggesting that they might be measuring entirely different abilities. A review of some studies conducted in this line may help in giving an idea about the different testing procedures adopted to assess the same ability, that is, visual-verbal association or integration and the inferences drawn from such studies. Apart from this the depth to which the results are analysed also have lead to apparent contradictions.

Birch and Belmont (1964, 1965) have attempted to test the visual auditory matching of tapped out patterns. In this test rhythmic patterns were tapped out which

the subjects had to match with visual dot configurations; thus auditory-temporal patterns were to be matched with visual spatial ones.

In two separate investigations (Zigmond, 1966; Vande Voort, Sanf and Benton, 1972) it was found that average readers were better on matching identical stimuli within as well as between modalities. This suggests that in these studies also integration was assessed through perceptual matching. Vellutino (1977) has communicated that: "the tasks employed in all these studies relied heavily upon attention and memory factors. Therefore, such results are not necessarily indicative of dysfunction in intersensory integration." Further, he has continued that "it is difficult to be certain that differences between reader groups are not attributable to encoding or rehearsal problems or other factors influencing a subject's short-term memory."

In contrast to the above finding (Zigmond, 1966 and Vande et al. 1972) there are results of several studies that consistently found no differences between poor and average readers on measures of their ability to associate (pair) non-verbal stimuli from different sensory modalities. Steger, Vellutino and Meshoulam (1972); Vellutino, Steger and Pruzek (1973); Vellutino (1977) observed that cross-model transfer tasks employed in these investigations involved associative learning (long-term memory) rather than perceptual matching and thus controlled for the compounding effects of attention and short-term memory, employing thereby that the

results of the studies quoted above that 'dyslexics do not have difficulty in associative learning', has greater validity.

The above finding that dyslexics do not have problem in associative learning and the suggestion given by Blank and her associates (1966 and 1968) and Vellutino (1977) that is dyslexics problem lie in using verbal concepts appears quite contradictory to each other. For learning verbal concepts (concrete concepts) associative ability is essential and use of verbal concepts facilitates associative learning. This suggests different possibilities that dyslexics problem may lie in the use of verbal concepts rather than their learning (i.e.. problem only in retrieval) or in learning of verbal concepts (i.e.. problem in visual verbal association) or in both. If this argument is valid then dyslexics may or may not have problem in visual verbal association. Hence, one cannot come to a conclusion from the findings of the studies quoted above (Blank, et al., 1966 and 1968; Zigmond, 1966; Vande, et al., 1972) that dyslexics are not deficient in visual-verbal associations. This only suggests that studies need to explore the possibilities of deficiencies in dyslexics in the use of verbal concepts (i.e.. difficulty in naming) in visual verbal association or in both. There have been studies in this direction which support that dyslexics have problem in both 'naming' as well as in 'visual-verbal association' such studies are reviewed below.

The possibility that reading disability maybe associated with deficiencies in naming and labelling has been the focus of several investigators (Denckle, 1972a, 1972b). In two of the most recent studies, Denckle and Rudel (1976) compared poor and normal readers (ages seven to twelve) on "rapid automatic naming' tasks and found that the groups differed on both accuracy and latency measures. Poor readers generally made more errors and took longer than average readers to generate the names of common objects, colours, letters, words and numerals presented visually. The authors suggested that dyslexics maybe characterised by basic word-retrieval problems. This finding is supported by several other investigators (Eaklin and Douglas, 1971; Spring and Capps, 1974; Perfetti and Hogaboam, 1975; Spring, 1976)

Bakker and Schroots (1981) observed that Birch and Belmont as well as other investigators (Muchl and Kremenak, 1966; Sterrit and Rudnick, 1966; Van de Voort, Senf and Benton, 1972) had shown that intersensory integration measured likewise would not only differentiate normal and specific reading disturbed children, but also correlate with reading ability in general. Bakker and Schroots (1981) have attributed this finding to the fact that reading requires visual-spatial and auditory--temporal patterns. Printed letters and words are ordered in space from left to right while speech sounds are ordered in time. By considering such experiments they raised a question whether reading disabled children are having difficulty in auditory--visual or in temporal--spatial or both forms of integration. Masion Blank and associates

(Blank and Bridger, 1966; Blank, Weider and Bridger, 1968) set up a task requiring temporal spatial but not auditory-visual integration. They observed that disabled readers in the first and fourth grades who had difficulty in intersensory-matching and temporal--ordering tasks also had problems in using a verbal--coding system to help remember presented stimuli. This was in contrast to other first and fourth grade children who were apparently more effective in utilisng verbal mnemonics to aid recall. The authors suggested that reading disability would result from deficiencies in verbal concepts rather than dysfunction in "cross-model transfer".

Such a suggestion raises one more question as to what made the dyslexics efficient in verbal concepts Learning of verbal concepts (concrete concepts) also requires visual-verbal association ability. In the studies by Birch and Belmont (1964, 1965), Blank and her associates (`1966, 1968), it appears that difficulty in verbal concepts may be responsible for difficulty in intersensory-matching and temporal ordering tasks. Such an implication could be derived when sensory integration was assessed through perceptual matching. But, if sensory integration were to have measured through associative learning and deficiency being observed, it might have been possible to explain deficiency in verbal concepts in terms of deficiency in association ability or sensory integration

The concept of lexical encoding is now introduced to explain all the difficulties faced by dyslexic children. A deficiency at the level of lexical encoding

implies some degree of failure in the activation of entries in the lexicon. Miles and Ellis (1981) have argued that such failure is central to dyslexia. Then the tasks which involve verbalisation are to be the one which dyslexic subjects (unless they work out appropriate compensatory strategies) would find most difficult. Experimental and clinical evidences are there to prove such an argument. But the question is, whether there are evidences to show that there is a proper entry in the lexicon? This implies that dyslexics may have problem in registration also or registration alone. The experiment reported by Done and Miles (1978), supports such a possibility. In a paired-associative learning task, Done and Miles (1978) observed, dyslexic children needed more trials than age-matched controls to learn 'names' (three-letter nonsense words) for meaningless shapes. Ellis and Miles (1981) have considered that this experiment has involved a replication of the stimulation where a child initially learns the names for letters and figures. They have considered that since lexical encoding is required if these meaningless shapes are to be given names, dyslexic children need more 'trials' before they make the necessary associations. But, such a reasoning does not seem to be appropriate. Because the problem related to taking more trials is not of 'giving out names' or in other words retrieval, but of learning the 'names' themselves which involves association of visual and verbal stimuli while learning. Thus, the findings of Done and Miles (1978) quoted above only implies that the dyslexics have problem in establishing association between visual and verbal stimuli.

Rice, Buhr and Nameth (1990) compared the fast mapping skills of language delayed children with normal children. It is concluded by the authors that the limited fast mapping of the language delayed group was not accounted for by a restricted general vocabulary nor by a general delay in grammatical development.

Hadley and Rice (1991) conducted a study based on conversational responsiveness of speech and language impaired pre-schoolers. The purpose of this study was to describe pre-schools conversational responsiveness in an integrated classroom setting. Children were categorized according to language ability as normally developing, marginal, language impaired and speech impaired. Results suggest that peer interaction difficulties may be concomitant consequences of early speech and language impairments.

Rice, Buhr and Otteing (1992) studied the specific language impaired children's quick incidental learning of words. It was hypothesized that the initial word comprehension of specific language impaired children would be enhanced by the insertion of a short pause just before a sentence--final novel word. Three groups of children served as subjects, twenty, 5-year old, Specific Language Impaired (SLI) children, and two comparison groups of normally developing children, 20 matched for Mean Length of Utterance (MLU) and 32 matched for Chronological Age (CA). It is concluded by the authors that insertion of a pause did not improve the SLI children's initial comprehension of novel words, the CA matches better than either of

the other two groups and no differences between the SLI children and the MLU matched children.

Nicolson, Fawcett and Dean (1995) studied Time Estimation Deficits in developmental dyslexia. They tested the hypothesis cerebellar dysfunction in dyslexia. For that a time estimation task was administered to matched groups of dyslexic and control children. The dyslexic children showed the predicted deficit on time estimation.

Fawcett and Nicolson (1997) studied the persistence of phonological awareness deficits in older children with dyslexia. Three groups of children with dyslexia, with mean age 8, 13, and 17 years were matched with three groups of normally achieving children for age and IQ with the dyslexic groups. They developed tests of sound categorization phoneme detection. They suggested that children with dyslexia performed significantly worse than their reading age controls on both tasks.

To conclude, it is found that there have been studies which point out that dyslexics are deficit in intersensory integration or visual verbal association. But the studies have differed in their methodology employed to measure such a deficiency as well as in the interpretations made for outcomes of the studies. In some studies, Birch and Belmont (1964, 1965), Zigmond (1966), Vande Voort, et al. (1972), have employed perceptual matching

procedure whereas others, Stegar, et al. (1972), Vellutino, et al. (1973, 1975) have employed associative learning. Vellutino (1977) has criticised the former approach and supported the latter on the grounds of validity. There has been a greater consensus in the findings of the first group of studies that dyslexics are deficient in inter sensory integration. This is attributed by those authors to the deficiency in the use of verbal concepts. As regards the second group of studies, there has not been an agreement on the findings. Some have shown the deficiency in visual-verbal association in dyslexics, Vellutino, Steger, Harding and Phillips (1975) and others have not demonstrated such a deficiency. Such a contradiction is justifiable if one analyses other problem of dyslexics as being difficult in registration, retrieval or both. There have been studies which point out that dyslexics are deficient in registration or associative learning. There are studies which point out that they are deficient in 'naming' (Denckla, 1972; Spring and Capps, 1974; Spring 1976) which the investigators have attributed to the problem of retrieval. But, it may be argued that such a deficiency in 'naming' may also be due to the basic problem in associative learning. Hence, it needs to be further explored to find out if the dyslexics are deficient in associative learning.

STUDIES RELATED TO THE ANALYSIS OF READING ERRORS COMMITTED BY DYSLEXICS

Several attempts have been made to find out the types of errors committed by dyslexics and to find out whether they are specific to dyslexia.

Boder (1973) presented an approach where in direct diagnosis through analysis of reading and spelling performance, is the focus for identifying subtypes of dyslexia for remedial and prognostic implications. The sub-groups are:

a) Dysphonetic

b) Dyscidetic and

c) Mixed

Children were identified by the use of the investigator's and Cohort's Diagnostic Screening Procedure for developmental dyslexia.

The patterns of errors in reading isolated words was studied in two groups of children with respect to reversals of letter sequence and letter orientation (William, Liberman and Shankweiler, 1978). The 'institute' group consisted of 13 children of 8-10 years old who had been diagnosed as 'dyslexic' according to medical and psycho-educational criteria. The school group included all the children in a second-grade elementary school, class, who fell into the lowest third on a standard test of reading achievement. Although the Institute subjects were somewhat poorer in word recognition than the school subjects selected purely on psyhometric grounds, the groups did not differ significantly in the incidence of reversal errors. The performance of the two groups differed in relation to directional bias in letter reversals and in the presence or absence of a significant correlation between letter

reversing and word reversing tendencies. The bulk of reading errors made by both groups reflected their common difficulties with linguistic characteristics of words rather than with their properties of visual patterns.

Shankweiler, Liberman and Isabella (1978) question on the basis of the findings of their own study whether dyslexic can be differentiated from other poor readers on the basis of a high rate of reversal errors. In their study although some dyslexics showed orientational and directional biases that were absent in most poor readers, neither group typically displayed a higher proportion of reversals than of other errors. The authors have commented on the results that the difficulties manifested in the common error pattern were chiefly outside the domain of visual perception. They were language related and were not specific to the visual perception of language. The difficulties of poor readers appeared to reflect the inaccessibility of the phonetic segmentation of spoken language, inability to adopt an efficient coding strategy for operations involving short term memory, and failure to grasp the complex nature of English spelling. The authors have suggested that since the difficulties of learning to read interact with the structural peculiarities of particular language and the way those structure are manifested in the writing system important work remains to be done in cross-language comparisons of children's reading errors.

Although, studies reveal that dyslexics do not commit unique errors, attempts have been made to classify dyslexics on the basis of errors analysis.

Aaron (1978) conducted a study to test the hypothesis that the dyslexic child, being normal in intelligence, is most likely to be deficient either in analytic-sequential processing of letter or a holistic perception of the salient features of the entire word while being normal in the other. Twenty eight reading disabled children, classified on the basis of the nature of errors made in a dictation task, were divided into two groups: analytic sequential deficient and holistic deficient. Further testing showed that the first group was poor in processing a sequence of digits but normal on holistic memory tasks. The opposite pattern of performance was shown by the second group. A control group of 14 normal readers did not show such an imbalance.

The results of the study by Collette (1979) indicated that dyslexic did not differ from the poor readers in the type of errors committed. Twenty six, eighth and ninth grade dyslexics with poor perceptual or attentional ability were matched with 19, reading retarded subjects with age equivalent perceptual or attentional test scores for age, IQ and degree of reading retardation. They were compared both with each other and with 96 adequate readers, for reversals, rotations, insertions, substitutions, omissions, poor handwriting and visual ability on the Gary Oral Reading Tests, the spelling subtest of the Wide Range Achievement Test, a writing task, and the star tracing mirror test. On 46 of 49 variables, the dyslexics and retarded readers performed almost comparably. Together they made more classic errors and had

lower achievement scores than the adequate readers on 44 of 49 variables. Classic errors clustered with poor reading but not diagnosed dyslexia.

Even the results of the study by Taylor, Satz and Friel (1979) did not support the hypotheses that dyslexics are more prone to make reversals in letter sequence or to confuse letters which differ primarily in orientation.

Similar attempts have been made by Bravo Voldivieso, Luis (1980). They studied 110 dyslexic children (aged 11 years and older) through psychometric and experimental tests. Results were correlated at three reading levels; letters and words, sentence ordering and reading comprehension. Weak positive correlations were found, and only a few of them were significant. Weak correlations were also found between specific errors and sentence arrangement. No correlation was found between specific errors and reading comprehension. From the results the authors inferred that there are different levels of various types of psychopathology within the dyslexic phenomenon whose only common denominator is reading process. But, however, they warn, this sole criterion should not be viewed as a sufficient basis to justify grouping dyslexics into the same clinical entity.

From the above review of studies related to analysis of errors committed by dyslexics, it appears that dyslexics do not differ from other types of readers in the kinds of reading errors committed (Collette, 1979, Taylor and Satz, 1979). Although

some investigators have tried to classify dyslexics into different groups on the basis of errors (Boder, 1973; Aaron, 1978; Bravo, Voldivieso Lucius, 1980) this does not imply that errors can form a criterion for identifying dyslexics. Such errors need to be further analysed and probed into in terms of the underlying neuropsychological functions which should ultimately for the basis for identification or classification of dyslexics. As suggested by Shankweiler, et al. (1978), such errors are related to the nature of language learnt. Hence, one needs to study the kinds of errors committed by dyslexics in other languages also. This would help in cross-language comparisons and to derive the common as well as specific reading behavioural symptoms related to dyslexia.

STUDIES RELATED TO THE REMEDIATION OF DYSLEXICS INVOLVING DIRECT TEACHING OF READING

Though dyslexics are having deficiencies in neuropsychological processes, the development of which is very much essential for the dyslexics to learn reading, there are attempts to develop reading skills among dyslexics without attempting to develop the neuropsychological processes in which the dyslexics are deficient. In those studies various methods have been employed.

A kinesthetic technique and the Fernald tracing method as described by Belts (1946) have been employed at the Temple University Reading Clinic with the aim of developing initial reading skills for certain types of children. In mild uses of dyslexia

the Kinesthetic approach was used; for extreme types, the Fernald technique. Steps in the Kinesthetic method included identification of unknown words in silent reading, motivation, pronouncing the unknown word, writing the word without copy, reviewing, the meaning of the word, finding the word in another sentence, and writing the word again without copy. The tracing technique involves visual; auditory, tactile, and Kinesthetic models of learning. The authors have suggested that the type of remedial procedure employed was based upon the nature of the problem, or case typing.

Stauffer (1951) gave the illustration of a basic remedial programme to an eight year old boy with above normal intelligence who had not yet learned to read. The programme included utilisation of concepts and oral language experience as a starting point, teaching words by the Kinesthetic tactile technique, systematic re-use of words learned and basal readers.

Staurt (1963) reported extensive research finding supporting simultaneous association (Orton Gillingham) method.

Emperatriz and Frederick (1965) observed that the combination or multiple-approach method of teaching reading would yield better results in teaching pilipino in grades one and two than the cartilla or direct-phonic-drill method.

In a study various treatment approaches to dyslexia, Johnson (1969) advocated the use of intrasensory compensatory techniques for visual and auditory dyslexia; visual dyslexics profited from colour cues, increased letter size, verbalization, and tactile guides, auditory dyslexics gained most from rhyming blending-sequencing tasks with eye closed, learning sight words, biaural amplifiers, and the combined use of kinesthetic approaches.

Richardson, Ellis and Collier, Lucy (1971) have studied the acquisition of decoding skills (sound-symbol correspondence, visual analysis and blending) with 12 children who scored below average on a battery of psychomotor tests. After screening, all subjects were tested on the Wipman Auditory Discrimination Test, Berch Perception Motor Sequencing Test, Berch Audio-Visual Tapping Patterns Test, and the Bender Gestalt. A group of 12 'No treatment' control subjects were found to be superior to experimental subjects in reading simple sight words on a laboratory pretest. Each experimental subject required an average of four and a half hour of tutorial time, distributed across 43 sessions, in learning the programme context. Post-test results showed experimental subjects to be superior to controls on all measures of decoding and demonstrated that experimental subjects could apply decoding skills to unfamiliar content. The major conclusion drawn by the authors was that the so-called dyslexic children could learn basic reading skills. The authors attributed the success to the highly structured, programmed approach.

Kline and Kline (1975) have compared 92 dyslexic children who received tutoring in the Orton Gillingham tutoring programme with 29 dyslexic children who did not receive the tutoring. Using operational definitions of levels of improvement, it was found that the tutored group improved more than the untutored. An additional 95 dyslexics, 48 tutored and 47 untutored by the Orton-Gillingham programme, gave similar findings. Length of tutoring was a factor in the improvement level. It is concluded by the authors that some dyslexic children can improve markedly in a short time, but most require, two years tutoring and some three years.

Gunter and Elizabeth (1975); Gutezeit and Meiar (1977) tested the effectiveness of tachistoscope in reducing reading and spelling errors. Results of the studies indicated that tachistoscopic technique is effective in increasing the accuracy in spelling, speed and reading.

A major study involving Orton Gillingham method was conducted by Wilson, Harris and Harris (1976). The programme involved 380 elementary school students from twenty one schools divided into four experimental groups. The students were diagnosed as having significant auditory perceptual deficiencies according to the Lindamood Auditory Conceptualization Test. A number of different remedial programmes were used including the Gillingham, Auditory Discrimination in Depth (ADD), Sullivan programmed Reading, and some combinations of these. Post-test score on the Woodcock Reading, Mastery Tests for word identification and Word

Attack showed that the Gillingham method produced gains in reading. However, even more effective results were achieved when this method was combined with the ADD programme.

Tamopol and Tamopol (1976) reported that the Orton-Gillingham method is among the most frequently used in remedial programme throughout the world. But, this method has been found not adequate by itself. Its effectiveness can be further increased by supplementing with other methods or techniques (Johnson, 1969, Wilson, Harris and Harris, 1976).

Hornsly and Miles (1980) also observed the effectiveness of a dyslexia-centered approach in improving both reading and spelling of dyslexics.

Nicolson and Fawcett (1994) studied that dyslexic children have problems to spell and developed a computer supported skill remediation programme and self spell system. In both cases the children showed significant and lasting improvements in spelling ability.

Fawcett and Nicolson (1998) describes the rationale behind the Dyslexia. Early Screening Test for identifying children at risk for dyslexia before they fail to learn to read. The DEST comprises 11 simple sub tests--speed, phonological skill, motor skill, cerebellar function and knowledge--which together provide an overall at risk judgement, together with an ability profile that indicates the particular areas of

difficulty. It has been designed to be administered by teachers or health professionals with no training in psychological testing and takes about 30 minutes per child; it forms the first stage in planned screening-assessment-support system and is currently under evaluation in British schools.

From the above review it can be observed that direct methods of teaching reading to dyslexics, without attempting to develop underlying disabilities, are different. Mainly they are kinesthetic methods, tachistoscopic technique and Orton-Gillingham method of which Orton-Gillingham method has been the most frequently used one. In some studies the approaches have not been clearly specified. Whatever might be the method, it is interesting to note that all the methods, were effective in improving reading. The effectiveness as well as the wide use of these methods by practitioners maybe attributed to the sound principles of teaching dyslexics on which they are based. Such principles are listed below: (a)employ highly structured and programmed approach (Richardson, Ellis and Collier, 1971), (b) Follow multisensory and multiple approaches (Emperatriz and Frederick, 1965), (c) be based upon the nature of the problem, or case typing (Belts, 1946), (d) use concepts and oral language experience if the dyslexic learners (Stouffer, 1951), (e) incorporate intrasensory compensatory techniques, especially for visual and auditory dyslexics.

These principles, although not exhaustive provide guidelines for planning remedial instructional programme for dyslexics.

STUDIES ON LISTENING SKILL

Wilt (1950) made a study to determine what percentage of the school day elementary school pupils are expected to listen. She also wanted to discover whether teachers are aware of the amount of time they expect children to listen.

The individual will spent more of his life time in listening than any other communication activity.

Bird (1963) in his study reported that girls spent 42 per cent of their time in listening of their communication activities. Listening was rated by 38 per cent as more important than reading in their college classes.

The effect of age was studied by Ferrow (1963) who noted that objective scores on listening tests increase with age.

Listening can combined with reading when children use ear-phones to hear a story while they follow the words in a book. An example of this would be the material by Anderson and others ((1963)) which present recordings of poetry, short-stories, dramatization and oral reading for use in developing appreciation and better listening skills.

Kelly (1963) in a study of both tests concluded that the construct validity of each was questionable because the two tests failed to correlate significantly higher among themselves than with reading and intelligence tests.

Brooks and Wulfange (1964) studied the effect of interest on listening comprehension and noticed that interest in the materials presented and the personality of the speaker affected listening comprehension.

Research data confirm the theory that television can be used effectively to develop listening skill.

Lawson (1964) stressed the relationship between listening and speaking and suggested that the development of the listening function in an individual "probably plays an important role in the ultimate development of his skill as a speaker in being able to order verbal behaviour."

Recent studies have also investigated the influence of personality factors on listening. Higgins (1964) analysed scores made by the same group of subjects on two listening tests and two anxiety scales and found that a) Listening was influenced neither negatively nor positively by anxiety and b) No substantial relationship existed between listening ability and anxiety.

Ross (1964) compared listening test scores of good and poor listeners, who were identified as the upper and lower extremes of his test population, with other variables, e.g. reading, arithmetic, personal and social adjustment, socio-economic factors, and hearing. He found a high positive relationship between listening and all factors studied except hearing and personality.

It has long seemed apparent to many investigators that a relationship exists between listening and reading. These behaviours are related as each is concerned with the decoding half of the communication process and seems to be a complex of related skills components, e.g. reading for main ideas or transitional elements. Further, it is possible to demonstrate a statistical relationship between listening and reading test scores. The relationship was stressed by Hollingsworth (1964) and Townsend and pointed out to the need for planned programmes to exploit the relationship for teaching purposes.

In general, reviews of listening comprehension, Dixon (1964) noted the lack of adequate tests in listening and pointed out that more effective measures are mandatory in evaluating methods, materials and programmes in listening, while Russel suggested that a source of such tests is in unpublished theses and dissertations in which individuals have constructed tests but not carried them beyond one or two revision.

The effect of age was studied by Condon (1965) who noted that objective scores on listening tests increase with age.

The influence of seating was investigated by Furbay (1965) who found that scattered seating in a room resulted in listener's talk.

The effect of position in and size of the family was studied by Brown (1965) who found that children with older and younger siblings were not better listeners than oldest or youngest children and that children from small families were not better listeners than those from large families.

Research studies show the apparent relationship between listening and reading. The correlation can be demonstrated in a statistical way. The perfect congruence was stressed by Hollingworth (1965).

Several studies investigated rate of presentation and listening comprehension. Do Hoop (1965) found that speaking presentation of 210 words per minute yielded better results for mentally retarded students and for students with limited sight.

Reeves (1965) investigated the effect of specific instruction in listening on reading performances. She used recorded listening lessons with fourth grade students and found no significant difference between mean gains of listening and reading scores of the experimental groups, which had instruction in listening, and the matched control group, which had no listening lessons.

Brilhart (1965) found no evidence of positive correlation between certain kinds of listening and speaking activities. She found that the ability to tell listeners how to draw certain geometric figures was related to the ability of the same subjects to listen to spoken directions for drawing geometric figures.

Anderson and Baldauf (1965) analysed the sequential tests of educational progress, listening and they came to the conclusion that estimates for reliability fall below minimal acceptable levels for tests used for individual evaluation. Also heavy leadings in verbal comprehension suggested that achievement on the test may be a matter of verbal comprehension and not listening as a distinct ability and that the test had no general utility in an overall standardized achievement battery. They pointed out the need for valid, reliable measures of listening comprehension.

According to Fox (1966) "In the natural world of language, however the listening experience is not always followed by a speaking experience.

Herman (1967) revealed that children spent 75 per cent of the time during their social studies classes in listening activities over 42 per cent of this time, occurred during verbal interactions between the children and the teacher.

The listening comprehension of elementary school children is generally superior to their reading comprehension, particularly with easy materials.

Comprehension during listening is dependent on many factors, but the rate of the message heard may sometimes be varied without substantially affecting comprehension. Foulke and Sticht (1969) reported that the listening comprehension of students was only slightly affected by an increase in word rate upto 275 words per minute while Daly (1970) found that the children aged nine comprehended at a rate

of 133 words per minutes. Time compressed speech was used in both the investigations.

When discussing listening comprehension the importance of training was emphasised by Sabharwal (1978).

The performance of the experimental group in listening comprehension had significantly improved because of the training in listening comprehension. The improvement of the experimental group seemed to be cumulative. The performance of the control group had not improved by the traditional teaching learning situations. Hence training in listening comprehension seems to be a 'must'.

In his study Patel (1982) showed that there was no sex difference with regard to listening comprehension. The pupils of urban area were good at listening comprehension as compared to the pupils of rural area. The students who were less anxious did better on listening comprehension test than their counterparts with higher anxiety. He also found that the students who had high IQ performed better in listening comprehension test than the students having low IQ. There was no effect of the size of the family in listening comprehension.

Victoria (1983) conducted a study upon the relation between socio-economic status and basic language skills in Malayalam and found that there exists a significant correlation between the variables. The correlation coefficient between total SES

score and score in listening comprehension for the whole sample was found to be 0.294.

Muraleedharan (1987) in his study revealed that there is significant relation between listening comprehension and socio familial variables, viz., Family Acceptance of Education, Cultural Level of Family. He also found that learning facilities at home and family environment are negatively correlated with listening comprehension.

STUDIES ON READING

Pressey and Pressey (1920) reported that it is impossible for one to make a high comprehension score unless he reads rapidly.

Flanagan (1939) found that increase in rate of reading decreases comprehension score, that is, reading speed and comprehension are negatively correlated.

Shores (1950) also reported that it is impossible for one to make a high comprehension score unless he reads rapidly.

Reudiger and Dearborn (1950) held the view that rapid readers in one type of material were usually rapid readers in other type also.

Carrille (1952) also found that if the reader has difficulty in comprehension, his reading speed slows down. Both these studies show that reading speed is positively related to reading comprehension.

Reed and Rogers (1957) said that developing vocabulary may result in increased comprehension.

In a study conducted by Sinha, Nivas and Usha (1958) on vocational interest in men and women revealed that children display interest in variety of reading materials.

Naik (1963) made an enquiry into the general nature of reading interest and habits of people above the age of 15 and also attempted to study the developmental process of these interest.

Simmons (1963) surveyed reading practices using a stratified random sample of schools in the upper Midwest.

The effect of an intensive vocabulary training programme on the reading and general achievement of college preparatory students were examined by Jackson and Dizney (1963). Thirty five instructional sessions 50 minutes in length spread out for 27 weeks produced on significant differences for the experimental group.

Bormuth (1963) validated the close procedure on 50 children in grades 4, 5 and 6 as a measure of comprehension and found it to be a reliable approach across a wide range of comprehension ability.

A study of Durkin (1963) of the achievement of pre-school readers reported on 157 children beginning first grade who were able to identify 18 to 37 common words on entrance into first grade.

To determine the relative difficulty in visual discrimination of letters Popp (1964) presented 65 kindergarten children with a task in which they were to watch two alternative letter choices with a criterion letter. The letters most confusing to children were the pairs p-q and b-d.

Lateral dominance as a factor in reading achievement was investigated by Below and Below (1964) who used the Harris test of lateral dominance with 302 children in first grade classrooms. The tests were repeated in grade 2 and no significant relationships were found with word meaning and paragraph meaning grade equivalents among children with normal, crossed or mixed dominance.

Leton and Dayton (1964) investigated the relationship of critical flicker-fusion thresholds to reading readiness. No difference in high and low readiness groups were observed on the basis of critical flicker-fusion scores and correlations with ability and reading achievement scores were consciously low.

Phychological correlates of reading behaviour were reported by Mc Guigen, Keller and Stanton (1964) who studied covert language accompanying silent reading chin and lip movements and breathing rates were found to be significantly higher during reading period than rest periods and audible sub-vocalizations decreased with increasing age. Subvocalizers were found to have a higher average lip movement and a slower average breathing rate than non subvocalizers.

Cooper (1964) compared the level of reading achievement of white and Negro students in a sample comprising about one third of the fourth through twelfth grade population of the country school systems in Georgia. White students were consistently more proficient in vocabulary and comprehension and exhibited greater variability of achievement at each level.

Davis (1964) described the results of a multiple regression study which demonstrated a significant relation measures of psychological functioning in the sub-strata factor theory and speed of reading.

Glock and Millman (1964) used control groups to determine the immediate and long term effects of a programme for high school juniors which incorporated reading, speaking, listening, and writing. The instructional programme had no effect on improved grade averages for the experimental group.

Clarke (1965) correlated parental socialization values with different aspects of children's news paper reading.

Hillerrich (1965) reported the preliminary findings of a five year study of a normal programme of pre-reading skills in kindergarten. He evaluated 363 kindergarten children to determine the effectiveness of readiness programmes with and without word books.

Otto (1965) investigated the sibling pattern of good and poor readers and found a significant advantage in reading among only elder children

Glass (1967) reported that the more familiar one is with meaning the more rapidly one will be able to read printed materials. Dhar (1968) studied the problems of Indian students of the secondary level one of the findings was 'mean vocabulary scores are higher than mean comprehension scores'.

In his study Patel's (1974) conclusion is that larger the span of apprehension, the better is the rate of reading. The coefficient of correlation between span of apprehension and the rate of reading is sufficiently high to conclude that the students having large span of apprehension are generally the fast readers or their rate of reading is more than the students having small span. Thus the correlational study supports the previous finding and students having large span of apprehension have read more because of their high rate of reading and therefore, these students have scored more in reading comprehension.

Ramkumar and Zachariah (1975) in their study revealed that culturally advantage pupils have higher positive reading habit scores when compared to disadvantaged pupils.

Vora (1976) in his investigation drew the following conclusions. There is a close positive relationship between the rate of reading and attitude. So the students having more favourable attitude are likely to be faster readers and students having less favourable attitude are likely to be slow readers. It is concluded that the attitude towards reading is a positive and significant factor to make students faster or slow readers. The results of the study of relationship between reading comprehension and the rate of reading show that there is a positive significant relationship between the two variables. It is concluded that the fast readers are better students in reading comprehension and slow readers are poor readers in reading comprehension. It is also concluded that the rate of reading and the rate of comprehension go hand in hand. One can jump to the conclusion that both the factors are interdependent.

Kantawala (1980) in his study found out that reading attitude was a function of grade. The higher the socio-economic status, the better was the reading attitude. He found that there was significant positive relationship between reading habit and reading attitude. Students of small size families had a more favourable reading attitude than those of large size families.

Kotakgira (1981) found out that it was possible to develop the reading proficiency of the students through the skills approach in which a learner practised different skills separately before he engaged in the task of reading. He also found that by creating an awareness of the importance of speed, the learner's speed of reading could be increased. The perceptual exercise of recognizing words in isolation did not produce results in terms of either speed or accuracy.

Subrahmanyam (1982) in his investigation drew the following conclusions. (i) Reading achievement of primary school children was comparatively low in rural areas, (ii) Reading achievement increased in accordance with the years of schooling, (iii) personal characteristics namely age, intelligence, general health, vision, speech, reading habits and mother tongue had positive influence on reading achievement, whereas sex of the child showed no such influence, (iv) Reading facilities provided at home, time spent on reading, activities at home and parental help and encouragement had significant relationship with reading achievement, (v) The caste group and educational level and income of the family showed positive influence on children's reading achievement. But the occupation of the parents, social participation of the members of the family and types of family they belonged to had no such relationship, (vi) Home environment played a prominent role in reading comprehension of children, (vii) Reading achievement of children in socially and culturally backward areas was very low.

Sankarankutty (1987) in his study revealed that the socio-familial variables, viz. cultural level of family, home learning facilities, family acceptance of education and cultural level of family neighbourhood are significantly related to reading comprehension.

Three studies were conducted by Thompson (1987) to examine individual differences among young children in the extent of use of alternative cognitive processes for word reading. The expectation was that boys, of the same reading attainment level as girls, tend to reply more than girls on access to philosophical segments of words.

MAJOR TRENDS INDICATED BY THE REVIEW

The review of studies, attempted so far, gives a perspective of the empirical works done in the area. This helps us to draw certain broad conclusions about the trends indicated by the different studies. The major trends indicated by the review are presented below:

1. Most of the work done in the area can be classified under six major areas,.viz., studies related to the neuropsychological dysfunctions of dyslexics, studies related to the analysis of reading errors committed by dyslexics, studies related to the remediation of dyslexics, studies related to listening, reading, speaking and writing skills.

2. The major theme selected for the study, Dyslexia, has attracted the attention of a sizable number of researchers.

3. The review, on the whole, reveals that studies related to difficulties in Basic language skills among Dyslexics are scanty. In fact no single study could be located that explores the relationship between basic language skills and dyslexia.

4) A vast majority of the reported studies on dyslexia are by western researchers. No such substantial study was carried out in India.

From the foregoing studies, it is revealed that most of the studies related to dyslexia were carried out at abroad, i.e., only in English language and no such study has been conducted so far in Malayalam language, for identifying the difficulties experienced by dyslexics in basic language skills. Findings of those studies which were carried out in English language may not be able to generalise in other languages. As each language differs in its nature and structure, the investigator decided to carry out a study in Malayalam language, with a view to identifying the diffiulties in Basic Language Skills by dyslexics in primary schools. The investigator believes that the study will be helpful for educational planners, administrators, teachers and parents for early detection of dyslexia so as to enable them to initiate remedial measures in the appropriate time.

METHODOLOGY

P.V. Happy “A study of difficulties in basic language skills in malayalam among primary school children with dyslexia ” Thesis. Department of Adult and Continuing Education and Extension services,University of Calicut, 2002

Chapter III

METHODOLOGY

METHODOLOGY

The methodology of the present study has been described under the following major heads.

1. Design of the study
2. Hypotheses
3. Selection of the Area
4. Tools employed for collection of data
5. Selection of the sample and criteria used for identifying dyslexics
6. Description of tools
7. Data collection procedure
8. Treatment of the data and technique of analysis

Detailed description of each is given below:

DESIGN OF THE STUDY

The present study comes under the purview of experimental cum descriptive study.

HYPOTHESES

The present study has been proposed to verify the following hypotheses:

1. There is significant difference between dyslexic and normal pupils in

a. Listening

b. Reading and

c. Writing including Spelling ability

2. There is no significant difference between normal girls and normal boys in

a. Listening

b. Reading and

c. Writing including Spelling ability.

3. There is no significant difference between dyslexic girls and dyslexic boys in

a. Listening

b. Reading and

c. Writing including Spelling ability.

4. There is significant difference between dyslexic girls and normal girls in

a. Listening

b. Reading and

c. Writing including Spelling ability.

5. There is significant difference between dyslexic boys and normal boys in

a. Listening

b. Reading and

c. Writing including Spelling ability.

SELECTION OF THE AREA

There are 32 Educational districts in Kerala. For the present study the investigator selected Malappuram Educational District. Malappuram district consists of 100 panchayats and 5 municipalities. The present study has been confined to Vengara educational sub-district ie. Tenhipalam, Peruvallur, A.R. Nagar and Vengara panchayats of the Malappuram district. On the north of Vengara lies Nediyiruppu, Pallikkal, Tenhipalam and A.R. Nagar Panchayats. On its South is Kadalundipuzha and Parappur panchayat and on its east is Urakam panchayat and on its west is Kadalundi and A.R. Nagar Panchayats. This area was selected because most of the schools in this area followed the state syllabus prescribed by State government for schools in Kerala.

SELECTION OF SAMPLE

The sample of the present study was drawn from Vengara educational sub-district of Malappuram. The investigator selected twenty schools randomly from Vengara educational sub-district. A total of 1880 pupils belonging to IVth standard was selected from twenty schools. While selecting, those who have visual or auditory problems and those who are mentally retarded were eliminated. A list of selected schools and number of pupils selected from each school is given below in the table.

Table 3

Details of Schools selected and the number of pupils

Sl. No.	Name of the school	Panchayat	No. of pupils
1	GLPS Calicut University Campus	Tenjipalam	180
2.	AUPS Tenhipalam	"	70
3.	ALPS Elampulassery	"	70
4.	GMLPS Koyappa	"	70
5.	GUPS Tenjipalam	"	70
6.	AMLPS Neerolpalam	"	70
7.	GLPS Parambil peedika	Peruvallur	185
8.	GMLPS Koomanna	"	110
9.	GLPS Peruvallur	"	110
10.	GLPS Olakara	"	110
11	PMSAMLPS Peruvallur	"	70
12.	AMLPS Chathrathody	"	70
13.	AMLPS Koduvayur	A.R.Nagar	70
14.	GUPS A.R.Nagar	"	70
15.	GMUPS Kolappuram	"	105
16.	GMLPS Mampuram	"	70
17	GMLPS Pukayoor	"	85
18.	AUPS Irumpumchola	"	105
19.	GLPS Edakkaparamba	Vengara	105
20.	AMLPS Thottasseriara	"	85
Total			1880

The dyslexic pupils are identified from the total sample of 1880 pupils. The criteria used by Pavlidis (1981) in his studies in identifying dyslexics are considered. They are:

1. Performance or verbal IQ of more than 90.
2. At least two years retarded in reading
3. Normal vision and hearing.
4. From a middle class socio-economic background.
5. Adequate motivation to read.
6. No lack of educational opportunities.
7. Not more than two school changes.
8. Not been absent for more than two weeks per term.
9. No overt physical handicaps (that is brain injury or tumour).
10. No overt emotional problems prior to commencing reading.

Based on the above criteria, the investigator had discussion with teachers educationists, doctors, social workers and experts in this area and make use of the following criteria for the pupils.

Table 4

Table showing the criteria adopted for identifying Dyslexics

Sl. No.	Criteria	Tools
1.	Pupils who are normal in intelligence	Intelligence test (Raven's coloured progressive Matrices)
2.	Normal in sensory-visual or auditory functioning	Teachers' opinion and self-report
3.	Without any serious emotional disturbance	Teachers' opinion
4.	Pupils at eight years and above	School records
5.	Pupils who have not been absent from school frequently	School records and teachers' opinion
6.	Pupils who have received extra coaching or help at home	Self-report and teachers' opinion
7.	At least two years retarded in reading	Teachers' opinion
8.	Having normal comprehension level	Teachers' opinion
9.	Learning strategies and behavioural symptoms	Questionnaire prepared by Association for Learning Disabilities

For identifying the dyslexics Nine criteria as noted above were followed. The following are details of various steps taken for identifying the dyslexics.

To identify the dyslexics at first, the investigator administered intelligence test (Raven's Coloured Progressive Matrices) among 1880 pupils of 20 schools spread over Vengara educational sub-district. The investigator administered the IQ test on 1880 pupils and screened out 1000 pupils with IQ of less than 90. For meeting the criteria under 2-5, the investigator collected, a list of pupils with poor reading ability, from the class teachers concerned. Among the poor readers, those who were with sensory problems apparent emotional disturbance, behaviour problems and below 8 years of age, 250 pupils were eliminated; on the basis of the data collected, from school records and on teachers' opinion.

From among the rest of 630 pupils the investigator eliminated 150 pupils, who were receiving extra coaching or help at home. The remaining 480 pupils were then selected. An aural comprehension test was administered on them and teacher's opinion were also sought. Among the 480 pupils 250 were found not normal in comprehension, were eliminated and the remaining 230 pupils were selected. Then the investigator administered the Questionnaire prepared by the Association for Learning Disabilities to the selected group of 230 pupils. Scoring was made and those who got a score of 50 per cent or below were considered to be dyslexics. Among the 230 pupils 50 secured a score of below 50 per cent were treated as dyslexics.

For comparative study, a comparable group of 50 normal pupils were also selected. The criteria used for identification of normal pupils were the same as that used for dyslexics; except the one, that is, reading performance is on par with expected performance of their respective grades. Details of dyslexic and normal pupils selected for investigation are given in the following tables.

Table 5

Details of Dyslexic pupils selected with schools

No.	Name of the school	Total pupils	Dyslexics	Boys	Girls
1.	GLPS Calicut University Campus	180	5	2	3
2.	AUPS Tenhipalam	70	2	2	0
3.	ALPS Elampulassery	70	2	1	1
4.	GMLPS Koyappa	70	1	0	1
5.	GUPS Tenhipalam	70	3	2	1
6.	AMLPS Neerolpalam	70	2	0	2
7.	GLPS Parambil peedika	185	4	2	2
8.	GMLPS Koomanna	110	2	0	2
9.	GLPS Peruvallur	110	3	2	1
10.	GLPS Olakara	110	2	2	0
11	PMSAMLPS Peruvallur	70	2	0	2
12	AMLPS Chathrathody	70	3	2	1
.13.	AMLPS Koduvayur	70	2	2	0

14	GUPS A.R.Nagar	70	2	1	1
.15	GMUPS Kolappuram	105	4	2	2
.16	GMLPS Pukayoor	85	3	2	1
.17	GMLPS Mampuram	70	2	0	2
.18	AUPS Irumpumchola	105	2	2	0
.19	GLPS Edakkaparamba	105	2	1	1
20.	AMLPS Thottasseriara	85	2	0	2
	Total	1880	50	25	25

Table 6

Details of Normal pupils selected with schools

No.	Name of the school	Total pupils	Normal pupils	Boys	Girls
1.	GLPS Calicut University Campus	180	5	3	2
2.	AUPS Tenhipalam	70	2	1	1
3.	ALPS Elampulassery	70	2	1	1
4.	GMLPS Koyappa	70	1	1	0
5.	GUPS Tenhipalam	70	3	3	0
6.	AMLPS Neerolpalam	70	2	0	2
7.	GLPS Parambil peedika	185	4	1	3
8.	GMLPS Koomanna	110	2	0	2
9.	GLPS Peruvallur	110	3	2	1

10.	GLPS Olakara	110	2	2	0
11	PMSAMLPS Peruvallur	70	2	0	2
12	AMLPS Chathrathody	70	3	2	1
.13.	AMLPS Koduvayur	70	2	0	2
14	GUPS A.R.Nagar	70	2	1	1
.15	GMUPS Kolappuram	105	4	1	3
.16	GMLPS Mampuram	70	2	0	2
.17	GMLPS Pukayoor	85	3	2	1
.18	AUPS Irumpumchola	105	2	2	0
.19	GLPS Edakkaparamba	105	2	1	1
20.	AMLPS Thottasseriara	85	2	2	0
	Total	1880	50	25	25

TOOLS USED.

TOOLS ADOPTED

Idenification of Dyslexics:

a. Tool for measuring IQ (Raven's Coloured Progressive Matrices)

b. Questionnaire prepared by the Association for Learning Disabilities.

TOOLS PREPARED

Tools for measuring Language Skills:

a. Tool for measuring listening skills

b. Tool for measuring reading skill

c). Tool for measuring i) writing skill

ii) spelling ability

DESCRIPTION OF TOOLS

Tools Adopted

(a). **Tool for Measuring IQ** (Raven's Coloured Progressive Matrices)

Investigator administered Raven's coloured progressive matrices for measuring IQ. The purpose of using the coloured progressive matrices was to screen out mentally retarded children below 25th percentile. This test is designed for the use of young children, and old people, for anthropological studies and for clinical purposes. The peculiarity of this tool is that it can be used satisfactorily with people of any language, with people suffering from physical disabilities, aphasia, cerebral palsy or deafness, as well as with people who are intellectually sub normal or deteriorated.

Raven's coloured progressive matrices is an individual test and was not timed. It consists of three sets, A, Ab and B. Each set consists of twelve problems. They are arranged to assess the cognitive process of children under eleven years of age.

Before administering the test the following procedure was adopted.

1. Rapport was built with the pupil through informal conversation. During the preliminary conversation, the particulars of the pupil to be tested were filled up in the record form.

2. The investigator introduced the test according to the instruction given in the manual. The investigator stressed some instructions like -

    a) 'Look carefully at the pattern'.

    b) 'Only one is right, point to the piece which is right.'

    c) 'Be careful, only one is right; which one is it? Be sure you find the right one before you point to it.'

3) Whether the pupil chose rightly or wrongly, the investigator asked "is that the right one?" If the pupil was satisfied, his choice was accepted. If he was still in doubt, the investigator said, "Well, which is the right one?" and accepted the one then pointed to as the pupil's final decision. The investigator noted in the appropriate place on the record form the number of the piece pointed in each test.

4) The same guidance was given with each problem in all the three sets A, Ab and B as long as it was useful.

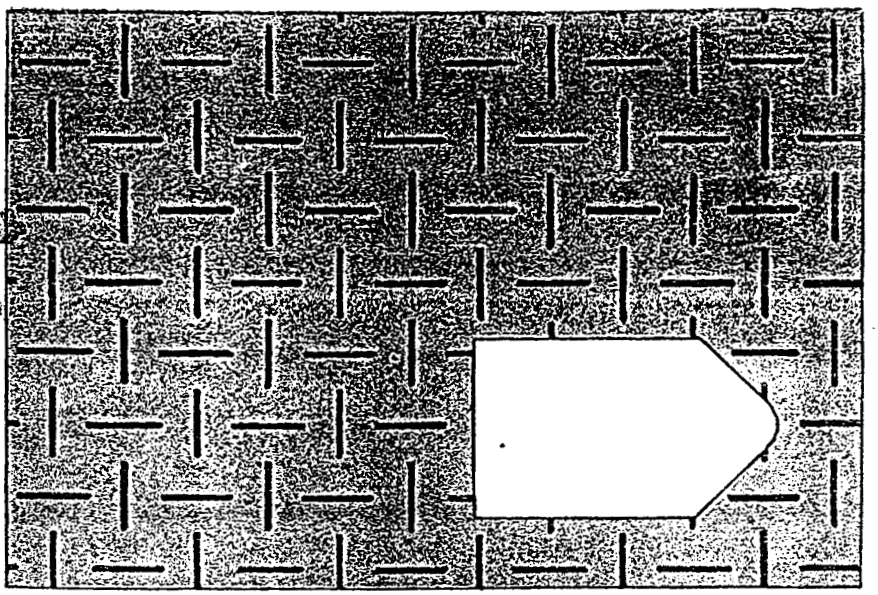
5) Any clue in solving the problem was avoided.

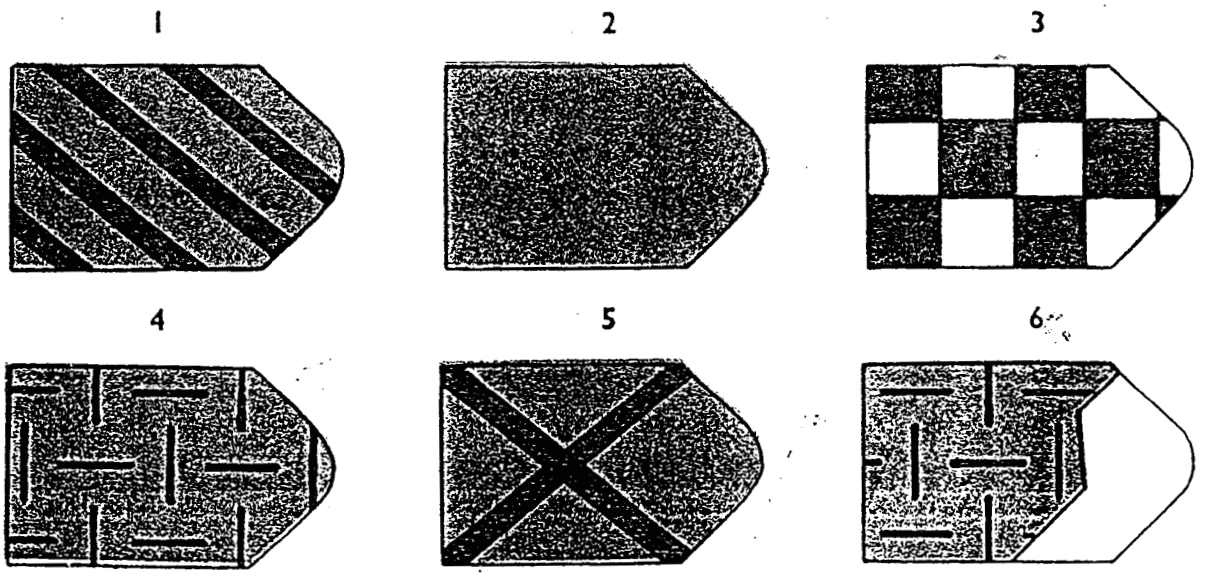
After given a detailed description about the procedures to be followed while administering the test, it was administered individually.

A specimen copy of each set is attached below with description.

SET – A

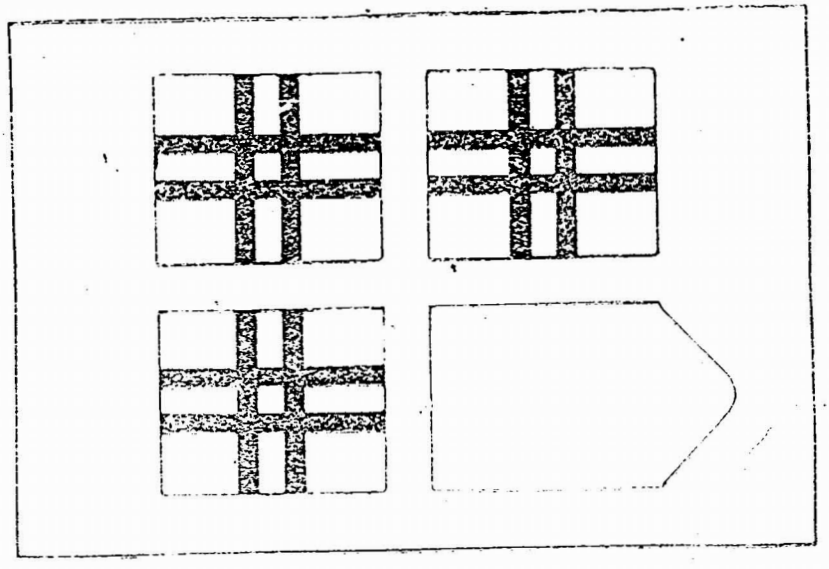
The set includes rather simple problems. The correct answer figure can be selected from the four alternatives and the selected one will well fit into the pattern giving it a definite shape. A specimen from Set A is given below.

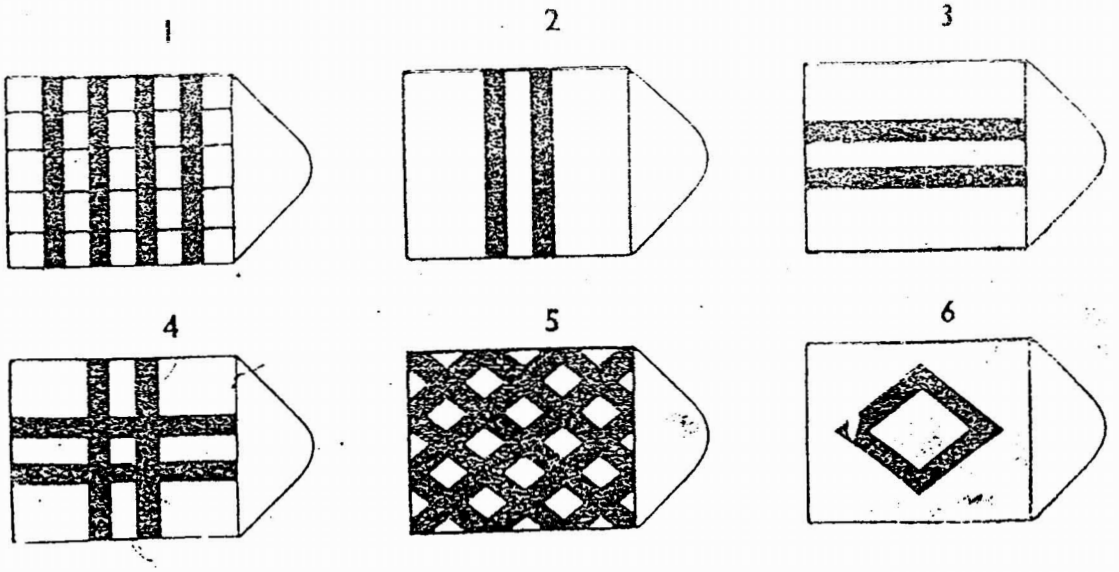




SET – Ab

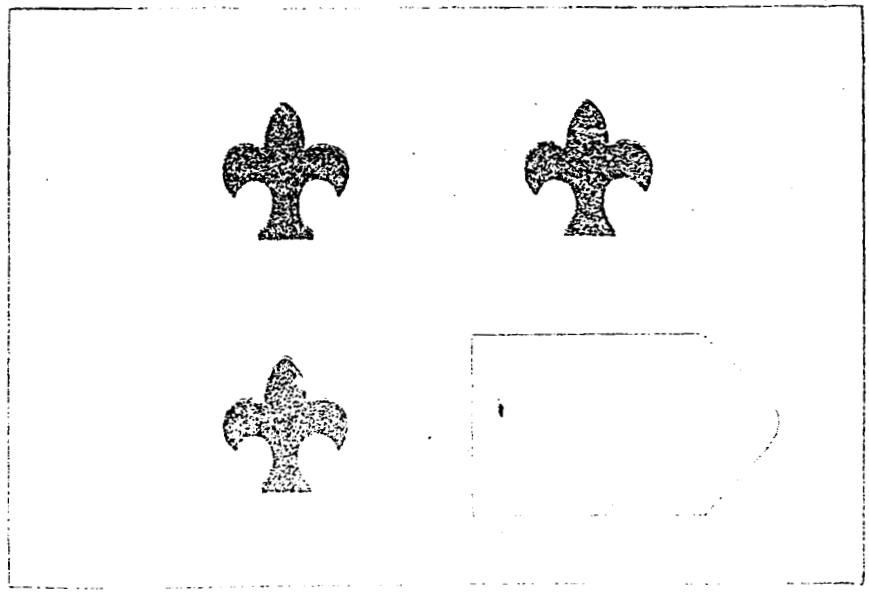
Problems in set Ab includes simple problems. The set also consisted of four alternatives and the selected one will well fit into the pattern giving it a definite shape. A specimen from set Ab is given below:

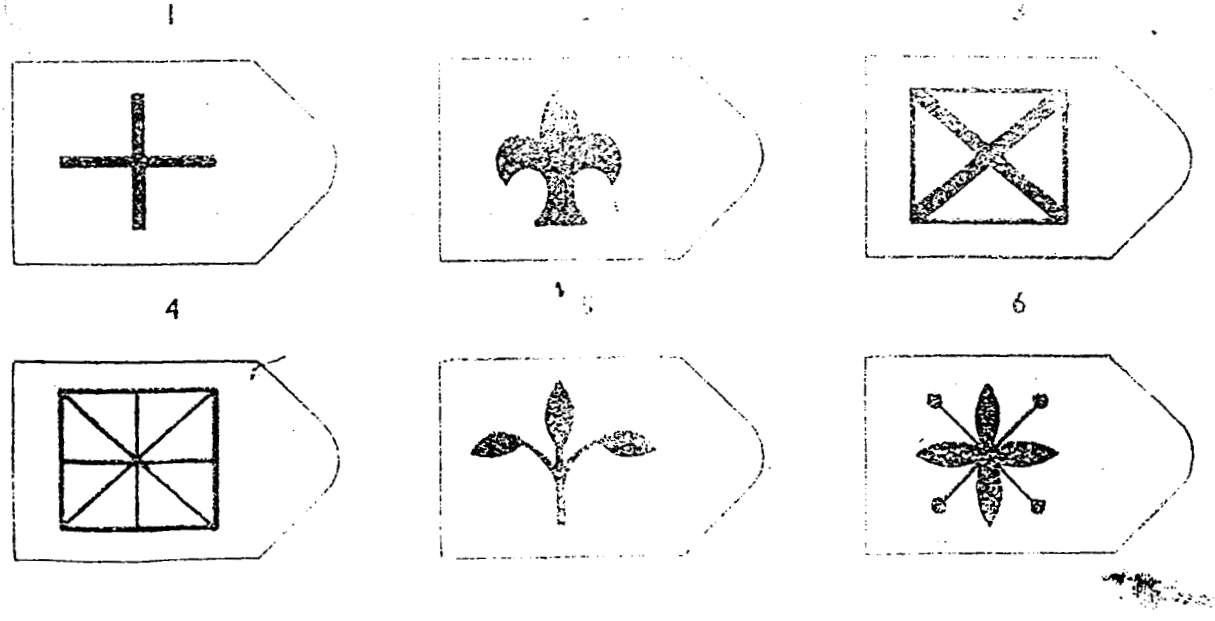




SET – B

The problems in the set B are also very easy to understand. The answer figures to these problems are, somewhat identical to the elements given in the pattern. In some problems the answer given (figure), can also be derived as the mirror image of the element which is printed at the top position. A specimen figure from Set B is given below:





Scoring

The coloured progressive matrices used in this study was scored according to the scoring key. Total scores were calculated for each pupil and with the help of raw scores, percentile point was determined according to the age assigned grade to each one of them.

b) QUESTIONNAIRE PREPARED BY THE ASSOCIATION FOR LEARNING DISABILITIES

This questionnaire was prepared and standardized by the Association for Learning Disabilities, the validity and reliability of the test was established empirically. The validity was found to be .92 and reliability .90. A copy of the questionnaire is attached as Appendix 2.

The questionnaire consisted of three sections.

i) First section deals with general information about the pupils.

ii) Second section deals with statements about the behaviour of the pupil.

iii) Third section deals with statements related to learning strategies.

In the test it was assumed that those securing a score of 50 per cent or below were learning disabled. The same criterion was followed for identifying dyslexics.

TOOLS PREPARED

a) TOOL FOR MEASURING LISTENING SKILL

For measuring the listening skill, the investigator adopted test of listening comprehension prepared by Dr.Kelu (1989) with certain modifications suggested by experts in education. Considering the procedure, the investigator prepared a test for measuring listening skill in Malayalam, among IVth standard students.

First the investigator went through different passages in Malayalam carefully. Then she selected two passages, and from each passage, framed five questions based on the contents.

The test was administered on four hundred pupils studying in IVth standard in Malappuram district. As a first step of standardization, the investigator contacted Headmasters and with their co-operation administered the test.

For administering the test for listening comprehension, the investigator recorded the passages and questions in a cassette. Directions were given to the pupils to follow the following points while answering the questions. They were i) to find out the main idea of the passage presented, ii) to locate the significant details of what was listened to, iii) to identify and to establish relationships between ideas presented.

Before administering the test, the pupils were instructed that the test was a group test and duration of the test was one hour. The investigator provided answer sheets to each pupil and asked to write down their names and schools name in the answer sheets supplied. Two passages and questions were recorded in a cassette. They were asked to listen when the switch was on. Each passage was followed by five questions. The questions were given one by one. Then pupils were asked to write down the answers of each passage in the sheets provided.

After the test was over, the answer sheets were collected, valued and scores recorded. Altogether there were ten questions. Each correct answer carried one mark. After that the validity and reliability of the test was found out. A copy of the tool is attached as Appendix 3.

Validity of the test

The content validity and concurrent validity were established in the test. Content validity was based on expert judgement. The passage for listening comprehension were selected considering the judgement of subject specialists and school teachers having long experience in the field. Concurrent validity of the test was determined by means of statistical technique. The scores obtained by the four hundred students in listening comprehension test were correlated with external criterion using the marks obtained by them in Malayalam in the half yearly

examination. The correlation coefficient thus calculated was found to be .80. Thus the validity of the test was confirmed.

Reliability

In the test, reliability was found out by using test re-test method. Test scores of four hundred pupils conducted first was taken. After one month, the test was again given to the same pupils and their scores obtained. These two sets of scores were analysed using the product moment coefficient of correlation formula and the reliability was calculated. The reliability of the test was found to be .92. Thus the reliability of the test was established.

b) TEST FOR MEASURING READING SKILL

The test was prepared by the investigator for measuring reading skill among IVth standard students. For preparing the test, the investigator selected two passages, each passage consisting of forty three words. The content validity of the test was based upon the judgement of subject experts. As the first passage did not contain almost all the letters of Malayalam alphabet, the subject experts advised for the application of the second passage for the test.

Before holding the test, the investigator asked the pupils to listen carefully and the test was administered individually. For each pupil, fifteen minutes time was allotted. Before reading the passage, the pupils were asked to say their names. When

the investigator said start, they started reading. For each correct reading of a word one mark was awarded.

For standardization the test was administered on four hundred pupils studying in IVth standard of Malappuram district. Then the validity and reliability of the test was confirmed. A copy of the tool is attached as Appendix 4.

Validity

Validity of the test was determined by means of statistical technique. The scores in the reading test as conducted above were correlated with external criterion using the marks obtained by the pupils in Malayalam in the half yearly examination. The correlation coefficient thus calculated was found to be .92. Thus the validity of the tool was established.

Reliability

Test re-test method was employed to find out the reliability. The test scores of four hundred pupils were taken. A re-test was conducted after one month on the above four hundred pupils and their scores recorded in the same way. The sets of scores obtained in the two tests were analysed using the product moment coefficient of correlation formulae and the reliability was ascertained. The reliability of the test was found to be .90.

c) TEST FOR MEASURING :

i) WRITING SKILL

For collecting data regarding 'writing skill', test of measuring writing ability in Malayalam for primary school pupils was used. On the basis of the opinion of the experts, the investigator selected a Picture for standardizing the test.

Necessary instructions were given to the pupils to take part in the test. They were informed that the test was in the nature of a group test and were required to attend carefully for attempting the test and that the maximum time duration for the test was 30 minutes. The investigator exhibiting a picture hung on the black board, asked the pupils to write down as many words as possible based on the picture. When the investigator said start they began writing the words. They stopped writing, when the investigator said 'stop' after the test duration of 30 minutes.

When the test was over, the investigator collected the answer scripts, valued and scores recorded. Maximum number of words written was seventy and minimum was fifteen. The investigator selected the common words answered by the pupils from among the seventy words. Based on this the investigator prepared a list of words in consultation with the subject experts. The final list thus consisted of fifty words.

This test was administered on four hundred pupils studying in IVth standard of Malappuram district. Necessary instructions were given to the pupils before administering the test. The pupils were informed that the test was intended to measure writing ability. Answer sheets were supplied to each pupils. They were asked to listen carefully the words spelt out by the investigator before starting to write. The investigator slowly and clearly uttered fifty words one by one so that the pupils could write down the words. After the test was over investigator collected the answer sheets, valued and recorded the scores. For each correct word one mark was awarded. Then the validity and reliability of the test was confirmed. A copy of the tool is attached as Appendix 5 (i).

Validity

The content validity and concurrent validity were established in the test. Content validity was based on expert judgement. Concurrent validity of the test was determined by means of statistical technique. In this method the scores in the test of writing held as above were correlated with using the external criterion in the marks of Malayalam obtained by the pupils in the half yearly examination.

The correlation coefficient thus calculated was found to be .91. Thus the validity was confirmed.

Reliability

Reliability was found out by using test re-test method. Test scores obtained by the pupils was noted down. Then re-test was conducted after one month to the same group of pupils. These two scores were analysed by using the product moment coefficient of correlation and the reliability was found. The reliability was found to be .88. Thus the reliability of the tools was confirmed.

ii).SPELLING ABILITY

For collecting data regarding spelling, Test of Spelling ability in Malayalam for primary school pupils was prepared. The test was standardized by the investigator, based on the model of the test prepared by Dr.Kelu (1989).

The investigator went through each lesson in detail of the IVth standard Malayalam text book. While reading, the investigator noted down the words that are supposed to create confusion among the pupils. Thus twenty words were identified and selected. Then the investigator determined to administer pilot test.

Before administering the test, the investigator gave the following instructions. The pupils were asked to attend carefully the words written in the test sheet supplied to them. It was a group test and of twenty minutes duration. The test consisted of twenty words including three distracters for each word. The pupils were asked to mark the correct spelling of each word by putting a tick mark. They had to write

down their names and name of the school in the paper provided. Each correctly ticked word would have scored one point. The scores obtained by each pupil was noted. Then the investigator contacted subject experts for their suggestions. Then the validity and reliability of the test was found. A copy of the tool is attached as Appendix 5 (ii).

Validity

The test was prepared in such a way that it was supposed to measure the accuracy of spelling in Malayalam of primary school pupils. The test items were selected by consulting various language experts. The emperical validity of the test was also established. The scores obtained in the test of spelling ability in Malayalam were correlated with the marks obtained by the pupils in Malayalam for second terminal examination. The correlation coefficient was found out by Pearson's product moment coefficient of correlation formula. The validity thus obtained was .90. Hence the validity of the tool prepared was confirmed.

Reliability

Reliability was found out by using test re-test method. Test scores of spelling ability in Malayalam were taken. After one month, the test was given again to the same pupils and the scores taken. The correlation of the two tests was found out by

using the product moment coefficient of correlation formula. The reliability of the test was found to be .92. Hence the reliability of the tool was confirmed.

PROCEDURE FOR DATA COLLECTION

Having finalized the sample and the tools to be used, programme for administration of the test was prepared. The investigator first prepared a list of twenty schools from Vengara educational sub-district. For getting permission for data collection, visited AEO of Vengara. On getting permission from AEO, the investigator contacted the school authorities personally and explained to them the scope of the study, the time and facilities required for testing etc. The tests were conducted school days. The investigator personally visited all the schools, strictly followed all the directions, rules and procedures for administering the different types of tests. The datas were collected during January to May 2001.

The general data sheet was administered first. The personal details about the pupils (name, class, age, sex etc) were obtained. Then the different tests were administered. The tests on basic language skills was administered on fifty dyslexic and fifty normal pupils, as identified from 1880 pupils. The procedure followed for the final test is also the same used for standardization of test. Uniform procedures were observed in administering the test in different schools. The following steps were invariably followed for administering each test.

1. Distribution of the test to subjects together with printed instructions regarding the test.
2. Explaining the general directions given in the test.
3. Distribution of the answer sheets with instructions for filling them up.
4. Making the students familiar with the answer sheets, mode of entering responses, etc.
5. Clearing the doubts of subjects, giving instructions regarding time limit, method of dealing with eventualities etc.
6. Strict adherence to the time limit in the case of speed tests.
7. Giving intervals between testing.
8. Collecting back the answer sheets.

SCORING

The response sheets of all the tests were scored as per the scoring scheme of the tests described earlier along with each test.

CONSOLIDATION AND PROCESSING OF DATA

All the relevant data relating to listening, reading and writing including spelling were entered separately on specially designed sheets of paper.

The data were entered in such a way that they could be used for hand computation or for computer data processing.

TECHNIQUES OF ANALYSIS

The data has been carefully analysed by employing appropriate statistical techniques. Descriptive statistics such as Mean and Standard Deviation have been used to describe the distribution of scores. Graphical representations are also made to test different hypothesis. The inferential statistical techniques such as t-test have been employed to test various hypothesis. The obtained numerical results have been interpreted meaningfully.Detailed analysis of the data and discussion on the results are presented in the IVth chapter.

ANALYSIS AND INTERPRETATION OF DATA

P.V. Happy “A study of difficulties in basic language skills in malayalam among primary school children with dyslexia ” Thesis. Department of Adult and Continuing Education and Extension services,University of Calicut, 2002

Chapter IV

ANALYSIS AND INTERPRETATION OF DATA

ANALYSIS AND INTERPRETATION OF DATA

This chapter consists of two parts. The first part deals with analysis of the significance of the difference in listening, reading and writing including spelling ability among dyslexics and normal pupils and the sex wise comparison of the performance of dyslexics and normal pupils in basic language skills. Second part deals with analysis of the 'errors' committed by dyslexics in the basic language skills.

The data concerning the dyslexics and normal pupils with respect to the basic language skills, viz., listening, reading and writing including spelling were subjected to analysis. The performance of the two groups were compared. The results of the comparison have been recorded.

PART A

COMPARISON OF THE MEAN PERFORMANCE SCORES OF DYSLEXIC AND NORMAL PUPILS IN BASIC LANGUAGE SKILLS

SECTION - I

a). COMPARISON OF THE SCORES OF DYSLEXIC AND NORMAL PUPILS IN LISTENING SKILL

In order to see whether there is any significant difference in listening skill between dyslexic and normal pupils, the data collected have been analysed to find out the Mean, SD and t-ratio.

From the collected data Mean, SD and t-ratio were found out to ascertain whether there is any difference in the performance between dyslexic and normal pupils. The table below shows the listening skill of dyslexic and normal pupils.

Table 7

Statistical indices and the results of the tests of significance used for comparing the listening skill of Dyslexic and Normal pupils

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexics	50	14.580	5.492	98	25.67
Normals	50	44.420	6.112		

Table value for t (0.05) with 98 df is 1.99

Formula used to find out t is

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

Where

X_1 = Mean of Dyslexics

X_2 = Mean of Normal pupils

S_1 = Standard Deviation of Dyslexics

S_2 = Standard Deviation of Normal pupils

n_1 = Size of Dyslexics

n_2 = Size of Normal pupils

$$t = \frac{14.580 - 44.420}{\sqrt{\frac{5.492^2}{50} + \frac{6.112^2}{50}}} = 25.67$$

Table value for t (0.05) at 98 df is 1.99

From the above, it is evident that there is significant difference between dyslexic and normal pupils in listening skill. It is therefore clear that the 't' value (25.67) is greater than the table value ('t' value at 98 df is 1.99). The means of the two samples selected are also highly significant. This difference in the mean performance of dyslexic and normal pupils may be due to inadequacy of attention on the part of dyslexics. Span of attention of dyslexics is comparatively very low and is distracted very easily.

b) COMPARISON OF THE SCORES OF DYSLEXIC AND NORMAL PUPILS IN READING SKILL

Based on the data, Mean, SD and t-value were computed to find out whether there is any significant difference in the reading skills between dyslexic and normal pupils. The table below shows the reading skill of dyslexic and normal pupils..

Table 8

Statistical indices and the results of the test of significance used for comparing the Reading Skill of Dyslexic and Normal pupils

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexics	50	9.820	2.464	98	23.76
Normals	50	27.800	4.751		

Table value for t (0.05) with 98 df is 1.99

From the above table, it can be noticed that there is highly significant difference between dyslexic and normal pupils in reading skill. This is obvious from the t-value (23.76) which is greater than the table value for t (0.05) with 98 df is 1.99. It is therefore inferred that dyslexics are significantly poorer than normal pupils in their reading skill. This may be due to word substitution errors and letter substitution errors being committed by dyslexics.

c) COMPARISON OF THE SCORES OF DYSLEXIC AND NORMAL PUPILS IN:

i) WRITING SKILL

From the data, Mean, SD, and t-ratio were computed to find out whether there is any significant difference in writing skill of dyslexic and normal Pupils. The table below shows the analysis of writing skill of dyslexic and normal pupils.

Table 9

Statistical indices and the results of the tests of significance used for comparing the Writing Skill of Dyslexic and Normal pupils

Groups of pupils	No.of Pupils	Mean	S.D.	df	t-value
Dyslexics	50	11.16	4.451	98	24.91
Normals	50	36.00	5.470		

Table value for t (0.05) with 98 df is 1.99

From the above table, it is seen that there is highly significant difference between dyslexic and normal pupils in their writing skill. Since the calculated t-value (24.91) is greater than the table value for t (0.05) with 98df is 1.99. The writing skill of dyslexics are significantly poorer than normal pupils. This is due to the high frequency of spelling mistakes and omission of words committed by dyslexics compared to the normals.

ii) SPELLING ABILITY

From the data, Mean,SD,and t-ratio were calculated to find out whether there is any significant difference between dyslexic and normal pupils in their spelling ability. The table below shows the spelling ability of dyslexic and normal pupils.

Table 10

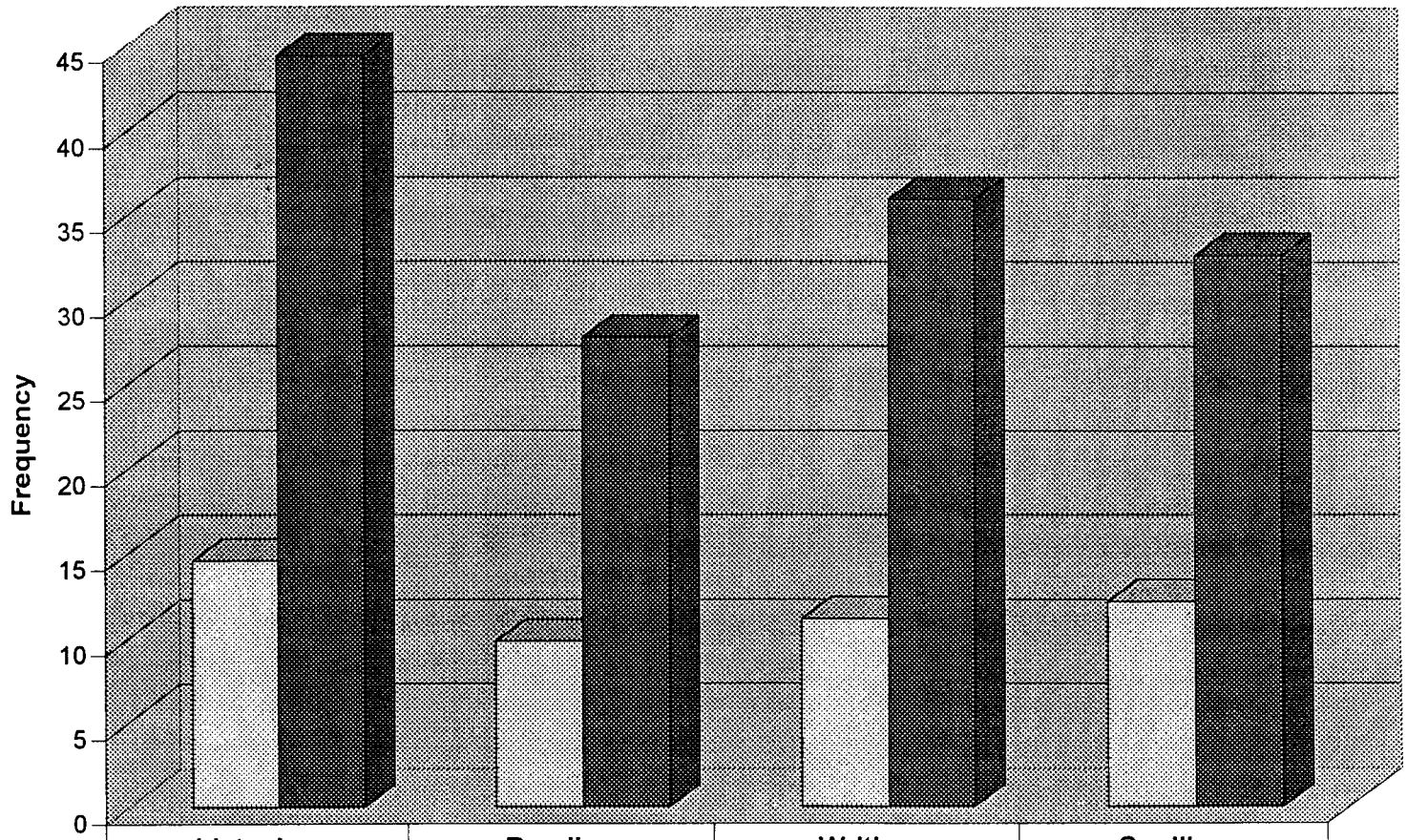
Statistical indices and the results of the tests of significance used for comparing the Spelling Ability of Dyslexic and Normal pupils

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexics	50	12.160	5.128	98	19.69
Normals	50	32.680	5.293		

From the table, it is clear that there is highly significant difference between dyslexic and normal pupils in their ability in spelling. The calculated t-value (19.69) is greater than the table value for t (0.05) with 98 df is 1.99. The Means of the two populations are also significantly different.

Mean difference between dyslexic and normal pupils in listening, reading, and writing including spelling ability is graphically represented below.

Performance of Dyslexic and Normal Pupils in Basic Language Skills



	Listening	Reading	Writing	Spelling
Dyslexics	14.58	9.82	11.16	12.16
Normals	44.42	27.8	36	32.68

Basic Skills

From the figure, it is clear that there is highly significant difference between dyslexic and normal pupils in basic language skills,viz.,listening, reading, and writing including spelling ability.

SECTION II

SEX WISE COMPARISON OF THE MEAN PERFORMANCE SCORES OF NORMAL PUPILS

Mean performance of normal girls and normal boys were computed to find out whether there is any significant difference between normal girls and normal boys in basic language skills, ie. listening, reading and writing including spelling ability.

(a) Comparison of the scores of Normal Girls and Normal Boys in Listening Skill

From the data, the Mean, SD and t-ratio were found out to see whether there is significant difference between normal girls and normal boys in listening skill. The table below shows the listening skill of normal girls and normal boys.

Table 11

Statistical indices and the results of the tests of significance used for comparing the Listening Skill of Normal Girls and Normal Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Normal Girls	25	45.360	5.950	48	1.09
Normal Boys	25	43.480	6.246		

Table value for t (0.05) with 48 df is 2.01

From the table it is clear that there is no significant difference between normal girls and normal boys in listening skill, as the calculated t-value (1.09) is less than the table value (2.01)with 95% confidence.

(b) **Comparison of the scores of Normal Girls and Normal Boys in Reading Skill**

On the basis of the data, Mean, SD and t-value were found out to see whether there is any significant difference between normal girls and normal boys in reading skill. The table below shows the reading skill of normal girls and normal boys.

Table 12

Statistical indices and the results of the tests of significance used for comparing the Reading Skill of Normal Girls and Normal Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Normal Girls	25	28.960	4.560	48	1.76
Normal Boys	25	26.640	4.742		

Table value for t (0.05) with 48 df is 2.01

From the above table, it is evident that there is no significant difference between normal girls and normal boys in reading skill, as the t-value (1.76) is less than the table value (2.01) with 95% confidence. Hence the performance of normal girls and normal boys were considered same.

(c) **Comparison of the scores of Normal Girls and Normal Boys in:**

i) Writing Skill

On the basis of the scores obtained, Mean, SD and t-value were found out in respect of the writing skill of normal girls and normal boys. The writing skill of normal girls and normal boys is given below in the table.

Table 13

Statistical indices and the results of the tests of significance used for comparing the Writing Skill of Normal Girls and Normal Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Normal Girls	25	37.400	5.041	48	1.85
Normal Boys	25	34.600	5.620		

Table value for t (0.05) with 48 df is 2.01

From the table it is found that there is no significant difference between normal girls and normal boys in writing skill, as t-value (1.85) is less than the table value (2.01) with 95% confidence.

ii) **Spelling Ability**

On the basis of the data, Mean, SD and t-value were found. The table below shows the spelling ability of normal girls and normal boys.

Table 14

Statistical indices and the results of the tests of significance used for comparing the Spelling ability of Normal Girls and Normal Boys

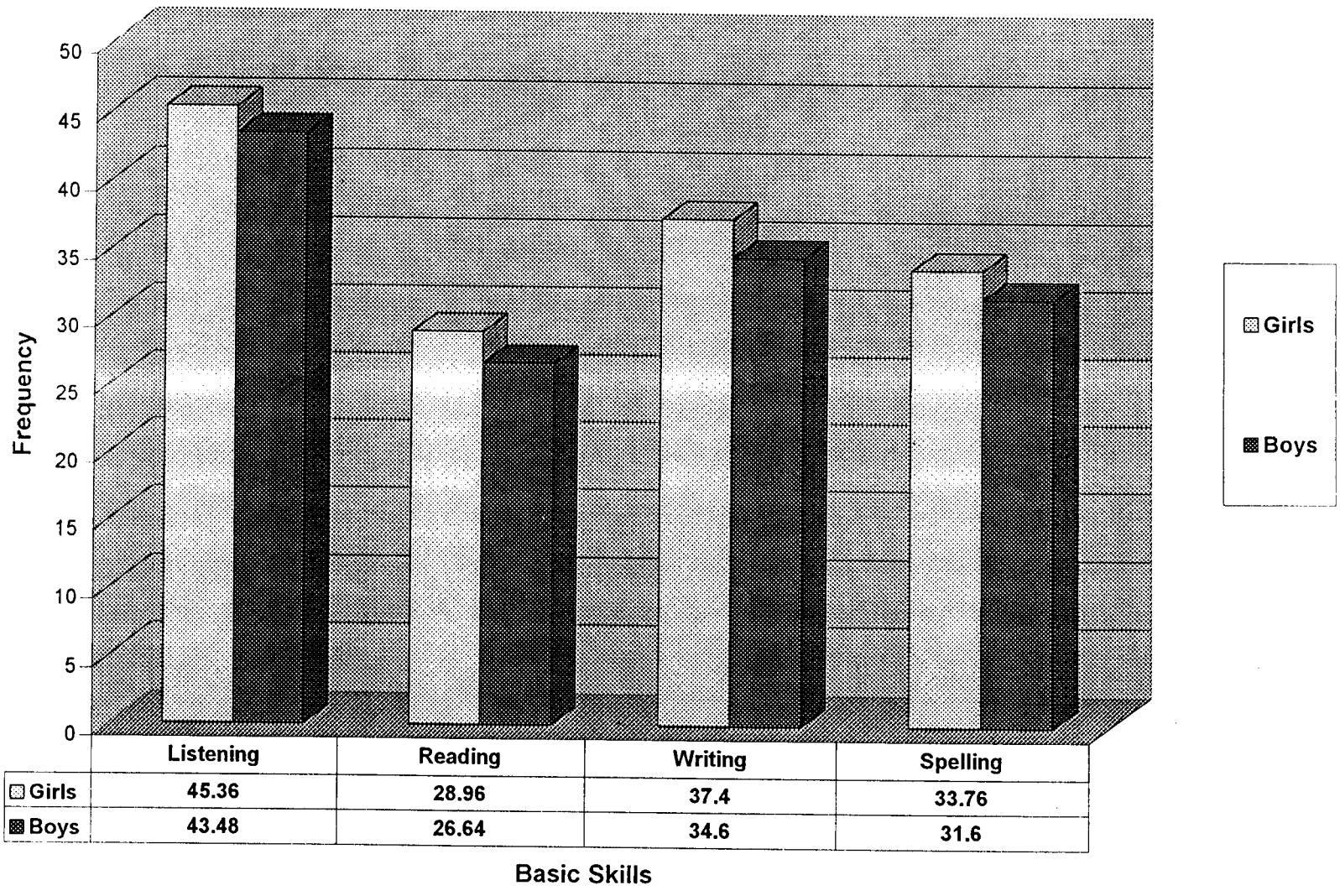
Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Normal Girls	25	33.760	5.441	48	1.46
Normal Boys	25	31.600	5.017		

Table value for t (0.05) with 48 df is 2.01

From the above table, it is clear that there is no significant difference between normal girls and normal boys in their spelling ability as the t-value (1.46) is less than the table value (2.01) with 95% confidence.

Comparison of the scores of normal girls and normal boys in listening, reading and writing including spelling ability are graphically represented below.

Performance of Normal Girls and Boys in Basic Language Skills



	Listening	Reading	Writing	Spelling
Girls	45.36	28.96	37.4	33.76
Boys	43.48	26.64	34.6	31.6

Basic Skills

The figure clearly reveals that there is no significant difference between normal girls and normal boys inbasic language skills,viz.,listening,reading and writing including spelling ability.

SECTION III

SEX WISE COMPARISON OF THE MEAN PERFORMANCE SCORES OF DYSLEXICS

Mean performance of dyslexic girls and dyslexic boys were arrived at to find out whether there is any significant difference between dyslexic girls and dyslexic boys in basic language skills.

(a) Comparison of the scores of Dyslexic Girls and Dyslexics Boys in Listening Skill

On the basis of the data, Mean, SD and t-value were ascertained. The table 15 shows the listening skill of dyslexic girls and dyslexic boys.

Table 15

Statistical indices and the results of the tests of significance used for comparing the listening skillof Dyslexic Girls and Dyslexic Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Girls	25	15.720	6.154	48	1.48
Dyslexic Boys	25	13.440	4.592		

Table value for t (0.05) with 48 df is 2.01

The above table indicates that there is no significant difference between dyslexic girls and dyslexic boys in listening skill, as revealed by the t-value (1.48) which is less than the table value (2.01)with 95% confidence.

(b) Comparison of the scores of Dyslexic Girls and Dyslexics Boys in Reading Skill

The Mean, SD and t-value were found out from the data to find out whether there is any significant difference between dyslexic girls and dyslexic boys in their reading skill. The table 16 shows reading skill of dyslexic girls and dyslexic boys.

Table 16

Statistical indices and the results of the tests of significance used for comparing the Reading Skill of Dyslexic Girls and Dyslexic Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Girls	25	10.320	1.909	48	1.45
Dyslexic Boys	25	9.320	2.868		

Table value for t (0.05) with 48 df is 2.01

The above table reveals that there is no significant difference between dyslexic girls and dyslexic boys in reading skill as the t-value (1.45) is less than the table value (2.01) with 95% confidence.

(c) **Comparison of the scores of Dyslexic Girls and Dyslexics Boys in: i)Writing Skill**

From the data collected, Mean, SD and t-value were arrived at to find out whether there is any significant difference between dyslexic girls and dyslexic boys in their writing skill. The table 17 shows the writing skill of dyslexic girls and dyslexic boys

Table 17

Statistical indices and the results of the tests of significance used for comparing the Writing Skill of Dyslexic Girls and Dyslexic Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Girls	25	12.360	4.339	48	1.96
Dyslexic Boys	25	9.960	4.315		

Table value for t (0.05) with 48 df is 2.01

From the above table, it can be noticed that there is no significant difference between dyslexic girls and dyslexic boys in writing skill, as the t-value (1.96) is less than the table value (2.01) with 95% confidence.

ii) **Spelling ability**

On the basis of the data, Mean, SD and t-ratio were arrived at to find out whether there is any significant difference between dyslexic girls and dyslexic boys

in their spelling ability. The table 18 shows the spelling ability of dyslexic girls and dyslexic boys.

Table 18

Statistical indices and the results of the tests of significance used for comparing the Spelling Ability of Dyslexic Girls and Dyslexic Boys

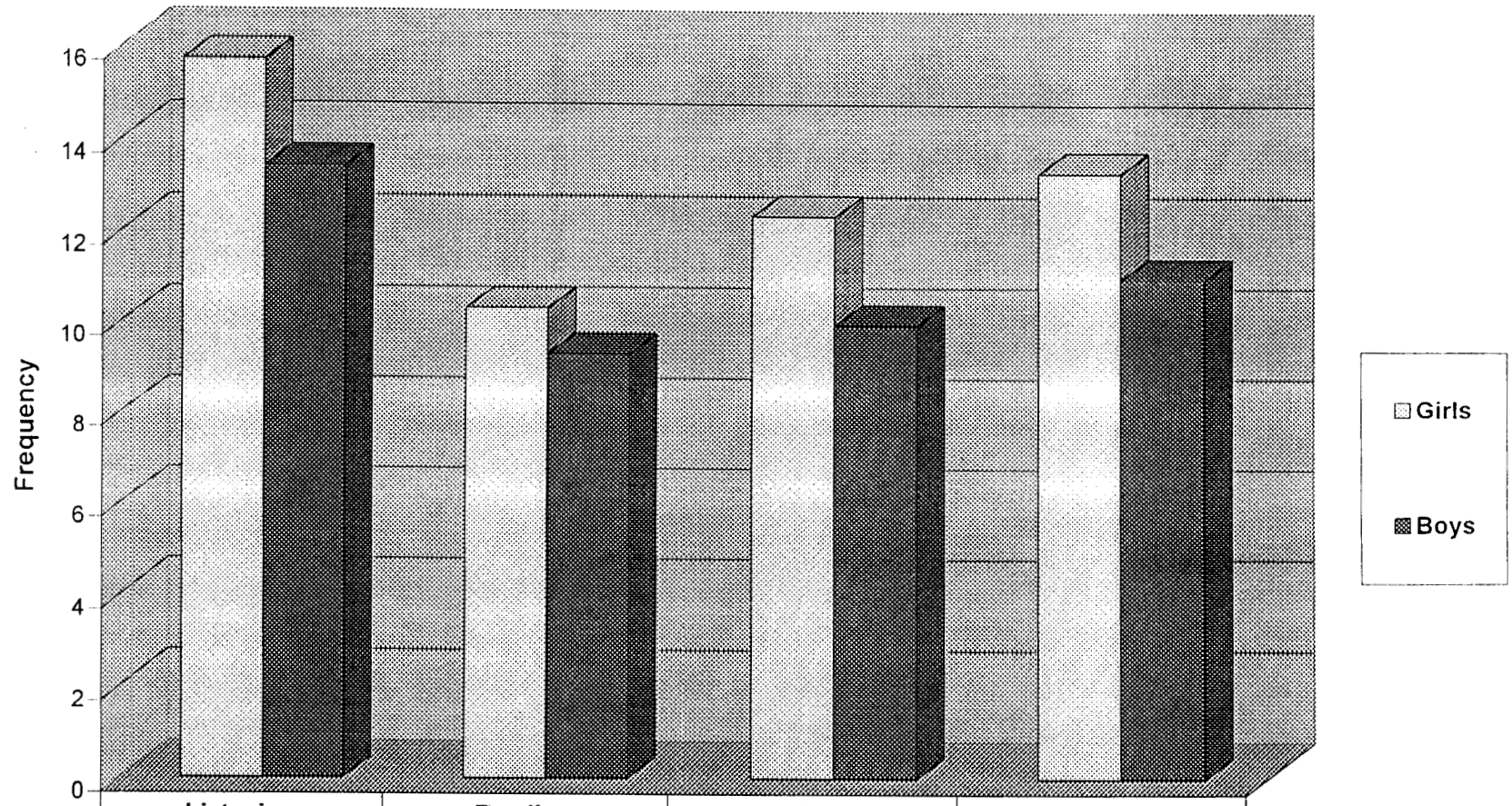
Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Girls	25	13.320	4.161	48	1.63
Dyslexic Boys	25	11.00	5.795		

Table value for t (0.05) with 48 df is 2.01

From the above table, it is proved that there is no significant difference between dyslexic girls and dyslexic boys in spelling ability, as the t-value (1.63) is less than the table value (2.01) with 95% confidence.

Scores of dyslexic girls and dyslexic boys in basic language skills,viz., listening, reading and writing including spelling ability are graphically represented below.

Performance of Dyslexic Girls and Boys in Basic Language Skills



	Listening	Reading	Writing	Spelling
Girls	15.72	10.32	12.36	13.32
Boys	13.44	9.32	9.96	11

Basic Skills

From the figure, it is evident that there is no significant difference between dyslexic girls and dyslexic boys in basic language skills.

SECTION IV

4.4. SEX WISE COMPARISON OF THE MEAN PERFORMANCE SCORES OF DYSLEXIC AND NORMAL PUPILS

Performance of dyslexic and normal pupils in basic language skills is discussed below:

(a) Comparison of the Scores of Dyslexic Girls and Normal Girls in Listening Skill

On the basis of the scores obtained, Mean, SD and t-value were found out to see whether there is any significant difference between dyslexic girls and normal girls in their listening skill. The table 19 shows the listening skill of dyslexic girls and normal girls.

Table 19

Statistical indices and the results of the tests of significance used for comparing the Listening Skill of Dyslexic Girls and Normal Girls

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Girls	25	15.720	6.154	48	17.31
Normal Girls	25	45.360	5.950		

Table value for t (0.05) with 48 df is 2.01

The above table reveals that there is highly significant difference between dyslexic girls and normal girls in listening skill. The t-value (17.31) is greater than the table value (2.01) with 95% confidence. Listening ability of dyslexic girls were very poor compared to normal girls.

(b) Comparison of the Scores of Dyslexic Boys and Normal Boys in Listening Skill

On the basis of the scores secured, Mean, SD and t-value were found out to assess whether the performance of dyslexic boys and normal boys in listening skill. The table 20 shows the performance of dyslexic boys and normal boys in their listening skill.

Table 20

Statistical indices and the results of the tests of significance used for comparing the Listening Skill of Dyslexic Boys and Normal Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Boys	25	13.440	4.596	48	19.37
Normal Boys	25	43.480	6.246		

Table value for t (0.05) with 48 df is 2.01

From the above table it is clear that there is highly significant difference between dyslexic boys and normal boys in their listening skill, as revealed by the t-

value (19.37) which is greater than the table value (2.01) with 95% confidence. Dyslexic boys are poorer compared to normal boys in their listening skill.

(c) Comparison of the Scores of Dyslexic Girls and Normal Girls in Reading Skill

From the scores obtained, Mean, SD and t-value were computed to find out the differences in the performance of dyslexic girls and normal girls in their reading skill. The table 21 shows the performance of dyslexic girls and normal girls in reading skill.

Table 21

Statistical indices and the results of the tests of significance used for comparing the Reading skill of Dyslexic Girls and Normal Girls

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Girls	25	10.320	1.909	48	18.85
Normal Girls	25	28.960	4.560		

Table value for t (0.05) with 48 df is 2.01

The above table indicates that there is significant difference between dyslexic girls and normal girls in their reading skill, as revealed by the t-value (18.85) which is greater than the table value (2.01)with 95% confidence. Reading skill of dyslexic girls are very poor than that of normal girls.

(d) Comparison of the Scores of Dyslexic Boys and Normal Boys in Reading Skill

From the scores obtained, mean, SD and t-value were found out to see the difference in the performance of reading skill among dyslexic boys and normal boys. The table 22 shows the performance of dyslexic boys and normal boys in reading.

Table 22

Statistical indices and the results of the tests of significance used for comparing the Reading Skill of Dyslexic Boys and Normal Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Boys	25	9.320	2.868	48	15.63
Normal Boys	25	26.640	4.742		

Table value for t (0.05) with 48 df is 2.01

From the above table, it is clear that there is significant difference between dyslexic boys and normal boys in their reading skill. The t-value (15.63) is greater than the table value (2.01) with 95% confidence.

(e) Comparison of the Scores of Dyslexic Girls and Normal Girls in:

i)Writing

On the basis of the data, Mean, SD and t-value were found out to see the difference in the writing skill of dyslexic girls and normal girls. The table 23 shows the writing skill of dyslexic girls and normal girls.

Table 23

Statistical indices and the results of the tests of significance used for comparing the Writing Skill of Dyslexic Girls and Normal Girls

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Girls	25	12.360	4.339	48	18.82
Normal Girls	25	37.400	5.041		

Table value for t (0.05) with 48 df is 2.01

From the above table, it is very clear that there is significant difference between dyslexic girls and normal girls in their writing skill. The t-value (18.82) is greater than the table value (2.01)with 95% confidence.

(f) Comparison of the Scores of Dyslexic Boys and Normal Boys in:

i) Writing Skill

Standardized test was conducted from among the sample of 25 dyslexic boys and 25 normal boys to measure their performance in writing skill.

On the basis of the data, Mean, SD and t-value were found to see the performance of dyslexic boys and normal boys in writing skill. The table 24 shows the performance of dyslexics boys and normal boys in writing skill.

Table 24

Statistical indices and the results of the tests of significance used for comparing the Writing Skill of Dyslexic Boys and Normal Boys

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Boys	25	9.960	4.315	48	17.39
Normal Boys	25	34.600	5.620		

Table value for t (0.05) with 48 df is 2.01

The above table reveals that there is significant difference between dyslexic boys and normal boys in their writing skill, as the t-value (17.39) is greater than the table value (2.01) with 95% confidence. The performance of dyslexic boys were extremely poorer than that of normal boys.

(g) Comparison of the Scores of Dyslexic Girls and Normal Girls in:

ii) Spelling Ability

From the data collected, Mean, SD and t-value were calculated to find out the differences in the spelling ability of dyslexic girls and normal girls. The table 25 shows she spelling ability of dyslexic girls and normal girls.

Table 25

Statistical indices and the results of the tests of significance used for comparing the Spelling Ability of Dyslexic Girls and Normal Girls

Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Girls	25	15.720	6.154	48	17.31
Normal Girls	25	45.360	5.950		

Table value for t (0.05) with 48 df is 2.01

The above table clearly indicates that there is significant difference between dyslexic girls and normal girls in spelling ability, since the calculated t value (17.31) is greater than the table value (2.01)with 95% confidence. The performance of dyslexic girls were poorer compared to normal girls.

(h) Comparison of the Scores of Dyslexic Boys and Normal Boys in:

ii) Spelling Ability

On the basis of the data, Mean, SD and t-value were calculated. The table 26 shows the performance of dyslexics boys and normal boys in spelling ability.

Table 26

Statistical indices and the results of the tests of significance used for comparing the Spelling Ability of Dyslexic Boys and Normal Boys

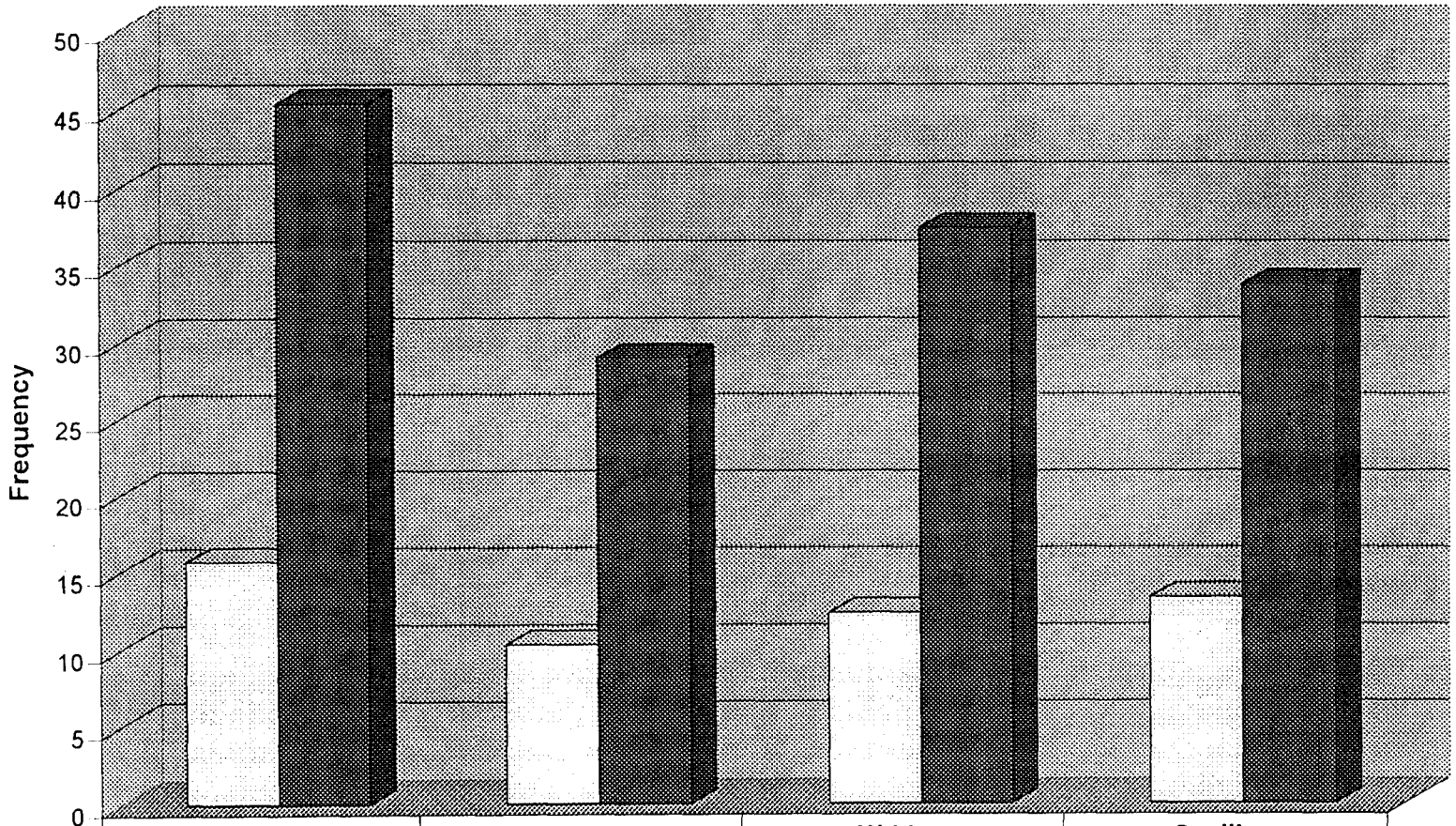
Groups of pupils	No.of Pupils	Mean	S.D.	Df	t-value
Dyslexic Boys	25	11.000	5.795	48	13.44
Normal Boys	25	31.600	5.017		

Table value for t (0.05) with 48 df is 2.01

The above table reveals that there is significant difference between dyslexic boys and normal boys in spelling ability as the t-value (13.44) is greater than the table value (2.01) with 95% confidence.

Sex wise comparison of the Mean performance scores of dyslexic and normal pupils are graphically represented below.

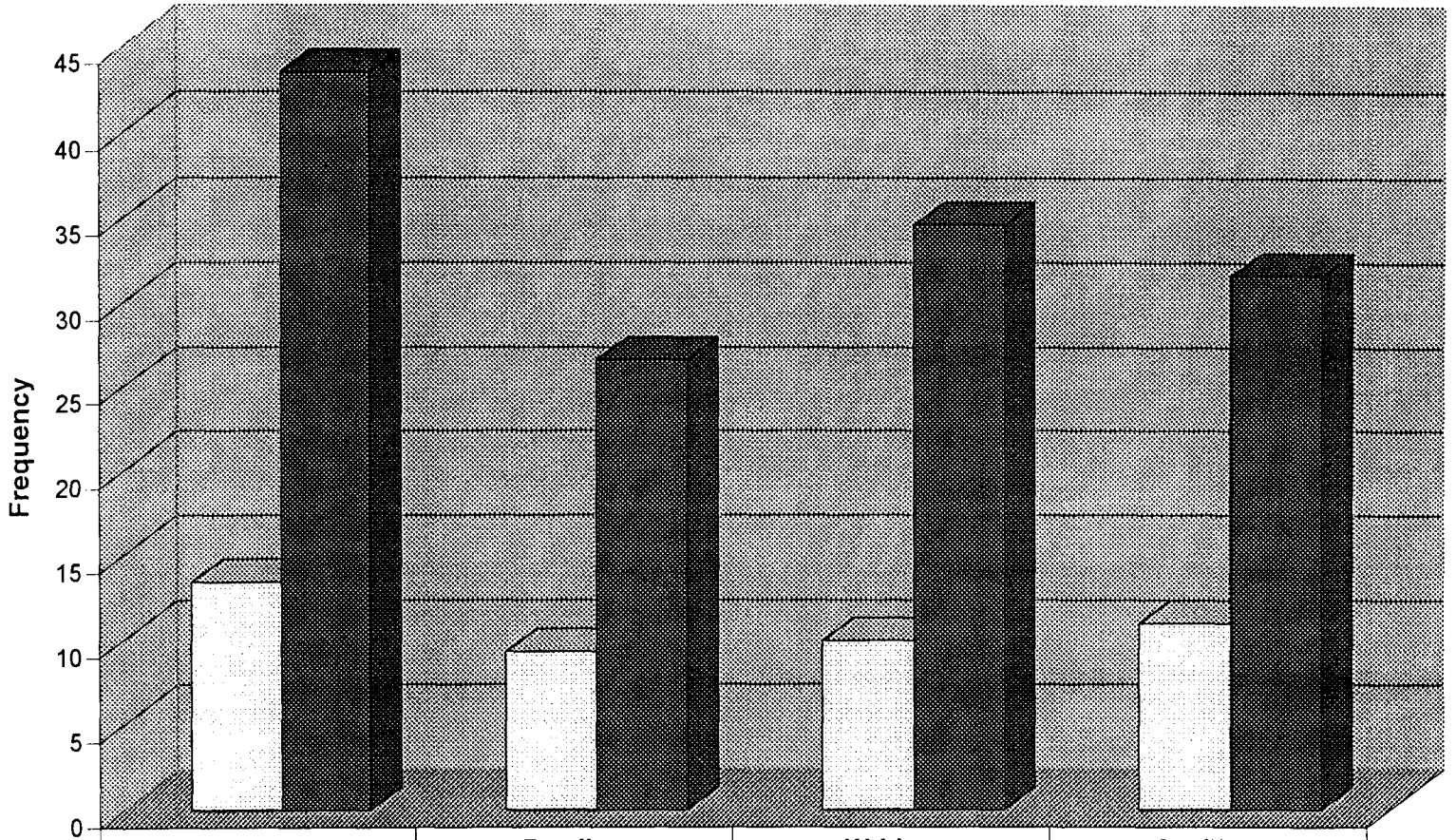
Performance of Dyslexic Girls and Normal Girls in Basic Language Skills



	Listening	Reading	Writing	Spelling
Dyslexic Girls	15.72	10.32	12.36	13.32
Normal Girls	45.36	28.96	37.4	33.76

Basic Skills

Performance of Dyslexic Boys and Normal Boys in Basic Language Skills



	Listening	Reading	Writing	Spelling
Dyslexic Boys	13.44	9.32	9.96	11
Normal Boys	43.48	26.64	34.6	31.6

Basic Skills

The above figures clearly shows that there is significant difference between dyslexic girls and normal girls and dyslexic boys and normal boys in basic language skills,viz., listening, reading and writing including spelling ability.

From the results of various tests conducted, it is proved beyond any doubt that there is significant difference between dyslexic and normal pupils in basic language skills such as listening, reading and writing including spelling ability. The table 27 shows the performance of dyslexic and normal pupils in different language skills

Table 27

A Comparison of 't' values obtained for Dyslexic and Normal Pupils

Sl. No.	Performance	Groups	No. of pupils	Mean	SD	Df	t value
1	LISTENING	Dyslexics	50	14.580	5.492	98	25.67
		Normals	50	44.420	6.112		
2	READING	Dyslexics	50	9.820	2.464	98	23.76
		Normals	50	27.800	4.751		

3	(i) WRITING	Dyslexics	50	11.16	4.451	98	24.91
		Normals	50	36.00	5.470		
	(ii) SPELLING	Dyslexics	50	12.160	5.128	98	10.69
		Normals	50	32.680	5.293		
SEX-WISE COMPARISON							
1.	LISTENING	Normal girls	25	45.360	5.950	48	1.09
		Normal Boys	25	43.480	6.246		
2.	READING	Normal girls	25	28.960	4.560	48	1.76
		Normal Boys	25	26.640	4.742		
3.	(i) WRITING	Normal girls	25	37.40	5.041	48	1.85
		Normal Boys	25	34.00	5.620		

	(ii) SPELLING	Normal girls	25	33.760	5.441	48	1.46
		Normal Boys	25	31.600	5.017		
4.	LISTENING	Dyslexic girls	25	15.720	6.154	48	1.48
		Dyslexic Boys	25	13.440	4.592		
5.	READING	Dyslexic girls	25	10.320	1.909	48	1.45
		Dyslexic Boys	25	9.320	2.868		
6	(i) WRITING	Dyslexic girls	25	12.360	4.339	48	1.96
		Dyslexic Boys	25	9.960	4.315		
	(ii) SPELLING	Dyslexic girls	25	13.320	4.161	48	1.63
		Dyslexic Boys	25	11.000	5.795		

7.	LISTENING	Dyslexic Girls	25	15.720	6.154	48	17.31
		Normal Girls	25	45.360	5.950		
		DyslexicBoys	25	13.440	4.592	48	19.37
		Normal Boys	25	43.480	6.246		
8	READING	DyslexicGirls	25	10.320	1.909	48	18.85
		Normal Girls	25	28.960	4.560		
		DyslexicBoys	25	9.320	2.868	48	15.63
		Normal Boys	25	26.640	4.742		
9.	(i) WRITING	Dyslexic Girls	25	12.360	4.339	48	18.92
		Normal Girls	25	37.400	5.041		
		DyslexicBoys	25	9.960	4.315	48	17.39
		Normal Boys	25	34.600	5.620		

	(ii) SPELLING	Dyslexic Girls	25	15.720	6.154	48	17.31
		Normal Girls	25	45.360	5.950		
		Dyslexic Boys	25	11.000	5.795	48	13.44
		Normal Boys	25	31.600	5.017		

. From the above table, it is clear that there is significant difference between dyslexic and normal pupils in basic language skills, viz., listening, reading and writing including spelling ability.

So the Hypothesis 1 states that "There is significant difference between dyslexic and normal pupils in listening, reading and writing including spelling ability" can accepted as true.

It has also been made clear that there is no significant difference between normal girls and normal boys in listening, reading and writing including spelling ability.

So Hypothesis 2 states that " there is no significant difference between normal girls and normal boys in listening, reading and writing including spelling ability" can be accepted as valid.

It is also inferred that there is no significant difference between dyslexic girls and dyslexic boys in listening, reading and writing including spelling ability.

The Hypothesis 3 states that "there is no significant difference between dyslexic girls and dyslexic boys in listening, reading and writing including spelling ability" can be accepted as valid.

The results of the tests declares that there is significant difference between dyslexic girls and normal girls in listening, reading and writing including spelling ability.

Therefore the hypothesis 4 states that "there is significant difference between dyslexic girls and normal girls in listening, reading and writing including spelling ability" can be accepted as true.

The results of the investigation reveal that there is significant difference between dyslexic boys and normal boys in listening, reading and writing including spelling ability.

Hence the hypothesis 5 states that "there is significant difference between dyslexic boys and normal boys in listening, reading and writing including spelling ability" can be accepted as true.

PART B

ERROR ANALYSIS

In this section it is proposed to analyse the types of errors committed by dyslexics in basic language skills, viz., listening, reading and writing including spelling. Such attempts might be very useful to classroom teachers in identifying and classifying dyslexics easily without administering any neuropsychological tests and to provide differential treatment to each type of dyslexics. Based on the data collected by administering the tests on basic language skills, error analysis was done.

I. LISTENING ERRORS

The following types of errors were noticed among Dyslexics while listening:

a) Confusion with words

b) Confusion with spelling

c) Omission or addition of sound units

d) Blending errors.

From the study it is clear that no dyslexic is found without committing some sort of errors. Detailed list of the different types of errors, number of pupils who committed those errors and the frequency of errors, is given below in the table.

Table 28

Frequency of errors committed by Dyslexics in Listening Skill

Sl. No.	Items	No. of pupils	Nature of errors				
			Confusion with words	Confusion with spelling	Omission or Addition of sound units	Blending errors	%of errors
A	No. of pupils committed all types of errors	7	7	7	7	7	14
B	No. of pupils committed three types of errors, i.e., errors due to confusion with words, confusion with spelling and blending errors	10	10	10	-	10	20
C	No. of pupils committed two types of errors, i.e., confusion with spelling, and blending errors	25	-	25	-	25	50
D	No. of pupils committed one type of error only, i.e., blending error	8	-	-	-	8	16
Total		50	17	42	7	50	100
Frequency of Errors = 116							

From the table it is clear that, among fifty dyslexics, seven (14%) committed all the errors, viz., errors due to confusion with words, confusion with spelling, omission or addition of sound units and blending errors. Ten (20%) committed three types of errors, viz., confusion with words, confusion with spelling and Blending errors. Twenty five (50%) committed two types of errors, viz. confusion with spelling and blending errors. Eight (16%) committed one type of error only, ie. Blending errors.

Among the errors, highest frequency occurred while they blend the sound units. Least frequency of errors occurred due to omission or addition of sound units. Total frequency of errors was noted as one hundred and sixteen.

Detailed description of each type of errors is given below:

a) Confusion with Words

One of the remarkable features of pupils with auditory dyslexia is their inability to identify correctly the sounds of words. Mishearing of words creates constant problems for auditory dyslexics. From the study it is revealed that, errors of confusion with words may be due to mishearing of words by dyslexics. While conducting the test the investigator noticed that the dyslexics asking again and again to repeat the words and sentences. This may be due to mishearing of words by dyslexics.

b) Confusion with Spelling

From the study it is found that poor spelling of dyslexics is mainly due to auditory dyslexia. They cannot hear and identify different sounds accurately. It is almost impossible

for auditory dyslexics to apply phonics rules to spelling. While attempting to write what they hear, dyslexics grope for literal translations.

c) Omission or addition of sound units

From the table, it is evident that the least number of errors committed by dyslexics while listening is in the area of omission or addition of words.

While administering the test the investigator noticed that, dyslexics have the tendency of leaving out some sound units of longer words. Sometimes they may add sound units while writing words.

d) Blending Errors

The above table clearly shows that, most of the errors committed by dyslexics was of blending errors.

This type of errors may be due to the inability of the dyslexics to cope with one of the major skills of accurate word analysis. Traditional instruction in phonics which emphasizes blending is usually beyond the comprehension of auditory dyslexics.

II READING ERRORS

a) General Tendency of Reading

While observing the way, the different types of dyslexics read words, it is seen that they make use of word attacking skills in identifying the words, ie., they try to identify each and every letter in isolation and then synthesise them into words.

Usually, normal pupils are seen attempted the whole word perception. Although this is the general tendency, there are variations in the approach followed by different groups of dyslexic readers with respect to individual words. The approach employed while reading a word determines the type of errors committed by the reader.

b) Types of Reading Errors

This section is devoted to the analysis of errors committed by dyslexics, the nature of such errors and to find out the possible reasons for such errors.

It was possible to observe the following types of errors by the investigator in her study.

a) Word Substitution Errors
b) Letter Substitution Errors
c) Kagunitha Substitution Errors
d) Blending Errors and
e) Reversal Errors

Nature of the errors, number of pupils who committed each type of errors and frequency of errors is discussed below.

Table 29

Frequency of errors committed by Dyslexics in Reading Skill

Sl. No.	Items	No. of pupils	Nature of errors					
			Word substi-tution errors	Letter substitution errors	Kagu-nitha errors	Blend-ing errors	Rever-sal errors	%of errors
A	No. of pupils who committed all types of errors	6	6	6	6	6	6	12
B	No. of pupils committed word substitution errors, letter substitution errors, Kagunitha errors and blending errors	10	10	10	10	10	-	20
C	No. of pupils committed letter substitution errors, Kagunitha errors and blending errors	8	-	8	8	8	-	16
D	No. of pupils committed Kagunitha errors and blending errors	20	-	-	20	20	-	40
E	No. of pupils committed Kagunitha errors only	6	-	-	6	-	-	12
Total		50	16	24	50	44	6	100
Frequency of Errors = 140								

The table indicates, that altogether there were fifty dyslexics. Among these, six (12%) committed all types of errors, viz., word substitution errors, letter substitution errors, kagunitha errors, blending errors and reversal errors while reading. Ten (20%) committed four types of errors, viz., word substitution errors, letter substitution errors, kagunitha errors and blending errors. Eight (16%) committed three types of errors, viz., Letter substitution errors, kagunitha errors and blending errors. Twenty (40%) committed two types of errors, viz., kagunitha and blending errors. Six (12%) committed only one type of error, ie., Kagunitha errors.

The table also reveals that, frequency of errors was high in the kagunitha type of errors. Frequency of errors was low in the case of reversal errors. Total frequency of errors was one hundred and forty.

Detailed description of each type of errors is discussed below:

a) Word Substitution Errors

When a different word is substituted in the place of a stimulus word it is considered as word substitution error. The dyslexic readers commit word substitution errors only when they attempt to perceive the whole word. Thus, the more frequently the dyslexic reader employs the whole word approach the more likely he to commit more word substitution errors.

From the study, it is found that word substitution errors may be due to inability to identify words correctly. So, in order to identify the specific reason, whenever such errors were noticed, the children were asked to re-read those words carefully. It has been observed that the second reading has helped many children to identify the words correctly.

Word substitution errors might occur because of the following reasons:

i) Response word is more familiar than stimulus word

ii) Influence of colloquial language

ii) Letter similarity at visual level

iv) Omission of long vowel

v) Omission of short vowel.

b) Letter Substitution Errors

Letter substitution error occurs when a child tries to identify individual letter and confuses it with another letter. The study revealed that letter substitution errors may be due to limited familiarity of letters.

Letter substitution errors are occurred due to the following reasons:

i) Visual similarity between the letters

ii) Auditory similarity in the letters

iii) Visual and auditory similarity between the letters

iv) Without any apparent similarity between the letters.

c) Kagunitha Substitution Errors

To read Malayalam or any other language, it is not enough if the child learns letters of the alphabet only but should also learns 'ka' karam (symbols representing consonant + vowel sound). The above table reveals that dyslexics committed more Kagunitha errors compared to other errors. The investigator noticed that kagunitha errors were due to substitution of one 'ka' karam for another ('ku' for 'ki', 'pe' for 'po', 'ga' for 'gu' etc)

d) Blending Errors

After recognizing the letters and 'kagunitha' correctly the individual sounds have to be blended properly in order to perceive them as whole words.

Blending errors could be classified into six categories. They are:

i) Conversion of short vowel into long vowel or vice-versa.

ii) Errors committed along with nasal sounds

iii) Omission or Addition of Stress

iv) Producing different words or set of sounds

v) Addition or omission of sounds

e) Reversal Errors

While analyzing the errors committed by dyslexics it was observed that there were errors reversing the order of the sounds in the word or part of the word. The

above table reveals that among fifty dyslexics, only six committed reversal errors. The investigator noticed a tendency among dyslexics to reverse the following letters (pa – va, sa – da, nda – nta, etc.).

III. WRITING ERRORS

The following types of errors were noticed among Dyslexics while writing the words.

i) Word substitution errors, and

ii) Difficulty in recalling the shape of the letters.

While writing; spelling mistake, omission of words and reversal errors also occurred. But these errors were considered in the category of spelling errors.

The nature of errors, number of pupils who committed those errors and frequency of errors is discussed below.

Table 30

Frequency of errors committed by Dyslexics in Writing Skill

Sl. No.	Items	No. of pupils	Nature of errors		
			Word substitution errors	Difficulty in recalling the shape of the letters	%of errors
A.	No. of pupils committed both types of errors	15	15	15	30
B.	No. of pupils committed word substitution error only	10	10	-	20
C.	No. of pupils committed errors due to difficulty in recalling the shape of the letters	25	-	25	50
	Total	50	25	40	100
Frequency of Errors 65					

The table clearly indicates that, among fifty dyslexics, fifteen (30%) committed both word substitution errors and errors due to difficulty in recalling the shape of the letters. Ten (20%) committed only word substitution error. Twenty five (50%) committed errors due to difficulty in recalling the shape of the letters. Frequency of errors was high in the category of difficulty in recalling the shapes of the letters. Total frequency of error was found sixty five.

i) Word Substitution Errors

Word Substitution errors occurred also while writing, as in the case of reading. When a different word is substituted in the place of stimulus word it is considered as word substitution error.

The study reveals that word substitution errors might occur due to the following reasons:

i) Word substitution errors due to visual similarity between letters.
ii) Word substitution errors due to auditory similarity.
iii) Conversion of long vowel into short vowel
iv) Missing a part of the word.
v) Lack of familiarity with words.

ii) Difficulty in recalling the shape of the letters

Most of the errors committed by the dyslexics can be attributed to their difficulties in recalling the shapes of letters. The above table clearly shows that, among fifty dyslexics, frequency of errors due to difficulty in recalling the shape of the letters was forty.

IV. SPELLING ERRORS

Most of the learning disabled children have spelling problems. The following types of spelling errors were noticed among dyslexics.

a) Spelling Mistakes

b) Omission of words or part of words

c) Reversal errors.

Detailed description about the nature of errors, number of pupils who committed those errors and frequency of errors are discussed below.

Table 31.

Frequency of errors committed by Dyslexics in Spelling

Sl. No.	Items	No. of pupils	Nature of errors			
			Spelling mistake	Omission of words or part of words	Reversal Errors	%of errors
A.	No. of pupils committed all types of errors	4	4	4	4	8
B.	No. of pupils committed errors due to spelling mistake and omission of words	15	15	15	-	30
C.	No. of pupils committed errors due to spelling mistakes only	31	31	-	-	62
	Total	50	50	19	4	100
Frequency of Errors 73						

From the table it is clear that, among fifty dyslexics, four (8%) committed all types of errors, viz., errors due to spelling mistakes, omission of words or part of words and reversal errors. Fifteen (30%) committed two types of errors, viz., errors due to spelling mistake and omission of words or parts of words. Thirty one (62%) committed only one type of error, viz, error due to spelling mistake. Frequency of errors was high in the category of spelling mistake and it is lowest in the case of Reversal errors. Total frequency of errors was seventy three.

a) Spelling Mistake

The above table clearly states that most of the errors committed by dyslexics falls in to the category of spelling mistakes.

The investigator noticed the following types of spelling mistakes while administering the test. They are:

i) Conversion of long vowel into short vowel or vice-versa

ii) Mistakes occurred when words have nasal sounds

iii) Lack of grapheme (letter or auxiliary symbol)

iv) Addition or omission of consonants or auxiliary symbols

v) Addition or omission of stress.

b) Omission of words or part of words

From the above table, it is clear that among fifty dyslexics frequency of errors due to omission of words was nineteen.

c) Reversal Errors

As in the case of reading, dyslexic pupils committed reversal errors in writing also. But compared to other errors, reversal errors were very less.

From the above study, it is revealed that error analysis is useful for classroom teachers in identifying dyslexics early in childhood and can provide proper remediation.

CONCLUSION, SUGGESTIONS AND RECOMMENDATIONS

P.V. Happy “A study of difficulties in basic language skills in malayalam among primary school children with dyslexia ” Thesis. Department of Adult and Continuing Education and Extension services,University of Calicut, 2002

Chapter V

CONCLUSION, SUGGESTIONS AND RECOMMENDATIONS

CONCLUSION, SUGGESTIONS AND RECOMMENDATIONS

THE STUDY IN RETROSPECT

The study is an attempt to find out the difficulties experienced by primary school pupils faced with dyslexia in language skills. The problem taken is "A Study of Difficulties in Basic Language Skills in Malayalam among Primary School Children with Dyslexia."

OBJECTIVES OF THE STUDY

1. The objective of this study is to find out the difficulties faced by the dyslexics in four basic language skills, viz., listening, reading and writing including spelling ability.
2. To Find out the difficulties faced by the normal pupils in four basic language skills.
3. To compare the difficulties faced by the dyslexics and normal pupils in four basic language skills.
4. To find out the type of errors committed by dyslexics in four basic language skills.

HYPOTHESES OF THE STUDY

The hypotheses formulated in the present study are:

1. There is significant difference between dyslexic and normal pupils in

   a) Listening

   b) Reading and

   c) Writing including Spelling ability.

2. There is no significant difference between normal girls and normal boys in

   a) Listening

   b) Reading and

   c) Writing including Spelling ability.

3. There is no significant difference between dyslexic girls and normal boys in

   a) Listening

   b) Reading and

   c) Writing including Spelling ability.

4. There is significant difference between dyslexic girls and normal girls in

   a) Listening

   b) Reading and

   c) Writing including Spelling ability.

5. There is significant difference between dyslexic boys normal boys in

   a) Listening

   b) Reading and

c) Writing including Spelling ability.

METHODOLOGY IN BRIEF

The present study is intended to find out the difficulties in basic language skills in Malayalam among primary school children with dyslexia.

1. Sample

Sample of the present study was drawn from the population of 1880 pupils of IVth standard, from Vengara educational sub-district. From the 1880 pupils, 50 dyslexics and 50 normal pupils were identified. Thus the sample of the present study confined to fifty dyslexic and fifty normal pupils.

2. Tools Used

Tools Adopted

Identification of Dyslexics:

a) Tool for measuring IQ (Raven's Coloured Progressive Matrices)

b) Questionnaire prepared by the Association for Learning Disabilities.

Tools prepared

Tools for measuring Language Skills:

a) Tool for measuring listening skill

b) Tool for measuring reading skill

c) Tool for measuring

i) Writing skill

ii) Spelling ability

3. Techniques of data collection

Having identified the dyslexics and normal pupils for the study and finalized the tools to be used, a programme for the administration of the tests was prepared. The general data sheet was administered first. The personal details about the pupils were then obtained and different tests were administered to collect the relevant data relating to various disabilities. The tests were administered on fifty dyslexics and fifty normal pupils, as identified from 1880 pupils.

4. Statistical technique adopted

The collected data were analysed by the following statistical techniques. Descriptive statistics such as Mean and Standard Deviation were used to describe the distribution of scores, t-test was employed to test different hypotheses.

MAJOR FINDINGS OF THE INVESTIGATION

The study was confined to fifty dyslexic and fifty normal pupils of IVth standard. Their performances in listening, reading and writing including spelling ability were observed.

The following are the major findings of the study:

1. The study reveals that there is significant difference between dyslexic and normal pupils in basic language skills, viz., listening, reading and writing including spelling ability.

2. It has also been made clear that there is no significant difference between normal girls and normal boys and dyslexic girls and dyslexic boys in basic language skills.

3. The results of the study reveal that there is significant difference between dyslexic girls and normal girls and dyslexic boys and normal boy in basic language skills.

4. The investigator noticed by error analysis process that the following types of listening errors are committed by the dyslexics increasingly than the normals.

    a. Confusion with words
    b. Confusion with spelling
    c. Omission or addition of words and
    d. Blending errors.

5. The investigator noticed by error analysis process that the following types of reading errors are increasingly committed by the dyslexics.

    a) Word substitution errors
    b) Letter substitution errors

c) Kagunitha substitution errors
d) Blending errors and
e) Reversal errors.

Based on the above, the following observations were made:

a) The dyslexic pupils commit word substitution errors. The number of word substitution errors committed by dyslexic pupils is relatively very high. This may be due to the fact that dyslexics make use of word attacking skills for identifying the words and letters.

b) Letter substitution errors are occurred due to the similarity in visual, auditory, visual-cum-auditory or without any similarity between the letters. In the study it is revealed that in the case of dyslexics, more letter substitution errors are occurred even in the absence of any apparent similarity between the letters.

c) 'Ka' karam substitution errors are committed by the dyslexics and normal pupils. But more of such errors are seen committed by dyslexics compared to normal pupils. Ramaa (1993) observed the same type of error committed by pupils in Kannada.

d) The sound blending errors are committed by both dyslexic and normal pupils. But compared to all types of errors blending errors are found increasingly more in dyslexics.

e) The dyslexic pupils commit reversal errors as well. But compared to other types of errors, reversal errors are less.

6. From the analysis of writing errors being committed by dyslexics, the investigator noticed the following major difficulties experienced by the dyslexics.

   a) Word substitution errors
   b) Difficulty in recalling the shape of the letters
   c) Spelling mistakes
   d) Difficulties in handwriting
   e) Omission of words or parts of a words
   f) Reversal errors.

a) The frequency of word substitution errors committed by dyslexics are more compared to normal pupils. The following types of word substitution errors have been noticed while the pupils write Malayalam words.

   i) Word substitution errors due to visual similarity between the letters.
   ii) Word substitution errors due to auditory similarity between the letters.
   iii) Conversion of short vowel into long vowel or vice-versa.
   iv) Missing of the part of a word.

b) The sub types coming under difficulty in recalling the shape of the letters are:

   i) Letter substitution errors
   ii) 'ka' karam errors and
   iii) Letter distortion errors.

Among these three sub-types 'kagunitha' substitution errors are found to be more in dyslexics.

c) Spelling mistakes were of different types as follows.

i) Conversion of long vowel into short vowel or vice-versa
ii) Difficulty in representing the nasal sounds
iii) Addition or omission of stress
iv) Lack of grapheme-phoneme correspondence, and
v) Addition or omission of consonant letter or auxiliary symbols.

Dyslexics committed spelling mistakes of the sub-type 'lack of grapheme phoneme correspondence'. But the frequency of errors is found to be more among dyslexics.

d) In the present study the investigator noticed the following types of problems in the handwriting among dyslexics.

i) Letters are not distinct
ii) Letters are not in medium size
iii) Spacing between letters is not proper
iv) Slantness of letters is irregular
v) Words are not written in straight line.

e) Omission of words are found in dyslexics.

f) Reversal errors are found only in dyslexics. But compared to other types of errors, reversal errors are less in dyslexics.

Based on the above the following observations were made.

Both dyslexic and normal pupils committed all types of errors. But the frequency of errors was highest in the case of dyslexics compared to normal pupils.

EDUCATIONAL IMPLICATIONS

One of the most fundamental characteristics of pupils with learning disabilities is significant discrepancy between expected and actual performance in atleast one academic content area. Therefore special academic instruction is necessary for those pupils with learning disabilities. Teachers can provide direct remedial instruction to the needy and organize their instruction in such a way so that the pupils shall use their strengths and make up for weaknesses.

Inadequate ability to listen, think, speak, read, write or to do mathematical calculations is a main feature of pupils with learning disabilities. It is already revealed in the study that there is significant difference between dyslexic and normal pupils in their language skills, viz., listening, reading and writing including spelling ability. Hence improving the basic skills is a primary objective in teaching the dyslexics. No doubt that the study would be of immense social significance if the constructed tools are properly made use of to measure and identify the learning disabled, the dyslexics. If remedial methods are initiated in time the dyslexics can be made to excel in the learning process.

Some of the remedial methods which are found for improving the efficiencies of dyslexics are given below.

For overcoming auditory dyslexia it requires a multisensory approach. The four basic learning channels are sight, sound, speech, and touch. When these sensory pathways are properly integrated, auditory dyslexics begin comprehending well; reading, spelling, writing and mathematical computations.

Different strategies for overcoming auditory dyslexia are given below:

1. Providing of multisensory experiences: It is a common fact that as and when more senses are actively involved in a learning process, the learning experience will be more effective and enduring. The simplication of learning process is useful for proper remediation for auditory dyslexia. If a pupil sees it, hears it, says it, feels it, moves it - even smells it or tastes it; he begins to comprehend it properly. In other words, when more sensory channels are made use of while learning, lasting comprehension would be achieved.

2. Building of a stock of memory cues: Even when they master the fundamentals of letters and sounds for reading; auditory dyslexics usually do not become fluent spellers. It is because of their inability for retaining clear visual images in respect of word patterns. It is a fact that, when there is no visual model to see, the auditory dyslexic is becomes helpless to reconstruct and reproduce accurate words on paper. It may be noted that those adult dyslexics who have achieved academic

success achieved it by devising their own systems of recalling specific spelling patterns.

3. Emphasizing of consistent spelling patterns: old techniques of regaining acceptance is continuously drilling with word families. This helps the pupils to be stable with similar patterns and rules. Many teachers have effectively used of this technique under the guise of "consonant substitution". The device is presenting of a root spelling, such as the 'at' family. The pupils start practicing by building familiar words placing different consonants as prefixes of 'at': cat, bat, hat, rat, etc.

4. Providing of visual cues: A firm attitude among parents and teachers is that tests must be taken strictly from memory. Forcing dyslexic pupils to work from memory alone while their memory is often erratic is a questionable educational practice. When such pupils can function well if provided with visual models it is imperative that teachers shall inevitably provide reinforcement teaching methods.

5. Allowing oral answers to test questions: When they are tested orally without instead of writing on paper, they can perform well and succeed.

Programmes suggested for improving reading of pupils with learning disability especially dyslexia is given below:

1. To prepare suitable word lists: To improve sight word recognition the pupils shall be asked to produce their own reading practice sheets. They are then provided with lists of simple words (for example, need, cheer, light). The pupils may be asked to make new lists by adding word parts to each root word (needy, needed, unneeded, cheery, lightly).

2. Providing the facility of computer practice: To improve sight word recognition pupils shall practice computer programmes. Such programmes of repeated practice, give the pupils high degree of motivation.

3. Practicing repeated readings: To improve reading rate and comprehension, practice of repeated reading of the same passage would be helpful. For this, a passage of 50 to 150 words, that is easily read by all pupils shall be given. The passages may be read orally three or four times. Repeated reading with a high degree of accuracy will improve the reading skill.

4. Following of phonetic cues: To improve reading recognition some cues may be added to help students to remember phonetic rules. Marking long vowels or combinations and dividing words into smaller parts can be very helpful for the pupils.

5. Adoption of thematic units: To improve reading comprehension thematic units can be made use of to encourage social interaction and integration of reading with other instruction.

6. Writing to improve reading: To improve reading comprehension, constant writing can be used. The pupils can identify relevant facts and list them on a sheet of paper after reading a short passage.

7. Improving motivation and interest shall provide opportunities to pupils to read materials they cannot refuse. Use of a variety of reading activities to capture the pupils' interests can encourage the reading practice.

Along with listening, speaking and reading, written language is an important part of any language arts programme. So many pupils have problems with reading, many also experience difficulties with writing or written expression in general. Teachers' working with pupils with written language problems have found the following useful.

1. Focus on quantity before quality: To improve written products, focus on quantity before quality. Pupils with learning disabilities often produce small amounts of written work when they are asked to demonstrate their writing skills; they often produce a number of grammatical errors. By encouraging pupils to write without much concern for errors, they achieve quantitative improvements.

2. Practicing dictation: The goal of most teachers is to help the dysgraphic pupil to learn to write clearly and with reasonable accuracy. Repeated spelling of words improves writing skills. This kind of structured drill will develop the pupils confidence in writing from memory without having models to copy.

3. Checking for mistakes: An essential survival skill for dysgraphic pupils is knowing to edit their own written work for errors. This is a sensitive area of corrective teaching because dyslexics often react strongly to criticism. The teacher shall provide enough opportunities to let the pupils check their own work.

The remedial techniques advocated for spelling difficulties fall in with the two types of difficulties. At first they are concerned with improving visual and kinaesthetic memory for the whole word, secondly, they are those aimed at improving phoneme--grapheme conversion.

1. Spelling reforming: To learn to read and spell more easily is to reform the irregular English spelling system. Spelling reforms have taken place in many countries to made them much more regular in spelling. Irregular spelling makes phonics teaching more difficult due to frequent violations of the relationship between letters or letter combinations and their respective sounds.

Since dyslexics find it very difficult to learn reading and writing even in one language, 'three language formula', i.e., learning, reading and writing in Mother-tongue or Regional language, National language (Hindi), and International language (English), which has been made compulsory in Indian schools should not be insisted on dyslexics. They shall be allowed to study all the subjects through Regional language or Mother tongue. Learning, reading and writing in the languages other than the Regional one may be introduced at later years of schooling but not to be considered for grade promotion.

Because of the inability to read, there is every possibility for dyslexics to lag behind in all academic subjects. As a result, there is a considerable gap between the knowledge acquired by the dyslexic and normal pupils. In order to minimize the gap, at the lower primary level, ie., grades I-IV, more time may be devoted to improve the basic language skills among dyslexics. Instead of prescribing common text books at primary schools, the dyslexics shall be thaught using multi-model experiments involving their active participation in all curricular and extra-curricular activities. The mastery of any academic subjects shall be tested only through orally, rather than writing, at the lower primary level. The burden on the dyslexics as well as other poor readers can thus be reduced and thereby they can well be motivated for academic achievements.

As even normal pupils commit different types of errors in basic language skills, appropriate methods of teaching shall be introduced right from the primary level.

The findings of different types of errors, will help the teachers for planning remedial instruction methods to dyslexics facing basic language difficulties.

SUGGESTIONS FOR FURTHER STUDY

The study suggests the need to conduct a series of allied studies that will complete the perspective covered by the present study.

1. The studies similar to the present one can be replicated with large sample size and methodological sophistication.

2. Apart from difficulties in basic language skills, behavioural symptoms unique to dyslexics can be explored.

3. Remedial programmes for improving proficiency in basic language skills need to be developed.

4. Errors committed by dyslexics in other languages may also be studied.

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APPENDICES

I

THOMAS ALWA EDISON'S LETTER TO HIS MOTHER

Dear Mother — Started Store Several weeks; have growed considerable I dont look much like a Box now Hows All the Fold did you Receive a Box of Books Memphis that he promised to Send them languages

-Your Son Al.

T.A Edison (1847–1931)

Invented : Telephone, Microphone, Phonograph,
Electric Bulb.

Problems : Alphabet
Arithmetic
Spelling
Grammar.

അസോസിയേഷൻ ഫോർ ലേണിംഗ് ഡിസബിലിറ്റീസ് ഇന്ത്യ (ALDI)

Form - B

1. കുട്ടിയുടെ പേര്.
2. വയസ്സ്
3. ആൺ/പെൺ
4. ക്ലാസ് & ഡിവിഷൻ
5. സ്കൂൾ
6. മതം
7. മാതൃഭാഷ
8. അധ്യയന മാധ്യമം
9. വാർഷിക വരുമാനം

ചോദ്യാവലി A

1. ഈ വർഷം നടത്തിയ പരീക്ഷകളിലും മറ്റു പ്രവർത്തനങ്ങളിലും കുട്ടിയുടെ പൊതു നിലവാരം
   a. ഏറ്റവും മികച്ചത് (75% ഉം മുകളിലും) b. മികച്ചത് (50 – 75%)
   c. ശരാശരി (40 – 50%) d. മോശം (30 – 40%)
   e. വളരെ മോശം (30%ത്തിൽ കുറവ്)
2. കുട്ടിയുടെ ഈ വർഷത്തെ പഠന നിലവാരം മുൻവർഷത്തിലേതിനോടു ചേർന്നു പോകുന്നതാണോ?
   a. അല്ല b. അതെ
3. ഹാജർ നിലവാരം
   a. വളരെ നല്ലത് (മാസത്തിൽ 18 – 22 ദിവസങ്ങൾ)
   b. ശരാശരി (12–17 ദിവസങ്ങൾ)
   c. മോശം (12 ദിവസത്തിനു താഴെ)
4. കുട്ടിക്ക് സ്പോർട്സ്/പഠനം/പാഠ്യേതര പ്രവർത്തനങ്ങൾ ഇവയിലേതിലെങ്കിലും നല്ല നേതൃത്വമുണ്ടോ?
   a. ഇല്ല b. ഉണ്ട്
5. കുട്ടിക്ക് എഴുതുവാനുള്ള ബുദ്ധിമുട്ടുണ്ടോ?
   a. ഇല്ല b. ഉണ്ട്
6. കുട്ടിക്ക് വായിക്കുവാനുള്ള ബുദ്ധിമുട്ടുണ്ടോ?
   a. ഇല്ല b. ഉണ്ട്
7. കുട്ടിക്ക് ശാരീരിക വൈകല്യങ്ങൾ, അസാധാരണത്വം, ആവർത്തിച്ചുള്ള രോഗങ്ങൾ എന്നിവയുണ്ടോ?
   a. ഇല്ല b. ഉണ്ട് (എന്താണെന്നു സൂചിപ്പിക്കുക)
8. മേൽപ്പറഞ്ഞ കാരണങ്ങളാലോ അല്ലാതെയോ (ചോദ്യനമ്പർ 7) കുട്ടിക്ക് ഏതെങ്കിലും ഇരട്ടപേരുകളുണ്ടോ? ഇതിനോടു കുട്ടി പ്രതികരിക്കാറുണ്ടോ?
   a. ഇല്ല b. ഉണ്ട് (ഉണ്ടെങ്കിൽ സൂചിപ്പിക്കുക)
9. ഈ കുട്ടിക്ക് ഒരു മനഃശാസ്ത്രസഹായം ആവശ്യമാണെന്ന് താങ്കൾക്ക് എപ്പോഴെങ്കിലും തോന്നിയിട്ടുണ്ടോ?
   a. ഇല്ല b. ഉണ്ട്
10. കുട്ടിക്ക് ഗണിതക്രിയകൾ ചെയ്യുവാനുള്ള ബുദ്ധിമുട്ടുണ്ടോ?
    a. ഇല്ല b. ഉണ്ട്
11. ഏതെങ്കിലും തരത്തിലുള്ള സംസാരിക്കുന്നതിനുള്ള ബുദ്ധിമുട്ടുണ്ടോ
    a. ഇല്ല b. ഉണ്ട് (ഉണ്ടെങ്കിൽ സൂചിപ്പിക്കുക)
12. കുട്ടിക്ക് താഴെ പറയുന്ന ഏതെങ്കിലും വിധത്തിലുള്ള വിഷമതകൾ ഉണ്ടോ?
    1. അപസ്മാരം 2. കുറഞ്ഞ കാഴ്ചശക്തി 3. കുറഞ്ഞ കേൾവിശക്തി 4. കുറഞ്ഞ ഓർമ്മശക്തി
    5. തലവേദന 6. വയറുവേദന 7. ബോധക്ഷയം ഉണ്ടായി വീഴൽ 8. വേറെ ഏതെങ്കിലും അസുഖങ്ങൾ
13. അനിയന്ത്രിതമായ ചിരി, കരച്ചിൽ, സംഭാഷണം, അല്ലെങ്കിൽ മറ്റേതെങ്കിലും സ്വഭാവവൈകല്യങ്ങൾ എന്നിവ ഉണ്ടോ?
    a. ഇല്ല b. ഉണ്ട് (ഉണ്ടെങ്കിൽ സൂചിപ്പിക്കുക)

		ഒരിക്കലുമില്ല	ചിലപ്പോഴൊക്കെ	എല്ലായ്പ്പോഴും
1.	അസ്വസ്ഥൻ. ക്ലാസിൽ ഓടിനടക്കുന്നു, ഒതുങ്ങിയിരിക്കാൻ കഴിയില്ല.			
2.	വീട്ടിൽ നിന്നും പുറപ്പെട്ട് ക്ലാസിൽ എത്താതിരിക്കുന്നു.			
3.	പരിഭ്രമിക്കുന്നു, വെപ്രാളപ്പെടുന്നു (ഇരിക്കപ്പൊറുതിയില്ലാത്ത കുട്ടി)			
4.	പലപ്പോഴും സ്വന്തം സാധനങ്ങളോ മറ്റുള്ളവരുടെ സാധനങ്ങളോ നശിപ്പിക്കുന്നു.			
5.	മറ്റുകുട്ടികൾ ഇവനെ ഇഷ്ടപ്പെടുന്നില്ല			
6.	എല്ലായ്പ്പോഴും എന്തിനെയെങ്കിലും കുറിച്ച് വിഷമിച്ചിരിക്കുന്നു.			
7.	കാര്യങ്ങൾ ചെയ്യാൻ മറ്റുള്ളവരുടെ സഹകരണം ഇഷ്ടപ്പെടുന്നില്ല (ഏകാന്തൻ)			
8.	പെട്ടെന്ന് ദേഷ്യം വരുന്നു			
9.	പലപ്പോഴും നിരാശനായോ കണ്ണുനിറഞ്ഞോ അസന്തുഷ്ടനായോ കാണപ്പെടുന്നു.			
10.	ചില ചേഷ്ടാവൈകൃതങ്ങളുണ്ട് (ഉദാ. മാസപേശികൾ വലിയുന്നതുകൊണ്ട് ഉണ്ടാകുന്ന കോച്ചിവലിവ്, കുടച്ചിൽ തുടങ്ങിയവ)			
11.	വിരൽ കുടിക്കുന്നു			
12.	നഖം കടിക്കുന്നു.			
13.	നിസ്സാരകാരണങ്ങൾ പറഞ്ഞ് സ്കൂളിൽ ഹാജരാകാതിരിക്കുന്നു.			
14.	അനുസരണയില്ല			
15.	ഏകാഗ്രതകുറവ്. ശ്രദ്ധകുറവ് എന്നിവയുണ്ട്			
16.	പുതിയ സാഹചര്യങ്ങളെയോ സാധനങ്ങളെയോ ഭയപ്പെടുന്നു			
17.	ആവശ്യത്തിലധികം തിരക്കുകാണിക്കുന്നു, വാശിപിടിക്കുന്നു			
18.	പലപ്പോഴും നുണ പറയുന്നു.			
19.	മുഷിഞ്ഞ വസ്ത്രങ്ങളിലാണ് അവനെ കാണുന്നത്. സ്കൂളിൽ വന്നാൽ വളരെവേഗം ശരീരത്തിൽ അഴുക്കുപുരളുന്നു.			
20.	പലപ്പോഴും പലതരം വേദനകൾ ഉണ്ടെന്ന് പരാതിപ്പെടുന്നു.			
21.	ഈ വർഷാദ്യം കരഞ്ഞുകൊണ്ടാണ് സ്കൂളിൽ വന്നത്. സ്കൂളിൽ വരാൻ വിസമ്മതം പ്രകടിപ്പിച്ചിരുന്നു.			
22.	'വിക്കൽ' ഉണ്ട്			
23.	മറ്റുള്ള കുട്ടികളെ ഭീഷണിപ്പെടുത്തുന്നു.			

ചോദ്യാവലി C

		ഉണ്ട്	ഇല്ല	തീർച്ചയില്ല
1.	അക്ഷരങ്ങൾ തിരിച്ചറിയാൻ ബുദ്ധിമുട്ടുണ്ടോ?			
2.	അക്ഷരങ്ങളുടെ ശബ്ദങ്ങൾ തിരിച്ചറിയാൻ ബുദ്ധിമുട്ടുണ്ടോ?			
3.	പരിചിതമല്ലാത്ത വാക്കുകൾ വായിക്കുന്നതിൽ ബുദ്ധിമുട്ടുണ്ടോ?			
4.	സാവധാനം, നിറുത്തി-നിറുത്തിയാണോ കുട്ടി വായിക്കുന്നത്			
5.	വായിക്കുമ്പോൾ താഴെ പറയുന്നതിൽ ഏതെങ്കിലും തെറ്റുകൾ കുട്ടി വരുത്താറുണ്ടോ? (ഏതെങ്കിലും ഭാഷയിൽ)			
	a. അക്ഷരങ്ങൾ സ്വന്തമായി കൂട്ടിചേർക്കൽ			
	b. ചില അക്ഷരങ്ങൾ വിട്ടുകളയൽ			
	c. ചില അക്ഷരങ്ങൾക്ക് പകരം മറ്റു അക്ഷരങ്ങൾ ചേർക്കൽ			
	d. ചില വാക്കുകൾ തിരിച്ചുവായിക്കൽ			
6.	വായിച്ച കാര്യം ഉടനെ തന്നെ മനസ്സിലാക്കാൻ കഴിയാതിരിക്കുന്നുണ്ടോ?			
7.	വായനയിൽ കുട്ടി താൽപര്യ കുറവ് കാണിക്കുന്നുണ്ടോ?			
8.	പ്രായത്തിനും ബുദ്ധിശക്തിക്കും അനുസരിച്ച് വായിക്കേണ്ട നിലവാരത്തിൽ നിന്നും വളരെ താഴെയാണോ കുട്ടിയുടെ ഇപ്പോഴത്തെ പ്രകടനം			
9.	തുടർച്ചയായും ആവർത്തിച്ചും കുട്ടി അക്ഷരത്തെറ്റുകൾ വരുത്തുന്നുണ്ടോ?			
10.	ശബ്ദം അനുസരിച്ചാണോ കുട്ടി എഴുതുന്നത്? (ഉദാ. cakeന് പകരം cak, മലയാളത്തിൽ പ്രാദേശിക ഉച്ചാരണങ്ങൾക്ക് അനുസരിച്ച്)			
11.	പ്രായത്തിനും ബുദ്ധിശക്തിക്കും അനുസരിച്ചുള്ള അക്ഷരങ്ങളുടെ നിലവാരത്തേക്കാൾ വളരെ താഴ്ന്നതാണോ കുട്ടിയുടെ ഇപ്പോഴത്തെ പ്രകടനം (പ്രതീക്ഷിക്കുന്നതിലും വളരെകൂടുതൽ അക്ഷരത്തെറ്റുണ്ടോ)			
12.	കയ്യക്ഷരം വ്യക്തമാണോ?			
13.	വരകളിൽ കൂടി എഴുതാൻ കഴിയുന്നുണ്ടോ?			
14.	ഗണിതശാസ്ത്ര ആശയങ്ങൾ മനസ്സിലാക്കാൻ ബുദ്ധിമുട്ടുണ്ടോ?			
15.	പ്രായത്തിനും ബുദ്ധിശക്തിക്കും അനുസരിച്ചുള്ള ഗണിതശാസ്ത്ര നിലവാരത്തേക്കാൾ വളരെ താഴെയാണോ കുട്ടിയുടെ ഇപ്പോഴത്തെ പ്രകടനം			
16.	എഴുത്തുമായി ബന്ധപ്പെട്ട കാര്യങ്ങളിൽ കുട്ടി വളരെയധികം ബുദ്ധിമുട്ടുകൾ കാണിക്കുന്നുണ്ടോ?			
17.	വിവിധ ആകൃതികൾ തിരിച്ചറിയുന്നതിൽ കുട്ടിക്ക് ബുദ്ധിമുട്ടുണ്ടോ?			
18.	കുട്ടിയുടെ ഇടത്തുകൈക്കാണോ സ്വാധീനകൂടുതൽ?			
19.	കുട്ടിക്ക് രണ്ടു കൈകളും ഒരുപോലെ ഉപയോഗിക്കാൻ കഴിയുമോ?			
20.	സംഖ്യകൾ എടുത്തെഴുതുമ്പോൾ തിരിഞ്ഞ് പോകാറുണ്ടോ? (ഉദാ. 31ന് പകരം 13)			
21.	ശബ്ദങ്ങൾ കേട്ട് മനസ്സിലാക്കാൻ ബുദ്ധിമുട്ടുണ്ടോ? (ഉദാ. Pig എന്ന് പറഞ്ഞാൽ big എന്ന് കേൾക്കുക)			
22.	ദിവസം, ആഴ്ച, മാസം, വർഷം എന്നിവ ഓർമ്മിക്കുന്നതിൽ ബുദ്ധിമുട്ടുണ്ടോ?			
23.	ഗുണന പട്ടിക ഓർക്കുന്നതിൽ ബുദ്ധിമുട്ടുണ്ടോ?			
24.	കുട്ടി വൈകി സംസാരിച്ചു തുടങ്ങിയതാണോ?			
25.	വ്യാകരണ നിയമങ്ങൾ ഓർക്കുന്നതിലും പ്രയോഗിക്കുന്നതിലും ബുദ്ധിമുട്ടുണ്ടോ?			

		ഉണ്ട്	ഇല്ല	തീർച്ചയില്ല
26.	വാക്കാൽ കൊടുക്കുന്ന നിർദ്ദേശങ്ങൾ മനസ്സിലാക്കാൻ ബുദ്ധിമുട്ടുണ്ടോ?			
27.	സംസാരത്തിൽ എന്തെങ്കിലും വൈകല്യങ്ങൾ ഉണ്ടോ?			
28.	പഠിത്തത്തിൽ ഏകാഗ്രത കുറവ് കാണിക്കുന്നുണ്ടോ?			
29.	സ്വന്തമായി ചെയ്തു തീർക്കാൻ വേണ്ടി തുടങ്ങിയ പ്രവർത്തികൾ ചെയ്തവസാനിപ്പിക്കാൻ കഴിയാതെ വരാറുണ്ടോ?			
30.	ഒരു പ്രവർത്തിയിൽ നിന്ന് മറ്റൊരു പ്രവർത്തിയിലേക്ക് തുടരെത്തുടരെ മാറാറുണ്ടോ?			
31.	പുറത്തു നടക്കുന്ന നിസ്സാരകാര്യങ്ങൾ കുട്ടിയുടെ ഏകാഗ്രതയ്ക്ക് ഭംഗം വരുത്താറുണ്ടോ?			
32.	പലപ്പോഴും ആലോചിക്കാതെ പ്രവർത്തി തുടങ്ങാറുണ്ടോ?			
33.	പെട്ടെന്ന് പ്രതികരിക്കുന്നതുകൊണ്ട് പഠനത്തിൽ തെറ്റുകൾ വരുത്താറുണ്ടോ?			
34.	സ്വയം നിയന്ത്രിക്കാനുള്ള കഴിവിൽ കുറവുണ്ടെന്ന് തോന്നിയിട്ടുണ്ടോ?			
35.	ആത്മവിശ്വാസവും, സ്വയം മതിപ്പും കുറവുള്ള കുട്ടിയാണോ?			
36.	പെൻസിൽ പിടിക്കുന്നതിലും, സ്കെയിൽ ഉപയോഗിക്കുന്നതിലും ബുദ്ധിമുട്ടുണ്ടോ?			
37.	പന്തടിക്കാനോ, പന്തെറിയാനോ, പന്തു പിടിക്കാനോ ബുദ്ധിമുട്ടുകളുണ്ടോ?			
38.	സ്പർശനം കൊണ്ട് തിരിച്ചറിയുന്നതിൽ എന്തെങ്കിലും ബുദ്ധിമുട്ടുകളുണ്ടോ?			
39.	ഷൂ ലെയ്സ് കെട്ടുന്നതിലോ, ബട്ടൺ ഇടുന്നതിലോ ബുദ്ധിമുട്ടുകളുണ്ടോ?			
40.	ഭക്ഷണം കഴിക്കുമ്പോൾ ധാരാളം പുറത്തുപോകാറുണ്ടോ?			
41.	മലയാളം കൂട്ടക്ഷരങ്ങൾ എഴുതുന്നതിൽ ആശയക്കുഴപ്പം ഉണ്ടാകാറുണ്ടോ? (ഉദാ. ഇല്ലകൾ ഇല)			
42.	മലയാളത്തിൽ പുള്ളികൾ ഉപയോഗിക്കുന്നതിൽ ബുദ്ധിമുട്ടുണ്ടോ? (ഉദാ. കെരളം)			

താങ്കൾക്ക് ഈ കുട്ടിയെ എത്രമാത്രം അറിയാം?
വളരെ നന്നായി അറിയാം/സാമാന്യംഅറിയാം/തീരെ അറിയില്ല

അദ്ധ്യാപകന്റെ പേര് ഒപ്പ്
അഡ്രസ്സ്

ALDI

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Nellenkara.
Nettissery P.O.
Trichur - 680 657
KERALA

UNIVERSITY OF CALICUT

Dept. of Adult and Continuing Education & Extension Services

Test of Listening Comprehension in Malayalam for Primary School Pupils of Kerala

By

Happy. P.V.

പ്രൈമറിസ്ക്കൂൾ വിദ്യാർത്ഥികളുടെ ശ്രവ്യഗ്രഹണശേഷി പരിശോധിക്കുന്നതിനു വേണ്ടി തയ്യാറാക്കിയിട്ടുള്ളതാണ് ഈ ടെസ്റ്റ്.

സൂചന:- അതിനായി നൽകുന്ന ഖണ്ഡികകളും, അവയെ ആസ്പദമാക്കിയുള്ള ചോദ്യങ്ങളും ടേപ്പ്റിക്കാർഡർ ഉപയോഗിച്ച് കുട്ടികളെ കേൾപ്പിക്കുകയാണ് വേണ്ടത്. ഇതിലെ ഖണ്ഡികകളും, ചോദ്യങ്ങളും ഒരിക്കൽ കേട്ടാൽ തന്നെ ആശയം ഗ്രഹിക്കത്തക്കവിധം വ്യക്തമായി സാമാന്യ വേഗതയിൽ വായിച്ച് കാസറ്റിൽ റെക്കോഡ് ചെയ്തിരിക്കണം.

പരീക്ഷ നടത്തുമ്പോൾ ഓരോ ഖണ്ഡികയും അവയുടെ ചോദ്യങ്ങളും ഒറ്റ പ്രാവശ്യം കേൾപ്പിച്ചാൽ മതിയാകും. ഇടയ്ക്ക് സംശയങ്ങളോ സംസാരിക്കലോ അനുവദിക്കരുത്. ഓരോ ചോദ്യവും കേൾപ്പിച്ചശേഷം ഒന്നോ രണ്ടോ മിനിറ്റ് ഉത്തരം എഴുതാൻ അനുവദിക്കണം. ഈ സമയം കാസറ്റ് ബ്ലാങ്ക് ആയിരിക്കണം. ഇതിൽ ആകെ രണ്ട് ഖണ്ഡികകളും പതിനഞ്ച് ചോദ്യങ്ങളുമാണ് ഉള്ളത്.

സമയം 1 മണിക്കൂർ

ആൻഡമാൻ നിക്കോബാർ ദ്വീപുകൾ

ഇന്ത്യയുടെ തെക്കേയറ്റം ഏതാണ്? കന്യാകുമാരി മുനമ്പ് എന്നായിരിക്കും പലരുടെയും ഉത്തരം. കുട്ടികൾ മാത്രമല്ല, ഇങ്ങനെ കരുതുന്ന മുതിർന്നവരുമുണ്ട് ധാരാളം. എന്നാൽ സത്യം അതല്ല. നമ്മുടെ രാജ്യത്തിന്റെ തെക്കെയറ്റം ആൻഡമാൻ നിക്കോബറിലാണ്. കൃത്യമായി പറഞ്ഞാൽ നിക്കോബാർ ദ്വീപിന്റെ ഏറ്റവും തെക്കേ അറ്റത്തുള്ള ഭാഗം. 'ഇന്ദിര പോയിന്റ്' എന്നാണ് അവിടം ഇപ്പോഴറിയപ്പെടുന്നത്. ' പിഗ്മാലിയൻ പോയിന്റ്' എന്നായിരുന്നു ഇതിന്റെ പഴയ പേര്.

ബംഗാൾ ഉൾക്കടലിൽ ചിതറിക്കിടക്കുന്ന കുറേ ദ്വീപുകളാണ് ആൻഡമാൻ നിക്കോബർ ദ്വീപുകൾ. ചെറുതും വലുതുമായ 321-ലധികം ദ്വീപുകളിൽ 302 എണ്ണം ആൻഡമാനും 19 എണ്ണം നിക്കോബാറുമാണ്. ഇക്കൂട്ടത്തിൽ മനുഷ്യവാസമുള്ളവ വളരെ കുറവാണ്. കേരളത്തിൽ നിന്നും മുംബൈവരെയുള്ള ദൂരത്തേക്കാൾ കുറവാണ് ആൻഡമാൻ നിക്കോബർ ദ്വീപു സമൂഹങ്ങളുടെ തലസ്ഥാനമായ പോർട്ട് ബ്ലയർ പട്ടണത്തിലേക്ക്.

1. നമ്മുടെ രാജ്യത്തിന്റെ തെക്കേ അറ്റം ഏതാണ്?.
2. ആൻഡമാൻ നിക്കോബാർ ദ്വീപുകൾ എവിടെയാണ്?.
3. എത്ര ദ്വീപുകൾ ചേർന്നതാണ് ആൻഡമാൻ നിക്കോബാർ ദ്വീപുകൾ?.
4. ആൻഡമാൻ നിക്കോബാർ ദ്വീപു സമൂഹങ്ങളുടെ തലസ്ഥാനം ഏത്?.
5. ഇന്ദിര പോയിന്റെ ന്റെ പഴയ പേര് എന്താണ്?.

കേരളത്തിലെ നദികൾ

വലുതും ചെറുതുമായ 44 നദികൾ കൊണ്ട് സമ്പന്നമാണ് കേരളം. ഇതിൽ 41 നദികൾ പടിഞ്ഞാറോട്ടും മൂന്നെണ്ണം കിഴക്കോട്ടും ഒഴുകുന്നു.

പടിഞ്ഞാറേക്കു ചെരിഞ്ഞുള്ള നമ്മുടെ ഭൂപ്രകൃതി കാരണം നദിയൊഴുക്കിനു വേഗത കൂടുതലാണ്. അതുകൊണ്ട് തന്നെ നദീതടത്തിൽ നിക്ഷേപങ്ങളും കുറവാണ്. താരതമ്യേന നീളം കുറഞ്ഞ നദികളാണ് കേരളത്തിലുള്ളത്. വെറും ഇരുപതുകിലോ മീറ്ററിൽ താഴെ നീളമുള്ള മൂന്ന് നദികളുമുണ്ട്. രാമപുരം പുഴ, അയിരൂർ പുഴ, മഞ്ചേശ്വരം പുഴ എന്നിവ. ഏറ്റവും കുഞ്ഞൻ നദി മഞ്ചേശ്വരം പുഴയാണ്. നീളം 16 കിലോമീറ്റർ. കേരളത്തിലെ വമ്പൻ നദികളാണ് പെരിയാർ, ഭാരതപുഴ, പമ്പ, ചാലിയാർ.

1. കേരളത്തിലെ ഏറ്റവും ചെറിയ നദി ഏത്?
2. കേരളത്തിൽ ആകെ എത്ര നദികളുണ്ട്?
3. കേരളത്തിലെ പേരു കേട്ട നദികൾ ഏവ?
4. കേരളത്തിലെ നദികളിൽ പടിഞ്ഞാറോട്ട് ഒഴുകുന്ന നദികൾ എത്ര?
5. ഇരുപത് കിലോമീറ്ററിൽ താഴെ നീളമുള്ള കേരളത്തിലെ നദികൾ ഏവ?

UNIVERSITY OF CALICUT
Dept. of Adult and Continuing Education & Extension Services

TEST OF READING IN MALAYALAM FOR PRIMARY SCHOOL PUPILS OF KERALA

By
Happy. P.V.

പ്രൈമറി സ്ക്കൂൾ വിദ്യാർത്ഥികളുടെ മലയാള ഭാഷയിലുള്ള അവധാരണശേഷി പരിശോധിക്കുന്നതിന് തയ്യാറാക്കിയിട്ടുള്ളതാണ് ഈ ടെസ്റ്റ്.

സൂചന:- അതിനായി മലയാളഭാഷയിലെ മിക്കവാറും അക്ഷരങ്ങളും ഉൾക്കൊള്ളുന്ന ഒരു ഖണ്ഡിക തിരഞ്ഞെടുത്തു. ഇത് ഓരോ കുട്ടിയേയും അടുത്ത് വിളിച്ചിരുത്തി വായിപ്പിക്കുന്നു. . ഓരോ കുട്ടിയും വായിക്കുമ്പോൾ തന്നെ അവർ വരുത്തിയ തെറ്റുകൾ അധ്യാപകൻ കുറിച്ചുവെയ്ക്കുന്നു. പരമാവധി 20 മിനിറ്റ് സമയം അനുവദിക്കാം.

ഖണ്ഡിക:- എത്ര മനോഹരമാണ് ഈ നാട്. ദൈവം അനുഗ്രഹിച്ച സ്ഥലം. നീല നിറത്തിലുള്ള ജലം നിറഞ്ഞൊഴുകുന്ന പുഴ; തീരത്തായി പടർന്നു പന്തലിച്ചു നില്ക്കുന്ന മരങ്ങൾ; ഉരുണ്ടകല്ലുകൾ അവിടവിടെയായി ചിതറികിടക്കുന്നു. ആ കുടിലിൽ ആരാണ് താമസിക്കുന്നത്? പെരുങ്കൊല്ലൻ ആണോ ? ആയിരിക്കില്ല. അയാളും കുടുംബവും പണിപ്പുരയിൽ ആയിരിക്കും താമസിക്കുന്നത്. വിറകുമായി പോകുന്ന അമ്മയോട് മകൻ തമാശ പറയുന്നുണ്ട്. അതുകേട്ടാണ്, പിന്നിൽ വരുന്ന സ്ത്രീ ചിരിക്കുന്നത്.

UNIVERSITY OF CALICUT
Dept. of Adult and Continuing Education & Extension Services

Test of writing in Malayalam for Primary School Pupils of Kerala

By
Happy. P.V.

പ്രൈമറി സ്ക്കുൾ വിദ്യാർത്ഥികളുടെ ലേഖന ശേഷി പരിശോധിക്കുന്നതിനു വേണ്ടി തയ്യാറാക്കിയിട്ടുള്ളതാണ് ഈ ടെസ്റ്റ്.

സൂചന:- ആകെ 50 വാക്കുകളാണ് ഈ ശേഷി പരിശോധിക്കുവാൻ തയ്യാറാക്കി യിട്ടുള്ളത്. അധ്യാപകൻ ഓരോവാക്കും വളരെ വ്യക്തമായി നിറുത്തി നിറുത്തി പറയണം. അധ്യാപകൻ പറയുന്ന വാക്കുകൾ കുട്ടികൾ ശ്രദ്ധാപൂർവ്വം കേൾക്കുകയും നൽകിയിരിക്കുന്ന ഉത്തരകടലാസ്സിൽ എഴുതുകയും ചെയ്യേണ്ടതാണ് 30 മിനിറ്റ് സമയം അനുവദിക്കാം. ലേഖനശേഷി പരിശോധിക്കുന്നതിന് വേണ്ടി തയ്യാറാക്കിയിട്ടുള്ള വാക്കുകൾ ചുവടെ ചേർത്തിരിക്കുന്നു.

സമയം: 30 മിനിറ്റ്

1. ഓടുക
2. ഈറ
3. നീന്തുക
4. ഞണ്ട്
5. അങ്ങിങ്ങായ്
6. ഭരണി
7. ഇതൾ
8. മൺപലകകൾ
9. ചെറുപ്പക്കാർ
10. ഋഷി
11. കുപ്പി
12. മുഖം
13. മഞ്ഞപ്പാവാട
14. ഛായ
15. വവ്വാൽ
16. ആനന്ദം
17. റോഡ്
18. അച്ചരൻ
19. ചക്രം
20. പക്ഷി
21. മനോഹരം
22. ഭക്ഷണം
23. കുങ്കുമം
24. പൈതൽ
25. തപസ്സ്
26. അണ്ണാൻ
27. വൃദ്ധൻ
28. കൊല്ലൻ
29. തൂൺ
30. ആല
31. കട്ടിൽ
32. മേൽക്കൂര
33. ആകാശം
34. മല
35. പീഠം
36. മേൽക്കൂര
37. ആകാശം
38. പുഴ
39. ചുറ്റിക
40 അരിവാൾ
41. കുടം
42. വസ്ത്രം
43 പുരുഷൻ
44. മേഘം
45. വൃക്ഷം
46. കുടിൽ
47. വിറക്
48. ജനൽ
49. ചവണ
50. സ്ത്രീ

UNIVERSITY OF CALICUT

Dept. of Adult and Continuing Education & Extension Services

Test of Writing (Spelling) ability for Primary School Pupils of Kerala

By

Happy. P.V.

സൂചനഃ– പ്രൈമറി സ്ക്കൂൾ വിദ്യാർത്ഥികൾ മലയാളഭാഷയിലെ ചില പദങ്ങൾ ശരിയായി എഴുതുന്നുണ്ടോ എന്ന് പരിശോധിക്കുന്നതിനുവേണ്ടി തയ്യാറാക്കിയിട്ടുള്ളതാണ് ഈ ടെസ്റ്റ് ചോദ്യങ്ങളെ സംബന്ധിച്ചുള്ള നിർദ്ദേശങ്ങൾ ഉത്തരം എഴുതി തുടങ്ങുന്നതിനുമുമ്പ് ശ്രദ്ധാപൂർവ്വം വായിച്ചിരിക്കേണ്ടതാണ്. ചോദ്യക്കടലാസ്സിൽ ചോദ്യങ്ങളുടെ നമ്പർ ക്രമത്തിൽ എഴുതിയിട്ടുണ്ട്. ഓരോ ചോദ്യത്തിനും എ.ബി.സി.ഡി. അക്ഷരങ്ങളിട്ട് നാല് ഉത്തരം വീതം കൊടുത്തിരിക്കുന്നു. അവയിൽ ഒന്നുമാത്രമാണ് ശരി. ശരിയായ ഉത്തരത്തിനു എതിരെ ☑ അടയാളം രേഖപ്പെടുത്തണം. നിർദ്ദിഷ്ട സമയത്തിനുള്ളിൽ ഉത്തരം എഴുതിത്തീർക്കാൻ ശ്രമിക്കണം. യാതൊരു കാരണവശാലും കൂടുതൽ സമയം അനുവദിക്കുന്നതല്ല. അധ്യാപകൻ എഴുതൻ പറഞ്ഞതിനുശേഷം മാത്രം ഉത്തരം അടയാളപ്പെടുത്തുക. തന്നിരിക്കുന്ന ചോദ്യക്കടലാസ്സിൽ എന്തെങ്കിലും എഴുതുകയോ അടയാളപ്പെടുത്തുകയോ ചെയ്യരുത്. പ്രത്യേകം തന്നിട്ടുള്ള ഉത്തരക്കടലാസിൽ മാത്രമേ ഉത്തരം എഴുതാവൂ.

സമയം : 20 മിനിറ്റ്

നിർദ്ദേശം:–

ഏതാനും പദങ്ങൾ ചുവടെ കൊടുത്തിരിക്കുന്നു. അവയിൽ ഓരോ അക്ഷരം വീതം വിട്ടുപോയിട്ടുണ്ട്. ഓരോ ചോദ്യത്തോടുമൊപ്പം നാലു ഉത്തരങ്ങൾ വീതം കൊടുത്തിട്ടുണ്ട്. അതിൽ ഒന്നു മാത്രമാണ് ശരി. ശരിയായ ഉത്തരത്തിനു നേരെ ☑ അടയാളെ നല്കി രേഖപ്പെടുത്തണം.

1. വി – ർത്ഥി.

   എ) ധ്യാ, ബി) ഥ്യാ, സി) ദ്ധ്യാ, ഡി) ദ്യാ

2. അനർ – .

   എ) ഖം, ബി) ഗം, സി) ക്കം, ഡി) ഘം.

3. അതി – .

   എ) തീ, ബി) ദി, സി) ഥി, ഡി) ധി.

4. സർവ്വ – .

   എ) ത, ബി) ഥാ, സി) ത്ഥാ, ഡി) ധ.

5. ശ്യം __ ല.

എ) ക, ബി) ഖ, സി) ഗ, ഡി) ഘ.

6. __ ശ്രൂഷ.

എ) ശീ, ബി) ശു, സി) സി, ഡി) സു.

7 വിദ്യു __ക്തി.

എ) ശ്ച, ബി) ശ്ഛ, സി) ച്ഛ, ഡി) ച്ച.

8. വാ__കീ.

എ) ല്മി, ബി) ദ്മീ, സി) ത്മീ, ഡി) ത്മി.

9. പ്ര__വന.

എ) സ്താ, ബി) സ്ഥാ, സി) ശ്താ, ഡി) സ്ദാ.

10. അപഗ്ര __ നം.

എ) ത, ബി) ഥ, സി) ദ, ഡി) ധ.

11. യാദൃ __കം.

എ) ശ്ചി, ബി) ശ്ഛി, സി) ഛി ഡി) ച്ഛി.

12. അഗാ __.

എ) തം, ബി) ദം, സി) ഥം, ഡി) ധം.

13. നിഘ__ .

a) ണ്ഡു, ബി) ണ്ടു, സി) ഢു, ഡി) ഡ്ഡു.

14. വി __ത്തം.

എ) ഡ്, ബി) ഢ സി) ഡി, ഡി) ഢി.

15. മ__ യൻ.

എ) ട, ബി) ഠ, സി) ഡ, ഡി) ഢ.

NB H290