

**READING ACQUISITION IN MALAYALAM :**  
**A PROFILE OF THE SECONDARY GRADERS**

**SEETHA.L**  
**Reg.No. M2K20**

**A Dissertation Submitted in part fulfillment of**  
**Final Year M.Sc. (Speech and Hearing),**  
**University of Mysore, Mysore.**

**ALL INDIA INSTITUTE OF SPEECH AND HEARING**  
**MANASAGANGOTHRI**  
**MYSORE - 570006**

**May-2002**

*Dedicated to  
my family....  
acha, amma, Kochan & appus*

# CERTIFICATE

This is to certify that this Dissertation entitled "**READING ACQUISITION IN MALAYALAM : A PROFILE OF THE SECONDARY GRADERS** " is a bonafide work in part fulfillment for the degree of Master of Science (Speech and Hearing) of the student (Register No. M2K20).

Mysore,  
May, 2002



**Director**

All India Institute of  
Speech and Hearing,  
Mysore - 570 006

# CERTIFICATE

This is to certify that this Dissertation entitled "**READING ACQUISITION IN MALAYALAM : A PROFILE OF THE SECONDARY GRADERS** " has been prepared under my supervision and guidance. It is also certified that this Dissertation has not been submitted earlier in any other University for the award of any Diploma or Degree.

Guide



**Dr. Prema K.S**

Lecturer in Language Pathology  
Department of Speech Pathology  
All India Institute of Speech & Hearing,  
Mysore - 570 006

Mysore,

May, 2002

# **DECLARATION**

This Dissertation entitled **"READING ACQUISITION IN MALAYALAM : A PROFILE OF THE SECONDARY GRADERS "** is the result of my own study under the guidance of Dr. Prema ICS, Lecturer in Language Pathology, Department of Speech Pathology, All India Institute of Speech and Hearing, Mysore and not been submitted earlier in any other University for the award of any diploma or degree.

Mysore,

May, 2002

Reg.No. M2K20

## ACKNOWLEDGEMENTS

I EXTEND MY SINCERE GRATITUDE TO MY GUIDE DR. PREMA, K.S, LECTURER IN LANGUAGE PATHOLOGY, DEPARTMENT OF SPEECH PATHOLOGY, ALL INDIA INSTITUTE OF SPEECH AND HEARING. I WILL BE GRATEFUL TO YOU FOR ALL THE HELP, SUPPORT, ADVICE AND GUIDANCE WHICH YOU HAVE GIVEN ME THROUGHOUT THE YEAR, THANK YOU MAAM.

I WOULD LIKE TO THANK DR. JAYARAM, DIRECTOR, ALL INDIA INSTITUTE OF SPEECH AND HEARING FOR PERMITTING ME TO CARRYOUT THIS STUDY.

DR. SHYAMALA AND DR. PRAKASH I'M GREATFUL FOR ALL THE HELP YOU HAVE RENDERED DURING MY PROJECT.

THANKS TO ALL MY SUBJECTS FOR CO-OPERATION.

I EXPRESS MY GRATITUDE TO ALL THE TEACHERS OF AIMH, TRIVANDRUM.

MY PARENTS, ACHA, AND AMMA, AND KOCHAN AND APPUS ..... YOU ARE MY GREATEST ASSET. I THANK GOD FOR GIVING ME YOU GUYS WITH ME.

KALOOR AMMACHI, VAVI AUNTY, ACHACHAN, P, NJAKKUS, THANK YOU FOR ALL THE SUPPORT YOU GAVE AT THE RIGHT TIMES.

NEHA...MOMENTS I SPENT WITH YOU WILL BE CHERISHED FOR MY LIFE TIME. I'LL MISS YOU. THANK YOU FOR BEING THERE ALWAYS.

PRASI... YOU ARE THE WORLD'S BEST BROTHER. THANK YOU FOR EVERYTHING, HOPE TO STAY THE SAME ALWAYS.

GK ... putchi, love you for what you are.

PAM ....dearest postingmate, had lots of fun together.

KATZ AND Sabi .... THE FUN AND LAUGHTER WE HAVE TOGETHER IS HARD TO FORGET. THANK YOU BOTH FOR THE GREAT TIME.

MATHEW, Sai, Joby sir, AND BEULA .... THANK YOU FOR THE HELPING HAND.

MUKUNTH, & MUKESH ... THANKS TO BOTH OF YOU FOR MAKING MY CLINICAL POSTINGS MEMORABLE, ALL THE EEEYS AND Haha's !

ALFINA, SHEETAL, ANJALI, BELA, SHIBASI AND YATIN... YOU GUYS HAVE TAKEN LOTS OF PAIN IN HELPING ME. YOUR CONTRIBUTIONS ARE APPRECIATED. ALL THE BEST !

Rakhee AND family ... THANK YOU FOR HELPING ME WITH ALL THE ARRANGEMENTS FOR MY DATA COLLECTION.

NEHA, PRASANNA AND Sai ... YOU GUYS WERE ALWAYS THERE FOR ME. THANKS A LOT. LOVE YOU ALL.

SPECIAL THANKS TO DR. LANCY FOR SOLVING MY STATISTICS.

THANKS TO ALL MY CLASSMATES FOR MAKING MY STAY IN AIISH WONDERFUL.

I EXPRESS MY HEARTFELT THANKS TO MR. MADHUSUDHAN & MRS. MANJULA FOR GIVING SHAPE TO MY WORK. THANKS ARE ALSO TO MR. SHIVAPPA FOR HIS XEROXING.

## TABLE OF CONTENTS

			<b>Page No</b>
<b>1</b>	Chapter I	Introduction	1-4
2	Chapter II	Review	5-24
3	Chapter III	Method	25-31
4	Chapter IV	Results & Discussion	32-52
5	Chapter V	Summary & Conclusion	53-55
		Bibliography	
		Appendix I	
		Appendix II	
		Appendix III	
		Appendix IV	



## LIST OF TABLES

No.	Description	Page No.
1	Number of subjects taken in each grade	25
2	Test items	28
3	Mean and SD scores between grades and genders	33
4	ANOVA results showing significance at 0.05 level	43
5	Correlation Matrix	45

## LIST OF FIGURES

Figure No.	Description	Page No.
1	Scores on metaphonological tasks between grades V and VII	35
2	Scores on metaphonological tasks between gender for grade V	36
3	Scores on metaphonological tasks between gender for grade VII	37
4	Percentage scores between grades V and VII	42
5	Percentage scores between gender for grade V	48
6	Percentage scores between gender for grade VII	49

## CHAPTER I

### INTRODUCTION

*"Every man who knows to read  
has power to magnify himself,  
to multiply the ways in which he exists  
to make his life full significant and interesting"*

(Anonymous)

In this society, where the quality of life is in large part determined by literacy, there has been a growing interest in understanding reading mechanisms and their development in diverse cultures.

Reading and writing skills are essential for man in every walk of his life. Success of a man is clearly dependent on reading, and even though it is possible to have a successful career without being able to read well, individuals who have good reading are at a distinct advantage.

Reading is not a biologically evolved skill like walking and talking. It is a product of cultural evolution and is dependent on cultural transmission for its continued existence.

Reading defined as decoding ability is the skill of transforming printed words into spoken words (Perfetti, 1986). There are two basic components involved in reading- word recognition (decoding) and comprehension. Reading ability defined this way is associated with the skill in comprehending texts (Kamhi and Catts, 1991).

In order to explain the process of reading which is a complex multidimensional skill involving linguistic, perceptual, cognitive and motivational components that are not observable in the laboratory, various theories and models have been proposed. Cognitive theories (Neisser 1967;

Brown 1978); Theories of brain function (Patel 1977); Reading theories (Gibson, 1972); Liberman and Shankweiler 1979); Language and metalinguistic theories (Tunmer and Bowey 1984; Treiman 1991) are but a few of them. The above theories and models reflect on the developmental acquisition of reading skills.

Acquisition of reading has been studied extensively. Perfetti (1985, 86) views reading acquisition at two basic levels - basic literacy, which views reading as simply a decoding ability that is more applicable to children learning to read and intelligent literacy, which views reading as thinking guided by print which is more applicable to older children and adults who learn from the text.

Acquisition of reading is influenced by verbal and nonverbal factors like vocabulary, syntactic knowledge, metalinguistic awareness, memory, phonological awareness, verbal fluency etc. Among these, phonological awareness is one of the important factors. Treiman (1991) suggests that phonological awareness refers to the awareness of any of the phonological units of the spoken language. There are two types of phonological awareness- holistic phonological awareness and analytic phonological awareness.

In addition to the ability to read and write words, comprehension of written text and sensitivity to phonemic or alphabetic principles of a given language are considered to be the important factors contributing to the process of reading acquisition.

Any difficulty in the above mentioned factors will lead to difficulty in reading. Difficulty in reading is denoted by terms such as dyslexia, reading disability, specific learning disability by various people. However, Dyslexia is a popular term for any difficulty in reading of any intensity and from any cause(s) (Harris and Hodges, 1981 cited in Kamhi and Catts 1991). Dyslexia refers to an extra ordinary difficulty experienced by otherwise normal children in learning to

identify printed words, presumably as a result of constitutional deficiencies (Vellutino, 1979).

### ***Assessment of Reading disability***

Assessment of reading disability is important from the perspective of scholastic achievement. Hence, earlier studies reveal that largely educators were involved in evaluation /assessment of reading in school children.

Thomson (1990) views assessment as having 3 major goals : diagnostic, delineation of specific difficulties and as a guide to remediation.

In order to achieve the above goals, various tests were developed to assess the multiple skills involved in reading. But these tests failed to satisfy the above goals as most of them were developed for particular Grades or particular skills. In order to delineate specific difficulties and to plan for remediation, it would be better if a profile of reading skills is developed (Crystal, Fletcher and Garman 1979).

Attempts at profiling reading acquisition have been made by western investigators. The results of these studies cannot be implemented directly for Indian languages due to the inherent differences in languages and scripts.

Consequently, a few studies in Indian languages (Devi, 1978; Mohanty and Sahoo, 1985; Ramaa, 1985; Purushothama, 1991; Jayaram, 1997; Prema, 1997; Akila, 2000). Girija (1998); Chacko (1999); Anne, ( 2000), Iyyer (2000); Swaroopa (2001) have investigated reading acquisition.

Malayalam, which is one of the major Dravidian languages, has an orthographic structure comparable to other Indian scripts. In Malayalam script, which is phonemic, consonants have an independent graphemic form and the associate vowels are not attached onto the consonants in their secondary form (vowels are not fused with the consonant to form the syllabic letter). They also have an independent graphemic form. So for a Malayalam reader, it is easy to

visualise both the consonant and the associated vowel in their secondary form eg: /k/ ക + /i/ ഇ = കി in an utterance unlike other Dravidian languages, where the vowels are fused with the consonants in a syllable.

### *Need for the study*

Clinical practice indicates that majority of our clinical population report to us during their secondary Grade age. In addition, teachers and parents most often identify the problems in the secondary Grade level.

Speech language pathologists have often encountered with problems in evaluation and assessment of children with reading disability because of lack of tests and tools. Consequently there is a dependence on western tests and tools that most often do not suffice our requirement owing to the differences in language structure and script specific features. The few Indian tests / profiles particularly in Malayalam language developed as a part of small scale research /dissertations are either for preschoolers (Swaroopa, 2001) or for primary Graders (Iyyer, 2000). Because large number of children are being identified at higher primary Grades which is a crucial age for intervention, a need has been felt to develop a profile of reading, writing, comprehension and metaphonological skills which would help Speech Language Pathologists and special educators

### *Objectives*

The proposed study is aimed :

- (1) To develop a profile of reading skills of secondary Graders
- (2) To study the performance of children of Grade V and VII on various reading and writing tasks.
- (3) To check for difference in performance between genders
- (4) To identify sensitive parameters to detect reading difficulties, if any

## CHAPTER 11

### REVIEW OF LITERATURE

Communication skill is the gift of God to animal species. Animal species communicate with the help of scent, gestures, verbal codes and written codes. While the former two are typical of lower species, the latter two are seen in higher primates. Written codes, in particular is specific to human species which is known as the art of reading and writing.

Reading is a complex skill that is acquired by man. Reading defined as decoding ability is the skill of transforming printed words into spoken words (Perfetti, 1986). It is also considered as a process of decoding printed symbols into sounds and then extracting meaning from it. The basic process of reading involves the recognition of symbols. Speed of perception, use of analogy and memory for sequences that are found to be important for learning to read.

Catts and Kamhi (1986) define reading as a cognitive process by which one derives meaning from printed symbols. In order to decipher meaning from printed symbols, one should have a knowledge of the language. The ability to analyse a language into its components, otherwise known as metalinguistic skill is presumed to be the basis of reading.

Much has been written recently about the linguistic bases of reading (Catts and Kamhi, 1986; Liberman, 1983; Perfetti, 1986). It is now generally acknowledged that reading shares many of the same processes and sources of knowledge involved in talking and understanding. Delineating the similarities in the processes and knowledge involved in oral and written language comprehension one begins to capture the complex relationship that exists between language and reading.

Kamhi and Catts (1991) give three important differences.

- 1) Learning to read requires explicit knowledge of the phonological aspects of speech. The knowledge that words consist of discrete phonemes is crucial for constructing phoneme - grapheme correspondence rules.
- 2) Reading is comparatively a newly acquired human ability for which specific biological adaptation does not exist.
- 3) All humans are reared in environments in which spoken language is the principal means of communication. We are biologically endowed to learn language but the same is not true for reading.

### Theories and Models of Reading

There are various theories put forth, as the process involved differ for each individual, reading theorists have attempted to explain the process by adapting cognitive and linguistic theories and their interactive component processes (Stanovich, 1980).

The early cognitive theories propose that reading is a cognitive activity and follows the lead of information theory in fractioning mental activity into component processes such as attention, brief sensory storage, perception, short term memory, long term memory and reasoning (Neisser, 1967). These components are said to be hierarchically arranged on different levels and organized into structures designated as schemata or frames of scripts. Learning is thought to involve a complex interaction among the learner's current knowledge, the type of information to be acquired and levels of processing involved. Metacognition, the awareness of one's own cognitive activity (Brown, 1978) is said to play an important role in this cognitive process.

One group of theorists emphasized a 'bottom-up' sequence of stages from print to meaning, the second group, the 'top-down' control of letter and word

perception by linguistic context and the third group, the interactive parallel processing during the act of reading. But the exact levels of processing vary according to the interests and beliefs of the theorists.

Smith (1973) postulated that the meaning of printed text is extracted by mechanisms that are completely independent of the speech perception system whereas, Liberman, Shankweiler, Fischer and Carter (1974) postulated that print is recorded into speech at the phonological level and processed thereafter in the same manner as speech. La Berge and Samuels (1974) however, allow for the use of either path as a function of the stage of reading acquisition.

'Bottom-up and Top down' theories of reading are helpful in explaining the individual differences in reading acquisition (Rosner, 1979). Top down theorists argue that the beginning reader needs only the metalinguistic insight that reading is language and that written language differs from spoken language. Bottom up processors argue that metalinguistic awareness of phoneme structure is essential for learning how letters correspond to speech sounds.

The complexity involved in the process of reading acquisition has stimulated researchers to attempt modelling reading acquisition from varied perspectives. Ehri (1993) summarises these attempts by researchers to address the question as to how students learn to read, from three different perspectives - instructional perspective, disability perspective and developmental perspective. With investigations along these 3 perspectives, various models have been put forth. These models try to trace how a child in course of his becoming a competent reader acquires the different component systems or strategies of skilled reading.

Hence, an attempt to model reading behaviour resulted in : schema models, process models, cognitive models, information processing models and developmental models.



Some of the models are Marsh's model (Marsh, Friedman, Welsh and Desberg, 1981), Chall's model (Chall, 1983), Frith's model (Frith,1985), Harris and Coltheart's model (Harris and Coltheart,1989), Bakker's model (Bakker, 1992). These models suggest that readers must pass through and attain the capabilities at each stage in order to attain competence at the next stage ie., they emphasized linearity as well as hierarchy in reading acquisition process.

Reading models, in general, emphasize the interaction of multiple components such as the visual, phonological, orthographic features, reading and listening comprehension and also the role of cerebral hemispheres in the acquisition of reading.

Models of oral and written language comprehension have often been divided into three general classes, bottom-up, top-down and interactive. (Kamhi and Catts, 1991).

Bottom-up models view oral and written language comprehension as a step-by-step process that begins with the initial detection of an auditory or visual stimulus. The initial input goes through a series of stages in which it is "chunked" in progressively larger and more meaningful units. Top-down models, in contrast, emphasize the importance of scripts, schemata, and inferences that allow one to make hypotheses and prediction about the information being processed. Familiarity with the content, structure, and function of the different kinds of oral and written discourse enables the listener and reader to be less dependent on low-level perceptual information to construct meaning.

Reliance on top-down Vs bottom-up processes varies with the material being processed and the skill of the reader. Bottom-up processes are presumed to be necessary when reading is isolated, decontextualized words, where as top-down processes facilitate not only word recognition but also discourse-level

comprehension. Top-down processes are especially important when reading partially illegible material, such as cursive writing.

Many current theorists of language and reading (Butler, 1984; Duchan, 1983; Perfetti, 1985; Rumelhart, 1977, cited in Kamhi and Catts 1991) have advocated interactive models in which bottom-up and top-down process contribute to reading and language comprehension. An interactive model of reading comprehension, for example, would acknowledge that individuals must have proficient word recognition skills as well as higher -level linguistic and conceptual knowledge inorder to be good readers. Whereas bottom-up and top-down models emphasize sequential processing, interactive models allow for parallel or simultaneous processing. In general, the above models and theories contribute towards enrichment of knowledge in the developmental process of reading acquisition.

### Reading Acquisition

Acquisition of reading is determined by the interaction of 4 factors —

- (i) biological,
  - (ii) environmental
  - (iii) psychosocial and
  - (iv) cognitive factors
- (Kamhi and Catts, 1991)

- (i) Biological factors are crucial in learning to spoken and written language
- (ii) Environmental factors play an important role. Humans are biologically endowed to learn language, but this is not the case with reading. About 40% of the world's adult population cannot read. In most cases, illiteracy is caused by environmental factors. Individuals reared in societies in which reading ability is not of cultural value will probably have little exposure to print and no formal instruction in reading.

- (iii) Psychosocial factors such as motivational and attentional states play an important role in learning to read. Reading difficulties in individuals with motivational and attentional problems have been well documented. (Hallahan, Kauffman & Lloyd, 1985, cited in Kamhi and Catts 1991)
- (iv) Learning to read rely on basic cognitive processes to encode, store and retrieve information. In addition, the same store of linguistic and conceptual knowledge is tapped by readers as by speakers and listeners. Metacognitive abilities play a major role in learning to read.

The process of reading acquisition is presumed to function at three hierarchical levels, (Meritt, 1970) - the primary sound unit recognition level, the intermediate printed word-spoken word matching level and the higher order comprehension for thought. Each of these three levels of skills is presumed to involve both maturational and learning factors. The various stages of reading development that are proposed by Chall (1983) are as follows :

Stage 0 : *Pre reading stage* (birth - 5 to 6 years)

Children acquire knowledge about letters, words and books. The term "literacy socialization" has been used to refer to the social and cultural aspects of learning to read. Literacy socialisation focuses on the role of the environment in fostering the child's awareness of the purposes and conventions of print. During the pre reading stage, children also learn a lot about language. Knowledge acquired about language is of two types :

- (1) primary linguistic knowledge necessary to understand and produce well-formed utterances and
- (2) metalinguistic knowledge that involves the awareness that language consists of discrete phonemes, words, phrases and sentences.

**Stage 1 : *Initial Reading or Decoding (5-7 years):***

This stage is marked by the learning of phoneme-grapheme correspondence rules. Frith (1985) referred to this stage as the phonetic or alphabetic stage. Chall noted that by the end of this stage, children have gained the insight about the nature of the spelling system. It is generally acknowledged that constructing associations between letters and phonemes is the fundamental task facing the beginning reader (Blachman, 1984, cited in Lombardino, Marris, Mercado, DeFillipo, Sarisky and Montgomery ,1999).

**Stage 2 : *Ungluing from print (7-9 years) :***

This stage is a consolidation of what was learned in stage 1. Children in this stage learn how to use their decoding skills, the redundancies of the language, and their knowledge of scripts and story structure to derive meaning more easily and fluently from text. This stage corresponds to Frith's orthographic stage, in which the child directly recognises words on the basis of orthographic patterns.

**Stage 3 : *Reading to learn (9-14 yeas) :***

At this stage decoding skills become fully automatized, thus freeing up attentional resources to focus on text comprehension and learning. The reading in this stage is divided into 2 phases. In the initial phase, children (9-11 years) can read serious material of adult length but cannot read most adult popular literature. During the second phase (junior high level), preadolescents are able to read most popular magazines, popular adult fiction etc.

**Stage 4 and 5 : *Multiple view points (14-18 years)/ construction and reconstructions (18 and above) :***

The final 2 stages are considered as stages of cognitive development rather than reading development. As adolescents become capable of more

information they are able to learn from reading increases. Essential characteristics of stage 4 is that the reader can now deal with more than one point of view, where as of stage 5 is that reading is viewed as constructive; that is, the reader constructs knowledge using basic reasoning process, such as analysis, synthesis, and judgement.

### ***Factors affecting reading acquisition***

There are several factors affecting reading acquisition. It includes,

#### 1) Non Verbal factors

(a) Psychosocial factors such as motivational and attentional states play an important role in learning to read (Kamhi and Catts, 1991)

(b) Cognitive factors play a fundamental role in learning spoken and written language because they are essentially cognitive achievements.

2) Verbal factors include vocabulary, syntactic knowledge, metalinguistic awareness, verbal short term memory, phonological awareness, speech production, inferential comprehension, semantic memory and verbal fluency. Of the above, metalinguistic awareness is important because without this ability the child would not be able to discover the properties of spoken language that are central to the correspondences between its written and spoken forms.

### ***Metalinguistic awareness and reading***

Metalinguistic awareness is the ability to think about and reflect upon the structural and functional features of language. (Tunmer, Pratt and Harriman 1984).

The term 'metalinguistic awareness' was first used by Cazden (1972). Ehri (1978) differentiates between implicit knowledge and metalinguistic knowledge which is explicit.

Tunmer and Bowey (1984) identified four broad levels of metalinguistic awareness. They are word awareness, form awareness, phonological awareness and pragmatic awareness. They hypothesize that these levels play vital roles at different stages of reading acquisition.

Phonological awareness is defined as the conscious representation of the phonological properties and constraints of speech. There are various forms of phonological awareness:- awareness of phonological strings (phonological length, sound similarity, etc), awareness of syllables, awareness of phonemes (segmental awareness) and awareness of phonetic features.

Tunmer and Nesdale (1985) have suggested that phonological awareness is one of the metalinguistic abilities and is developmentally a distinct kind of linguistic functioning that develops separately from and later than speaking and listening skills. Treiman (1991) considers phonological awareness not as a single entity but as a complex skill involving several kinds of phonological units including syllables, intrasyllabic units, phonemes and phones.

One of the important applications of the phonological awareness skills is its critical role in learning to read.

Lieberman, Liberman, Mattingly and Shankweiler (1980) measured 4,5,6 year old children's ability to segment spoken words into syllables and phonemes. The results indicated that segmentation of words into syllables was easier than into phonemes and showed a clear hierarchy in the performance of these language analysis tasks. At the age of 4, nearly half of the children could segment words into syllable but none could segment it into phonemes. By the end of I grade, 90% could perform the syllable segmentation task while 70%

succeeded in phonemic segmentation task. They postulated that regardless of instructions results indicated that a greater level of maturity was necessary to analyze words into phonemes than into syllables.

Other studies have confirmed the relative ease of syllable segmentation compared to phoneme segmentation.

Treiman (1991) suggests that helping children gain access to the two primary parts of the syllable - onset and rimes, might help children negotiate the transition from syllable awareness to phoneme awareness.

In contrast to the correlational studies which indicate a significant relationship between the child's phonological awareness and acquisition of beginning reading skills, Shankweiler, Liberman, Fowler and Fischer (1977) found syllable segmentation is necessary to be a significant predictor of reading performance in first Grade. Blachman (1984), cited in Lombardino et al, (1999) on the other hand, found that phoneme segmentation with rapid automatized naming of colours and letters accounted for 68% variance in reading scores of first Grade children and that syllable segmentation was not a significant predictor of reading ability at first Grade.

Because of the significance of phonological awareness in learning to read, numerous studies have examined the effectiveness of training speech sound awareness in poor readers or children at risk for reading difficulties. The work of Bradley and Bryant (1983), Treiman and Baron (1981), Lundberg, Frost and Peterson (1988) have shown that increased phonological awareness through training has a positive effect on reading acquisition. The results of these studies have been so consistent in demonstrating a positive effect in reading and or spelling that Adams (1990) concluded that the goal of efficient and effective reading instruction is explicit training of phonemic awareness which is invaluable. Because of the attention received by investigators to spelling skills as being important for acquisition of reading it has been studied extensively.

## *Acquisition of Spelling*

Most of the researchers on beginning literacy have investigated factors related to learning to read as opposed to learning to spell. Whether learning to read and spell are simply two manifestation of a single underlying ability and or distinct cognitive accomplishments has not been fully addressed in the literature.

It is theoretically plausible that reading and spelling represent separate points on the developmental language continuum, differing quantitatively in the amount of word knowledge necessary for accurate performance, but remaining qualitatively similar in the basic cognitive processes involved. This is supported by the observation that adults and children, both good and poor achievers often read words they cannot spell (Boder, 1973; Bryant and Bradley, 1980).

In order to reflect on the child's understanding of the spelling system, Chall (1983) proposed developmental phases to coincide with the stages of reading acquisition: pre phonetic, semi — phonetic, phonetic and within word pattern. She also suggested that when children learn to spell words phonetically using conventional letter symbols, they become more accurate in spelling words because this knowledge makes it easier for them to store the correct spellings of specific words in memory.

Ehri (1989) attributes a central role to the acquisition of spelling skills which she presumes facilitates phonological skills in young readers. She suggests that phonological awareness in non reading preschoolers, illiterate adults population etc, is only rudimentary whereas performance was better taught how an alphabetic orthography maps the phonemic structure of speech. This is attributed to the spelling knowledge which facilitates the awareness of sounds in words and also provide visible symbols for conceptualizing sounds as separate units and for manipulating them consciously.



## ***Reading Comprehension***

Reading can be considered to comprise two component skills - word recognition and comprehension. To read effectively a child must be able to identify the individual words of a text and integrate the meaning of these words and sentences to comprehend what is being read (Gough and Tunmer, 1986).

Hulme (1988) suggests that short term memory skills are important in the development of comprehension skills. Reading is a multidimensional activity and skilled reading requires an awareness of strategies involved in the process to monitor and evaluate their own comprehension (Ryan, 1981).

The studies on reading comprehension indicate that children with reading comprehension problem also have generally poor language comprehension skills and that comprehension skills vary with verbal ability such that reading comprehension difficulties constitute one component of a more general language comprehension impairment.

## ***Relation between reading and orthography***

Orthography is a graphic representation of language. The existing writing systems across the world may be classified into three main types on the basis of their level of representation.

- > Ideography represents language at the level of morphemes eg;  
Chinese script.
- > Syllabary represents language at the level of syllables, eg: Japanese  
Kana
- > Alphabetic system represents language at the level of phonemes, eg;  
Roman script.

The psycholinguistic analysis (Coltheart, 1984) of this linguistic classification of orthography provides insight into the processes involved in

reading. A reader, while reading a particular type of script is required to have access to the level of representation encoded in the print, which in turn, would have differential influence on reading. Syllabary is presumed to be cognitively easier to read than the other two systems (Mattingly, 1980).

Over the decades various writing systems have evolved in the form of logographic, syllabic or alphabetic reflecting the language's unique phonology and morphology (Scheerer, 1986, Mattingly, 1972).

The match between writing system and language ensures a degree of efficiency for the reading and writing process (Katz and Frost, 1992).

Orthographic awareness is the awareness of the principles of the writing system. In order to be a proficient reader one is required to develop a conscious awareness regarding the way language is represented in writing. Children who speak a particular language should develop adequate awareness of that particular language's orthographic principles. In the context of alphabetic scripts the importance of metaphonemic awareness could be related to the concept of orthographic awareness. Since the alphabetic scripts represent language at the levels of phonemes, it becomes imperative for a child to master the principle with which language is encoded or represented in print. In this way, phonemic awareness becomes a part of orthographic awareness for alphabetic scripts.

Students focusing on orthographies of English and other languages view that reading processes cannot be explained without considering the readers linguistic environment in general and the characteristics of his writing system in particular (Frost, 1993).

### ***Reading in nonalphabetic scripts***

The earlier presumptions of the models and stages of literacy proposed for alphabetic languages are questioned by the findings observed in non-alphabetic orthographies (Hatano, 1986; Read, Zhang, Nie and Ding 1986;

Karant and Prakash, 1996). Segmental awareness, which is considered to be a reliable predictor of reading achievement, is supposed to play a vital role in the acquisition of alphabetic literacy (Morais, Bertelson, Carey and Alegria 1979, 1986). Read (1986) found that people who did not have direct experience with alphabetic orthography were unable to carryout phonemic segmentation tasks. They conclude that the ability to hear spoken language as a sequence of phonemes is a by-product of experience with an alphabetic orthography. Similar findings are reported by Prakash and Mohanty (1989), Malini (1996) and Rekha (1996) for Indian children.

### **Reading Disability**

From the turn of the century until the 1950s, it was commonly understood that dyslexia was a biologically determined condition. Perception and neurological anomalies were centrally featured in theories as the disorder. In the 1950s and 1960s it became increasingly common to attribute reading and writing difficulties to inadequate or incomplete education. Beginning in the 1970s, many began to ascribe the cause of dyslexia to a "language disorder" and especially to a deficient phonological awareness. Tonnessen (1999) Boden and Brodeur (1999) reports three patterns of reading disability profiles

- (a) poor decoding but adequate comprehension
- (b) adequate decoding but poor comprehension
- (c) poor decoding and poor comprehension

The most broad based and least discriminating definitions is that dyslexia is simply "difficulty in reading" (Kolb, and Whinshaw, 1980).

Thomson (1990) defines developmental dyslexia as a severe difficulty with the written form of language independent of intellectual, cultural and emotional causation. Various classification of dyslexia has been put-forth.

Frith (1985) divided it as

Type A : adequate spelling and reading

Type B : good reading impaired spelling

Type C : poor reading impaired spelling

Three types of dyslexias which are "single -component", is reported by Seymour and Evans (1999).

- (i) Literal dyslexia - defined as difficulty in acquiring the identities, sounds and written forms of individual letters.
- (ii) Alphabetic dyslexia - able to acquire the letter sounds but have difficulty in applying them to the decoding of unfamiliar forms.
- (iii) Logographic dyslexia - has a special difficulty in learning to treat words as multi-letter segments that can be stored in memory and linked to their spoken names and meanings.

### **Assessment**

A major percent of the population have difficulties with simple reading tasks such as following directions or reading novels, traffic signs etc. A delay or deviance in reading has to be measured (Pillner and Reid, 1972). The procedure to know the child's skills necessary for success in beginning reading is known as 'Reading Readiness Assessment Procedure'.

The purpose of assessment are categorized as, classification testing and Diagnostic testing and that assessment should be both functional and descriptive. Thomson (1990) states that assessment has three major functions: diagnosis, delineation of specific difficulties, and guide to remediation. Assessment is not merely a sterile process of putting a label, but should have implications for teaching. Assessment is on-going. One kind of assessment tool is the 'Profile'. A profile chart is an attempt to summarise the most frequently occurring indices of normal and abnormal skill development and to provide a sufficient basis for plotting patterns of progress.

## *Indian Studies*

Research in the field of reading is one of the most active fields of research. A large number of studies have been conducted in the west, whereas research in India is scarce.

Research in reading acquisition and reading disorders have been undertaken in few Indian languages. There are many types of reading tests developed to serve varied purposes such as screening, survey, achievement, reading readiness, diagnostic. Some of the tests are Oral reading test in Kannada (Bai, 1985), Reading readiness test in Kannada (Devi, 1978), Reading comprehension test in Kannada (Ramaa, 1985), Graded reading comprehension test in Oriya (Mohanty and Sahoo, 1985), Sentences comprehension test in Gujarathi (1987), Diagnostic reading test in Kannada (Purushothama, 1991).

Jagadish (1991) explored logographic reading skills during the initial stages of learning to read. Forty five pre school children were presented with forty seven items in four formats. The results indicated the presence of logographic reading skills and a developmental trend in the acquisition of reading skills.

Gokani (1992) compared the extent of relationship between phonological awareness and orthographic features in learning to read. Gujarathi speaking children were selected. The test of listening comprehension, word reading (English medium) and word recognition (Gujarathi medium) was administered. The results showed.

- > Rhyme recognition scores of the two groups are similar
- > Syllable stripping scores of the children exposed to semi-syllabic script are slightly better than those exposed to alphabetic script, however the difference was not significant.

- > There was a significant difference in phoneme stripping task between English and Gujarathi medium children in favour of the English medium children. This shows that phoneme level tasks are sensitive to orthographic variations.

Loomba (1995) investigated the sequential progression of English reading skills in Indian children. Informal reading test was administered on forty normal school going children studying in the class range of I-VIII. All subjects were Hindi speaking. They had no exposure to English at home and started learning English only in school. The results indicated that the sequence of progression of reading skills was in consonance with acquisition of reading by native English speakers. However, a lag was observed in all the skills.

Mullimani (1997) evaluated the listening and reading comprehension difficulties in primary school children of Grade III and IV. A moderate correlation was found between reading and listening comprehension among Grade III and VI.

Prema (1997) profiled acquisition of reading and writing skills in Kannada speaking children. The results showed that

- > There was a developmental change along the four major areas of reading acquisition, reading and writing, knowledge of orthographic principles and reading comprehension across the five grades under study. The changes were not uniform.
- > There was a hierarchy of skills which could be considered as predictors of reading ability in learning to read Kannada..
- > Features of Kannada orthographic system have an influence on reading and writing behaviour.

> The profile helps in identifying reading disability, if any.

Anne (2000) designed a study to find out if there is any relationship between reading comprehension and listening comprehension and also any difference in performances of III and IV graders. A moderate correlation was found to exist among grades, but no differences between boys and girls.

Akila (2000) studied the relationship between phonological awareness and orthographic skills in Tamil speaking children. 40 children of grade III and IV were administered the tests for phonological awareness and orthographic principles. Results found significant relationship between the two.

Iyyer (2000) studied the relationship between reading acquisition and metaphonological awareness among Malayalam speaking children of grade I through grade IV. Participants were four groups of subjects from four grades (I-IV) each consisting of 20 children. The results showed that both reading measures and phonemic / syllabic segmentation skills improve over the grades.

The main conclusions were:

- > In reading acquisition Malayalam speaking children show developmental trend, ie., it improves over grades.
- > Phonological awareness, which plays an important role in alphabetic literacy, seems to be significant factor in Malayalam reading also.

Swaroopaa (2001) aimed to develop a checklist to identify children with language based reading difficulties. Subjects were 24 children who were native Malayalam speakers of age range 36 months - 60 months. Results were

- > On rhyming and alliteration tasks, there was a significant difference across all the age groups.

- > High correlation was found between rhyming and alliteration task and nonverbal imitation.
- > Rhyming and alliteration, rapid naming, language expression and listening skills and nonverbal imitations were identified as potential variables to identify language based reading disability

### ***Description of Malayalam language and script***

Malayalam is one of South Indian Dravidian language with a literacy history of over eight centuries.

Influence of Sanskrit on Malayalam is evident in the alphabet, phonology and vocabulary and to a lesser extent in morphology (Sreedevi, 1991). Modern Malayalam has an orthographic structure comparable to other Indian scripts. It has fifty four basic letter symbols, which are arranged in the same spectacular phonetic manner like in other Indian scripts (Appendix IV). There is almost one to one grapheme-phoneme correspondence between syllabic representation of the language and the pronunciation. The script is "phonemic" in so far as it encodes most contrasts at the classical phonemic level of representation with a few exceptions, a character in the script denotes a vowel by itself, or one or more consonants followed by a vowel (Daniels and Bright, 1996).

A consonant character by itself has the value of a syllable onset followed by the vowel /a/. When a syllable is followed by a vowel other than /a/, the vowel is indicated by a diacritic on the letter, rather than the full vowel character.

eg: 
$$\begin{array}{l} /p/ + /i/ = /pi/ \\ പ + ഇ = പി \\ /k/ + /o/ = /ko/ \\ ക + ഒ = കൊ \end{array}$$



Malayalam, which is one of the major Dravidian language has an orthographic structure comparable to other Indian scripts. Malayalam language differs from other Dravidian language in the way in which alphabetic scripts, where graphemes (written symbols) represent language at the basic sound level, are put down. When Malayalam and Kannada are compared we can see that while Malayalam is phonemic Kannada is semisyllabic, there is a difference in their script layout. In Kannada script, the consonants have an independent graphemic form while, the associated vowels are attached onto the consonants in the secondary forms (vowels are fused with the consonant to form the syllabic letter). That is, it is easy to visualize the consonants in an utterance for a Kannada speaker, while it is not so for the associated vowels in their secondary form. In the case of Malayalam script, consonants have an independent graphemic form and the associate vowels are not attached onto the consonants in their secondary form (vowels are not fused with the consonant to form the syllabic letter), they also have an independent graphemic form. So for a Malayalam reader it is easy to visualize both the consonant and associated vowels in their secondary forms in an utterance and hence it becomes a phonemic script.

Review of literature shows that there have been studies conducted on reading acquisition in the west as well as a few Indian studies. However, reading acquisition in Malayalam has received scanty attention. Also, majority of our clinical population reporting to us fall in the age range of secondary Grades and that often teachers and parents identify the problem at this age. Hence, as clinicians, we are in great need of reading tests at secondary Grade level.

There are no such tests available in Malayalam for the secondary Graders, which has necessitated to develop a profile of their performance in reading and writing.

## CHAPTER 111

### METHOD

#### *Objectives*

The objectives of the study are :

1. To develop a profile of reading skills of secondary graders.
2. To study the performance of children of Grade V and VII on various reading and writing tasks.
3. To check for difference in performance between genders.
4. To identify sensitive parameters to detect reading difficulties, if any.

#### *Subjects*

A sample of school going children of grade V and VII (20 from each grade, M-10, F-10) studying in Malayalam medium were selected as subjects (Table-1). They ranged in age from 10-12 years.

	V Grade	VII Grade
Number of Subjects	10 Males	10 Males
	10 Females	10 Females

Table-1 : Number of subjects taken in each Grade

The following criteria were used for selection of subjects; personal interview with children and teachers report formed the basis for selection.

- (i) Children studying in Malayalam medium (V and VII)

- (ii) Children having no significant exposure to other languages except English and Hindi, which form a part of school curriculum.
- (iii) No significant medical/family history.
- (iv) Children with no physical, sensory or psychological problems.
- (v) Children were screened for speech and hearing deficits using a screening checklist, which was developed at Department of Audiology as a part of prevention of deafness project (POD) (Appendix I).

### ***Test Material***

Study intended at profiling the secondary graders on various reading, writing and metaphonologicals skills. For this the test developed by Iyyer (2000) served as the basis. The aim of her study was to analyse the development of reading in relation to phonological awareness in Malayalam speaking children of grade I - IV. Her test included measures of reading, writing phonological awareness and non-verbal intelligence. The test was adopted and modified for the secondary graders (V and VII). Test stimuli were taken from the Government text book in Malayalam of V and VII grades. Items were arranged in hierarchical difficulty. The test had subtest of reading and writing skills, reading comprehension, metaphonological skills and SHWA test (a test to check for sensitivity to phonemic/alphabetic principles).

A pilot study was undertaken before the finalization of the test material. Four children studying in Malayalam medium were selected for the pilot study. Two students in each grade, one male and one female were individually administered the complete set of tests.

On the basis of the pilot test results, the following modifications were carried out.

- a) Oral reading test had one hundred and fifty words and writing test had fifty words when pilot study was undertaken. As some of the items were redundant and also time consuming, the number of items was reduced to twenty five for both the subtests by eliminating the ones that fetched 100% score, were reported to be very easy.
- b) Number of items in all the subtests for metaphonological test was equalised to twelve.
- c) It was found that children needed more illustrations before the actual test administration. So, the number of demonstration items was increased to five.

Modifications in the test material as mentioned above were incorporated in the test, which was used for the final study (Appendix II). The parameters included are given in the Table-2.

TEST DOMAINS	
Subtests	Number of items
I. Oral reading	25 words
II. Writing	25 words
III. Metaphonological tests	
(a) Rhyme Recognition (R.R)	12 pairs
(b) Syllable Deletion (S.D)	12 words
(c) Syllable Reversal (S.R)	12 words
(d) Phoneme Oddity (P.O)	12 items
(e) Phoneme Deletion (P.D)	12 words (2-3 syllables)
(f) Phoneme Reversal (P.R)	12 words (2-3 syllables)
IV. Reading comprehension	
- GAP test	1 simple, 1 complex
- Passage	1 simple, 1 complex
V. SHWA test	2 Phonemes and 4 vowels
- Oral	
- Written	

Table-2 : Test items

- (1) Oral Reading: Twenty five words selected from the text books of V and VII Grades were used. They were arranged based on complexity and were administered as single word at a time individually.
- (2) Writing: Writing to dictation task was carried out using twenty five words. It was done as a group task
- (3) Metaphonological Tests: It includes six subtests.

- (a) Rhyme Recognition - Twelve pairs of rhyming and non-rhyming words (six rhymes and six non-rhymes) were used. The pairs of words was presented orally to the children and they were asked to identify whether the paired words are rhyming or not (eg: manam – panam).
  - (b) Syllable deletion - Twelve words were taken and on presentation children had to delete a syllable indicated and say the rest of the word. (eg: maranam – delete /m /).
  - (c) Syllable reversal - Children were presented with twelve words and were asked to reverse the word syllabically ( eg: padala - ladapa).
  - (d) Phoneme Oddity - Twelve sets of four non words each with CVCV configuration were presented orally to the children. They were asked to listen to the non words and choose the one that did not belong to the set ( eg: tseti, bika, tsema, tsetuli).
  - (e) Phoneme Deletion - Twelve words were presented and were asked to listen to the words and delete a small part of the word and say the rest, (eg: va:til, delete /l/ and say the rest of the word).
  - (f) Phoneme reversal - Twelve words were presented orally and were instructed to say the word by reversing the word phonemically (eg: pa:l-la:pa).
- (4) Reading comprehension : It was assessed by two methods.
- (i) GAP test - Passages were chosen from the text books of V and VII standard. Children were asked to fill up the 'GAPS' in the two graded passages where, every fifth word was chosen to be a 'GAP' on the lines of 'cloze' technique. The responses were elicited by asking the children to choose the correct response from a closed set of answers.

(ii) Passages - Two passages were chosen. Children were given a passage and a set of questions to answer. Responses were elicited in the written mode.

(5) SHWA Test: Test item consisted of two phonemes which are not present in the Malayalam language and two vowels *li* and /o/ - their both long and short form. Here the child requires to combine the given vowel with a phoneme represented by a visual symbol (grapheme) both of which do not exist in the particular orthography. For eg: /Z<sup>h</sup>/ will be combined with / i, i:, o, o: /.

### *Procedure*

A Malayalam medium school located in Kerala was chosen where there is co-education. This was done to take both male and female participants from the same school in order to control the variability in terms of the quality of education imparted to them. An upper primary school that has Malayalam as medium of instruction located at Trivandrum was selected for the study.

Subject selection criteria for the study was informed to the teachers. Subjects were selected based on the teacher's report and personal interview. These subjects were administered a checklist to rule out any other abnormalities. Subjects were told about the nature and purpose of the study and the test material used. Test was conducted in two sessions, morning and afternoon for different Grade children. Each subject needed about 40 - 50 minutes for the completion of test.

Before administering the actual test, demonstrations were given. Subjects were asked to listen carefully to the instructions given for each task.

Complete test was administered to all the subjects.

Reading comprehension (GAP I & II, passage I & II) writing to dictation were administered as group test. Rest were administered individually.

Subjects were tested in a quiet room with less distraction. At the end of each session, each subject was given some reinforcement like sweets.

A score sheet was developed (see Appendix III).

The responses of the subject were recorded for all the tests. Each correct response was given a score of 1 and any incorrect response was given 0.

### ***Statistical Analysis***

Data obtained was subjected to a suitable statistical analysis. The performance of the subjects was also analysed qualitatively and discussed.



## CHAPTER IV

### RESULTS AND DISCUSSION

The objective of the study was to profile reading, writing, metaphonological skills, reading comprehension and knowledge of orthographic principles of grade V and VII Malayalam speaking children. The data obtained was subjected to quantitative analysis with the help of statistical procedures. In addition qualitative analysis of the data was also done.

#### **A. Quantitative Analysis:**

##### **a. Mean and SD scores**

Mean and standard deviation scores on all the subtests were computed and a comparison of these means and SDs across grades V and VII and between males and females is shown in the Table - 3

#### **Oral Reading Test**

Test included 25 words arranged in a hierarchy of complexity. Mean scores of grade V approximated the maximum score of 25 (grade V mean = 24.8), whereas the grade VII achieved the maximum score (25). SD scores were high in grade V compared to VII (grade V SD = 0.52 and grade VII SD = 0). Between grade V females and males, SD scores show higher variability for males than females (males - 0.67, females - 0.32)

Mean approximating the maximum score by grade V is suggestive of either oral reading being achieved by grade V or that the complexity of the stimulus itself is too less for grade V thus giving a floor effect. However, further studies are required to resolve this issue.

Skills	V Male		V Female		VII Male		VII Female	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Oral reading (25)	24.70	0.67	24.90	0.32	25.00	0.00	25.00	0.00
Writing (25)	22.10	2.56	21.10	1.91	23.30	1.77	23.10	1.91
RhymeRecognition( 12)	12.00	0.00	12.00	0.00	12.00	0.00	12.00	0.00
Syllable stripping( 12)	11.60	0.52	11.80	0.42	12.00	0.00	12.00	0.00
Syllable reversal(12)	11.10	0.99	11.60	0.70	11.70	0.67	11.80	0.63
Phoneme oddity (12)	7.30	1.64	7.70	1.34	8.60	1.71	7.20	1.69
Phoneme stripping (12)	7.40	0.84	9.00	1.49	9.10	1.20	9.70	1.64
Phoneme reversal (12)	1.00	1.76	5.90	1.79	7.10	2.85	5.20	2.25
GAP 1(10)	9.50	0.97	9.70	0.67	9.80	0.63	9.90	0.32
GAP II (10)	8.30	1.57	9.20	1.03	10.00	0.00	10.00	0.00
Passage I (5)	4.00	0.00	4.50	0.53	4.10	0.32	4.70	0.48
Passage II (5)	3.50	1.08	3.80	1.03	3.90	0.74	4.70	0.48
SHWA O (8)	4.80	4.13	7.20	1.68	7.60	1.26	6.40	3.37
SHWA W(8)	3.60	3.97	6.40	2.06	5.00	2.53	5.20	3.67

Table - 3 : Mean and SD Scores between grades and gender

## Writing test

Mean scores of grade V was 21.6 and grade VII was 23.2 for a maximum of 25. Scores of grade VII was better than grade V, indicative of improved scores for the higher graders. SD scores of grade V was 2.23 and VII was 1.84. The variance between grades was **statistically significant** ( $p < 0.01$ ).

SD scores show a greater variability for males in grade V than females. SD for males was 2.56 and females was 1.91 where as for grade VII females showed a comparatively higher variability than males. SD for grade VII males was 1.77 and females was 1.91. However the difference was not statistically significant.

Considering that the lists for reading and writing were of equal difficulty as they were derived from the text books and also piloted, the difference in mean scores between oral reading and writing suggests that acquisition of writing follows acquisition of reading.

## Metaphonological skills

Six tests were administered for the assessment of metaphonological skills.

- (i) **Rhyme Recognition Task** : Among the six tests administered for metaphonological skills, rhyme recognition task was found to be the easiest. Mean scores of both the grades showed a maximum of 12 (Figure 1). Males and females performed equally well in this task. It indicates that acquisition of rhyming skill is complete before grade V (Figure 2 & 3).
- (ii) **Syllable stripping Task** : The mean scores of grade V was 11.70, approximating the maximum of 12, while grade VII achieved the maximum score (Figure 1) . In grade V mean scores of females was 11.80 and males 11.60 (Figure 2) and the SD scores were 0.52 for males and 0.42 for females. In grade VII both males and females performed equally well. There is a **statistical significance** between grades (Refer Table-4 ).

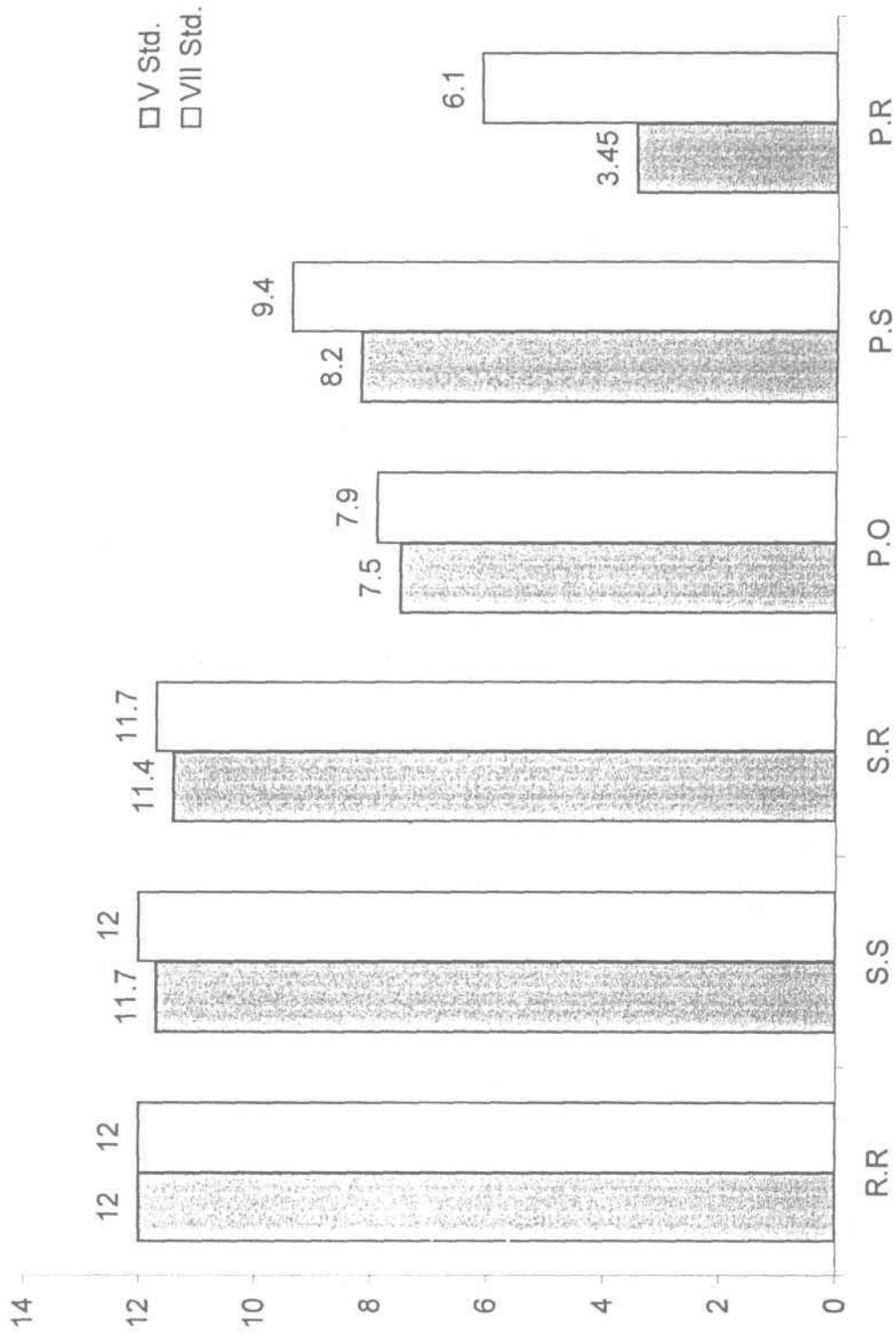


Figure-1 : Scores on metaphonological tasks between grades V and VII

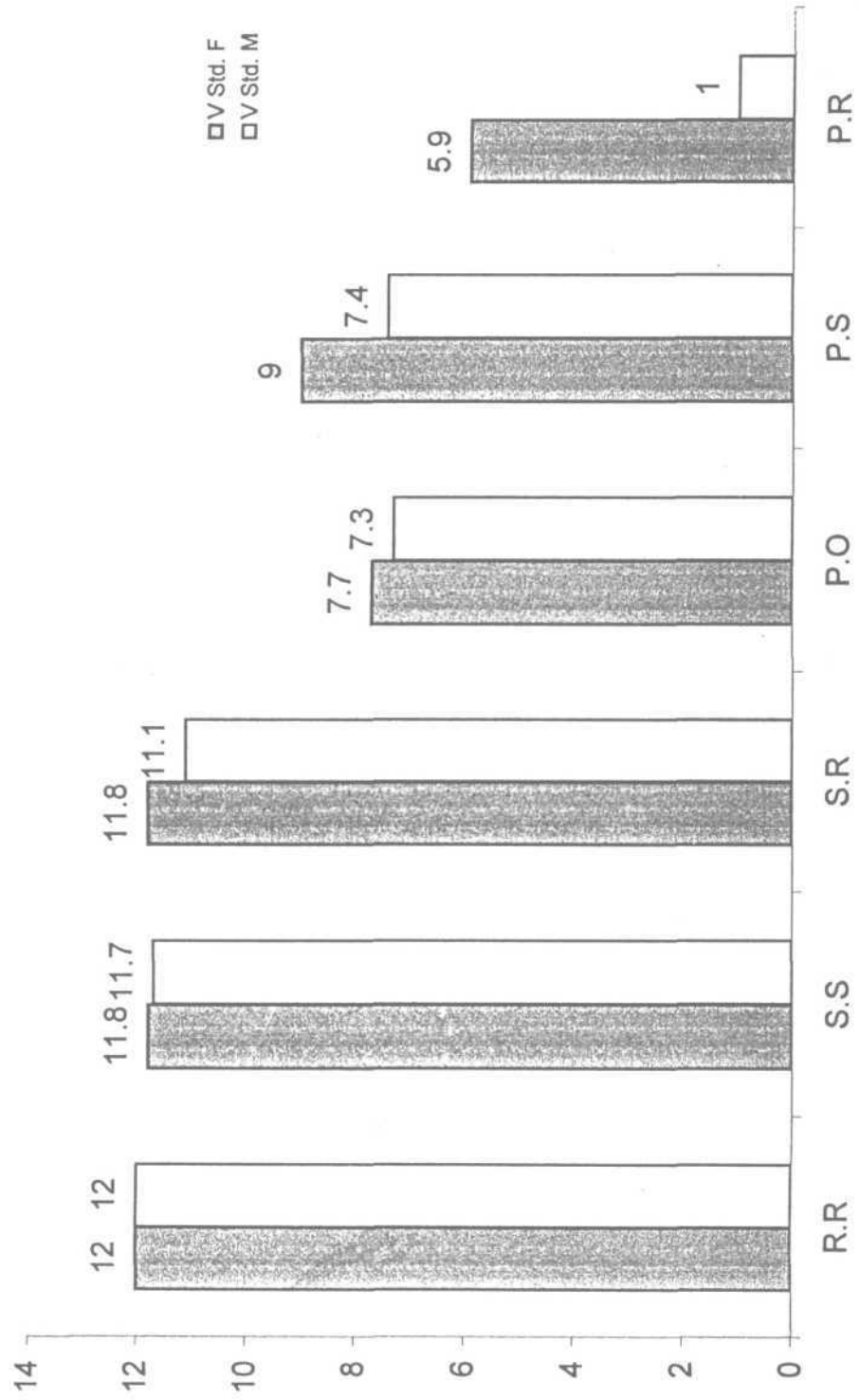


Figure-2: Scores on metaphonological tasks between gender for grade V

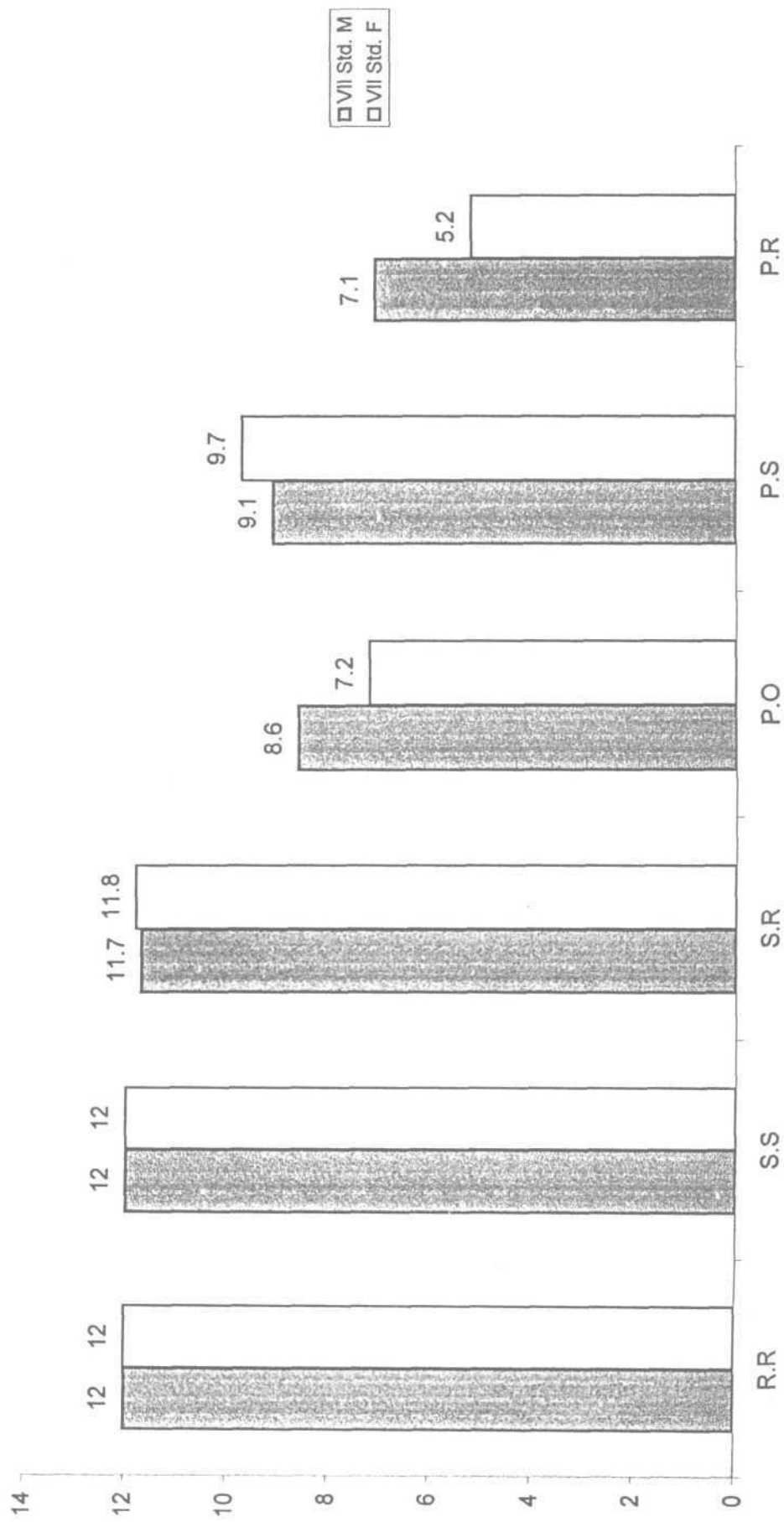


Figure-3 : Scores on metaphonological tasks between gender for grade VII

- (iii) *Syllable Reversal Task* : Scores of both the grades approximated the maximum score. Mean scores of grade V was 11.35 and VII was 11.75 for a maximum of 12 (Figure 1). Scores of grade VII was better than grade V. Grade V males has a mean score of 11.10 and SD of 0.99 and females mean score was 11.60 and SD 0.70 (Figure 2). Mean score of grade VII males was 11.70 with an SD of 0.67 and females was 11.80 and SD was 0.63 (Figure 3). Females performed better in both the graders with a lesser variability in SD scores.
- (iv) *Phoneme Oddity* : The mean scores on phoneme oddity for grade V was 7.5 and VII was 7.9 for a maximum of 12 (Figure 1). Scores show that performance of grade VII was better than grade V SD for grade V was 1.47 and grade VII was 1.80. Grade V males had a mean of 7.30, while females had mean scores as 7.70 (Figure 2). Grade V male's SD was 1.64 and female's SD was 1.34. Grade VII male participants show a mean score of 8.60 and females mean score was 7.20 (Figure 3). Male's SD was 1.70 and female's SD was 1.69. Mean scores of males and females of grade VII shows a difference of 1.4. As per the mean scores and SD, VII grade females performed poorer than grade V females.
- (v) *Phoneme stripping* : Performance of grade VII was better than V on this task. When grade V achieved a mean score of 8.20, grade VII showed a score of 9.40 for a maximum of 12 (Figure 1). Females performed better than males in both the grades. Grade V females had a mean of 9 and males 7.40 (Figure 2), whereas for grade VII females had mean of 9.7 and males 9.1 (Figure 3). SD scores for grade V was 1.44 and for grade VII was 1.43. SD scores for grade V male was 0.84 and female was 1.49, whereas for grade VII males had an SD of 1.20 and female 1.69.

Statistical significance was seen for this task between grades and gender (Refer Table - 4 ).

- (vi) *Phoneme Reversal* : Mean scores of grade V was 3.45 and grade VII was 6.15 for a maximum of 12 (Figure 1). In grade V females performed better than males and achieved a mean of 5.90 while males had a mean score of 1.00 (Figure 2). Grade V female had an SD of 1.79 and males was 1.76. In grade VII males performed better with a mean of 7.10 than females with a mean of 5.20 (Figure 3). Male's SD was 2.85 and female's SD was 2.25. Scores on this task showed high variability between and within grades. An increase in score was seen for males from grade V to VII, while grade VII females scored poorer than grade V. Statistical significance between grades and gender was seen (Refer Table - 4 ).

**Reading Comprehension Tests** : Two tests were administered to assess reading comprehension. It included Gap test and Passage, two, each varied in complexity.

- (i) **GAP test** : Mean scores for GAP I showed that grade VII (9.85) performed better than V (9.60) for a maximum of 10. Within each grade females showed a better performance than male. Grade V males mean score was 9.50 and females 9.70. Grade VII males had a mean score of 9.80 and females mean was 9.90. For grade V males had an SD of 0.97 and female's 0.67. Grade VII males had an SD of 0.63 and female's SD was 0.32. For GAP II, the grade VII reached the maximum score of 10. Whereas the mean scores for grade V was 8.75 and Females had a mean of 9.20 whereas male had a mean of 8.30. Within grade V, females showed better scores than males with a lesser variability in their



SD scores. Female's SD was 1.03, and male's SD was 1.57. As the grade VII achieved maximum scores there was a **statistically significant** difference between grades (Refer Table - 4)

- (ii) *Passages* : Scores for passage I approximated the maximum of 5 for both grades. Mean scores for grade VII (4.40) was better than that of grade V (4.25). Within each grade females performed better. Mean scores for grade VII males was 4.10, females was 4.70 and for grade V males was 4.00 and females 4.50. SD scores for grade V male was 0 and female 0.53 whereas, for grade VII males had an SD of 0.32 and females 0.48. SD scores of grade V did not show any variability.

Similar results were seen for passage II also. VII grade males had a mean of 4.20 with an SD of 0.48, and females had a mean of 3.90 and SD was 0.74. Females of grade V had a mean of 3.80 and SD of 1.03 whereas males had a mean of 3.50 and SD of 1.08. **Significant difference** was seen between gender for both the passages.

### **SHWA Test**

It is a special test used to check the sensitivity to phonemic/ alphabetic principles. This was conducted in two modes, oral and written.

- (i) *Oral mode* : Mean scores show that grade VII is better than V (7.00 and 6.00) for a maximum of 8. In grade V females performed better with mean of 7.20 and male's 4.80. Males showed a higher variability in SD scores (M - 4.13, F - 1.68). Whereas in grade VII, males showed a better performance with lesser variability in SD. Mean of grade VII male's mean was 7.60 and female was 6.40. SD scores for male was 1.26 and female was 3.37.

- (ii) *Written mode* : Here also grade VII performed better, but mean scores were not varied much. Grade V had a mean of 5.00 and grade VII 5.1 for a maximum of 8. Within grade V, females performed better with lesser variability (6.40 and 2.06 for females, 3.60 and 3.97 for males). Similarly in grade VII females showed better scores (5.20 and 5.00) , but males performed with less variability (M - 2.54, F - 3.67).

Mean scores on SHWA 'O' being always greater than the mean scores on SHWA 'W' is in consensus with the scores on oral reading and writing (subtest 1 and 2) suggesting that acquisition of writing always follows acquisition of reading in children learning to read and write Malayalam language.

Mean and SD analysis (Table - 3) as well as analysis of percentage scores (Figure 4) on performance of children learning to read and write Malayalam language helps us to draw a profile of grade V and VII children on a range of skills. The objective -1 of the present study that proposed to profile and see the differences, if any, between grades and gender have been fulfilled by the above analysis.

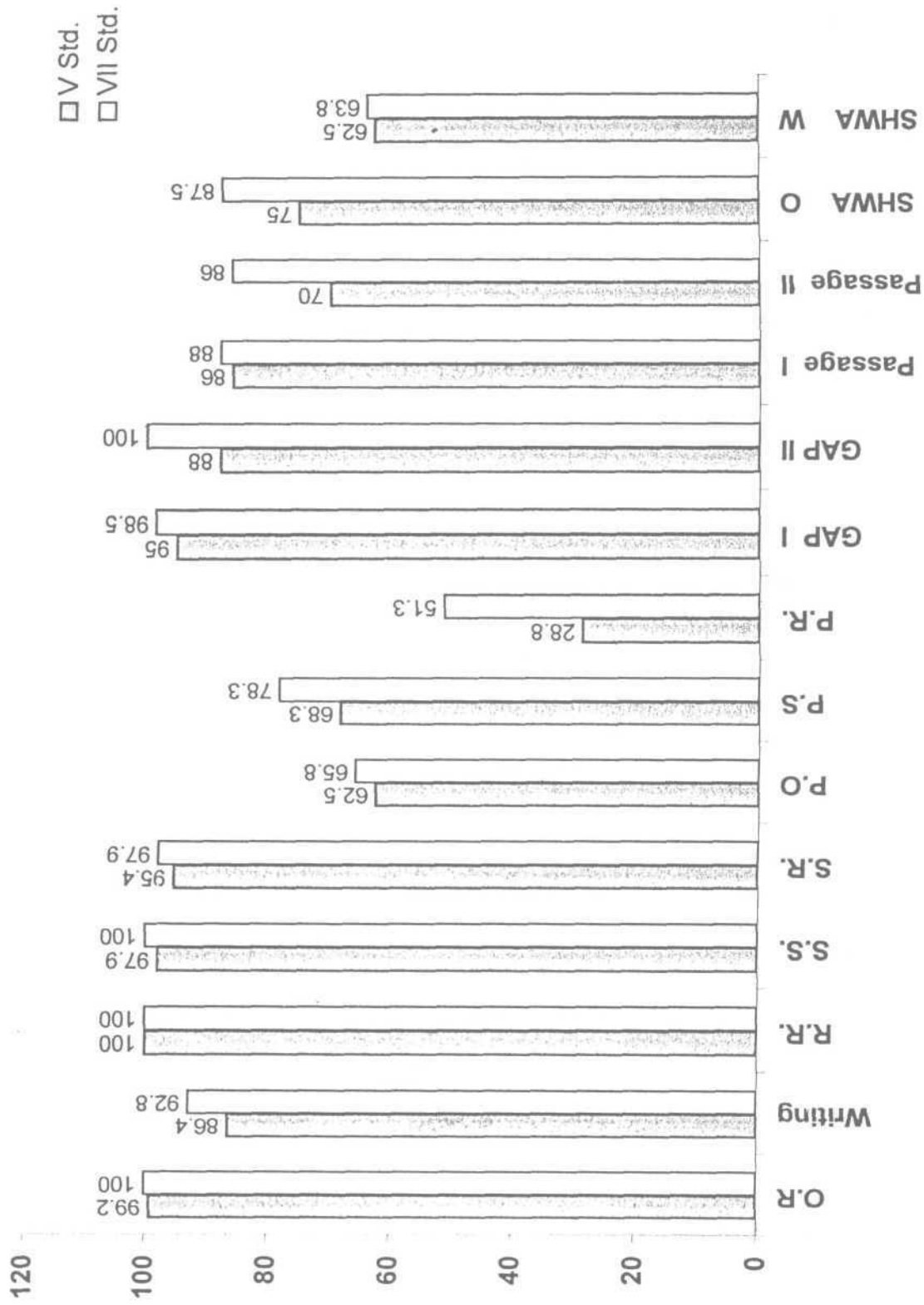


Figure-4 : Percentage scores between grades V and VII

**b. Results on Analysis of Variance ANOVA**

In order to trace the course of developmental differences across the skills, for both the groups ie., male Vs female as well as grade V Vs VII, the results were analysed by employing two-way ANOVA. The results are presented in the Table - 4.

Skills	Betwn. Grades	Betwn. Gender	Between grade & gender
Writing	0.019	-	-
Syllable stripping	0.007	-	-
Phoneme stripping	0.007	0.013	-
Phoneme reversal	0.000	0.038	0.000
GAP II	0.000	-	-
Passage I	-	0.000	-
Passage II	-	0.053	-
SHWAO	-	-	0.055
Total Metaphonological skills	0.000	0.029	0.000

Table - 4 : ANOVA results showing significance at 0.05 level

Table - 4 indicates statistically significant difference between grades for writing, syllable stripping phoneme stripping, phoneme reversal, GAP II and total metaphonological skills and between gender for phoneme stripping, phoneme reversal , passage I and II and total metaphonological skills. These differences are also evident through the mean and SD score analysis.

c. Correlation

Pearson's correlation analysis indicated high correlation among a few parameters, low or absence of correlation among the rest as depicted in Table- 5.

	OR	W	R.R.	P.O	P.S.	S.S.	P.R.	S.R	T.M	GAPI	GAPII	PI	PII	S'O'	S'W'
OR	1.000 .000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W	.206 .203	1.000	-	-	-	-	-	-	-	-	-	-	-	-	-
R.R.	a	a	a	-	-	-	-	-	-	-	-	-	-	-	-
P.O.	.033 .839	.345 .029	a	1.000	-	-	-	-	-	-	-	-	-	-	-
P.S.	.009 .957	.163 .316	a	-.004 .980	1.000	-	-	-	-	-	-	-	-	-	-
S.S	.075 .646	.340* .032	a	.052 .750	.405** .009	1.000	-	-	-	-	-	-	-	-	-
P.R.	.305 .055	.226 .161	a	.332* .037	.473** .002	.356* .024	1.000	-	-	-	-	-	-	-	-
S.R.	.104 .524	-.012 .941	a	-.148 .362	.115 .480	.208 .197	.181 .264	1.000	-	-	-	-	-	-	-
T.M.	.223 .166	.322* .043	a	.506** .001	.640 .000	.462** .003	.921** .000	.268 .095	1.000	-	-	-	-	-	-
GAP I	.110 .501	.024 .881	a	.039 .810	.044 .787	.141 .385	.046 .780	.002 .988	.065 .692	1.000	-	-	-	-	-
GAP II	.206 .201	.319* .045	a	-.048 .770	.305 .056	.448** .004	.390* .013	.136 .404	.371* .018	-.062 .705	1.000	-	-	-	-
PI	.043 .793	.145 .374	a	-.003 .984	.302 .058	-.007 .963	.285 .075	-.079 .626	.254 .114	.046 .779	.288 .071	1.000	-	-	-
PII	.136 .404	-.032 .842	a	.012 .943	.137 .399	-.236 .143	.239 .137	.123 .450	.195 .227	-.011 .946	.198 .222	.532** .000	1.000	-	-
S'O'	.046 .779	-.208 .199	a	.053 .746	.360* .022	.072 .660	.264 .100	.100 .541	.310 .052	-.108 .505	.019 .908	.064 .695	.169 .297	1.000	-
S'W'	.038 .816	.115 .479	a	.081 .618	.304 .057	.228 .157	.311 .050	.173 .286	.353* .025	.018 .911	.016 .923	.208 .197	.178 .272	.603** .000	1.000

\* - indicates significant at 0.05 level (2-tailed)

\*\* - indicates significant at 0.01 level (2-tailed)

Table - 5 : Correlation Matrix

The profile of reading, writing, metaphonological skills, reading comprehension and knowledge on orthographic principles of Grade V and VII children learning to read and write Malayalam has indicated many similarities as well as differences from that of western and Indian studies.

The mean and SD analysis of the scores on reading and writing are suggestive of the fact that while word reading is achieved by grade V, acquisition of word writing continues even beyond grade VII. The results are further supported by ANOVA (Table - 4) which showed significant difference in variance between grades for writing but not reading. When compared to Chall's (1983) stages of reading acquisition, the present study indicates that the children are at the stage 3 ("Reading to learn") as proposed by Chall suggesting that decoding skills become fully automatized, thus freeing up attentional resources to focus on text comprehension and learning. Also, acquisition of reading being ahead of acquisition of writing is also in support of Boder, (1973); Bryant and Bradley, (1980). Their results show that writing follows reading. Writing skills are not fully attained even by VII grade. This is supported by the observation that adults and children, both good and poor achievers often read words they cannot spell. This is also supported by Karanth and Prakash (1986) and Prema (1997).

While Mean and SD scores on rhyming, syllable stripping and syllable reversal tasks were either equal or nearer to the maximum score (Table - 3) that of phoneme stripping, phoneme oddity and phoneme reversal were far below that of syllable tasks.

A comparison of performance on syllable and phoneme tasks reveals that while syllables are real and probably the basic units of speech perception, phonemes being abstract are difficult to conceptualize and manipulate. Hence, although, Malayalam script is reported to be phonemic (Daniels and Bright, 1996) acquisition of awareness of syllables is found to be prior to acquisition awareness of phonemes. These results are in agreement with Lihri, (1975); Treiman, (1985); Goswami and Bryant, (1990). Study done by Liberman,

Lieberman, Mattingly and Shankweiler, (1980) also support the fact that syllabic tasks are easier than phonemic tasks. They postulated that a greater level of maturity was necessary to analyse words into phonemes than into syllables. Whereas, study done by Karanth and Prakash (1996); Rekha (1996) on the metaphonological skills in beginning readers of non alphabetic scripts reveal that development of phoneme awareness is greatly influenced by alphabet like features. Morais et al (1986) had also proposed that segmental awareness, which is considered to be a reliable predictor of reading achievement and that is supposed to play a vital role in the acquisition of alphabetic literacy in influenced by the scripts specific features of the language

Among the three phonemic tasks (phoneme stripping, phoneme oddity, phoneme reversals) phoneme stripping and phoneme reversal showed a significant difference in variance between grades and genders (Table - 4). The result suggests that these two tasks should be incorporated as potential tasks to test metaphonological skills of grade V and VII children learning to read and write Malayalam language. The total metaphonological scores show a correlation (Table - 5) with writing, GAP II and SHWA 'W but not with reading or other tasks. It implies that in Malayalam metaphonological skills are important for writing than for reading. Metaphonological skills are important for writing and comprehension than for mere decoding ie., reading.

Mean, SD scores on reading comprehension (GAP and Passages) showed a significant difference in variance between grades on GAP-II, between genders on passage I and II. The results suggest that of the four subtests used for study of acquisition of reading comprehension, GAP -II is a potential task to differentiate the two grades. The objective 3 of the study was to check for gender difference within and between grades. Hence, ANOVA (Table — 3) was carried out along with calculation of percentage scores on metaphonological skills (Figure 5 & 6). The results indicate that a significance difference can be seen between gender on Phoneme stripping, Phoneme reversal, Passage I and II and total metaphonological skills.



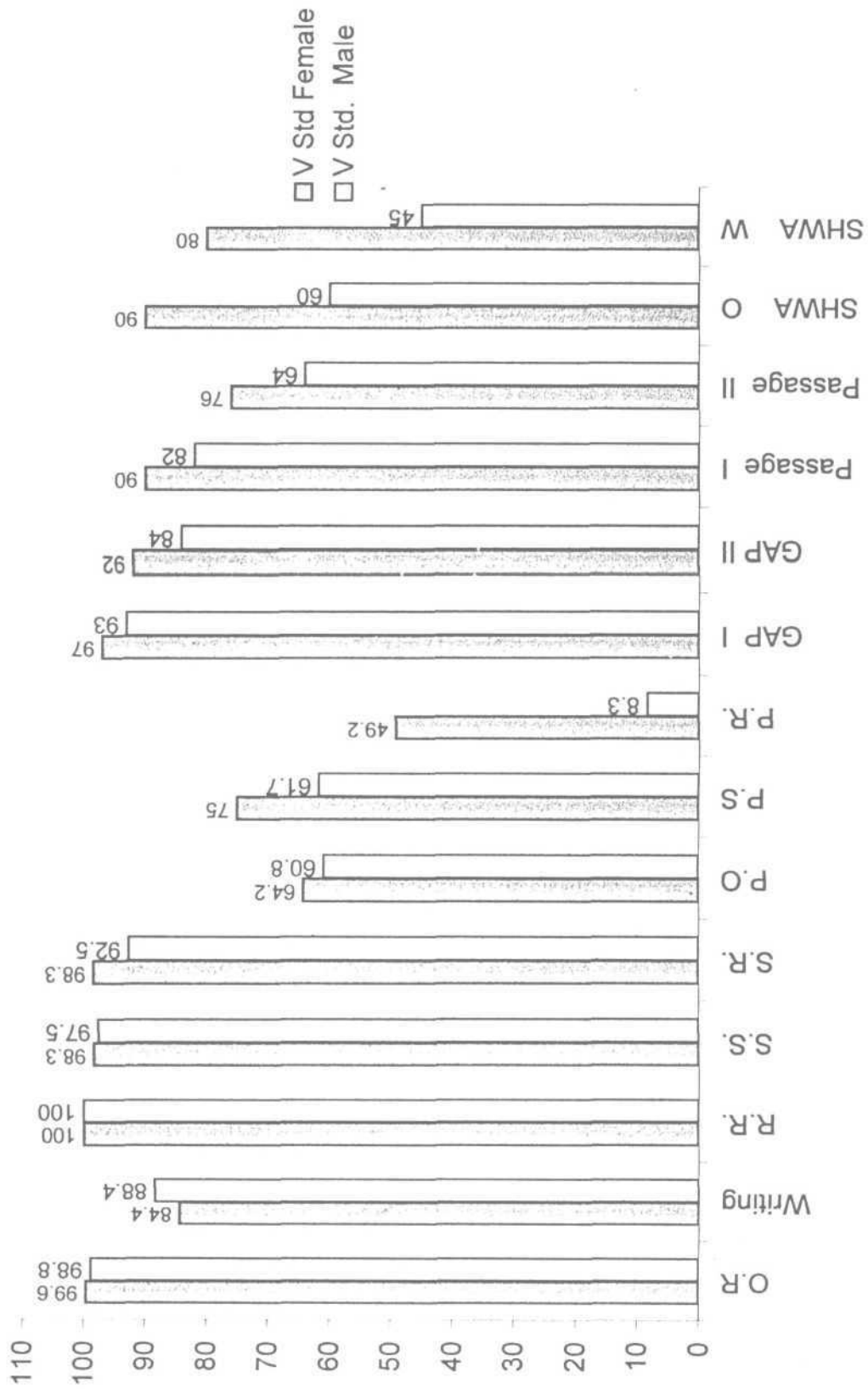


Figure-5 : Percentage scores between gender for grade V

The correlation study (Table - 5) of reading comprehension task with respect to other tasks in the profile showed that passage I and II has high correlation between them. But GAP -II showed correlation with writing, SHWA 'W' and syllable stripping suggesting that for reading comprehension of passages with GAPS, the above skills are quite essential.

A qualitative analysis of performance on reading comprehension showed that while the children could perform on literal comprehension of material, inferential comprehension was poor, again supporting that the above skills facilitate literal comprehension. Knowledge of language skills if tapped in these grades could further help in understanding of these processes.

While mean and SD scores on SHWA 'O' and 'W' did show difference in significance between grades and genders of moderate degree ( $P < 0.055$ ) (Table - 3). The correlation study (Table - 5) indicated that SHWA 'O' and 'W' had high correlation with phoneme stripping but not with oral reading and writing suggesting that the underlying skills for acquisition of reading and writing are different from that of acquisition of sensitivity to phonemic or alphabetic principles, which seems to be dependent largely on metaphonological skills.

In the qualitative analysis of the data, where the performance of children was analysed on each of the subtests, it was observed that the children who had least scores on SHWA 'W' had also less scores on other subtests. An estimate of the percentage of such children with reading disability was about 15-17% (5 out of 40). These findings are in consensus with Akila (2000). However, it may be mentioned that as the estimate was not made through statistical procedures, the incidence findings may be slightly on the higher side.

The results in general reveal that of the range of tasks incorporated in the profile, writing, phoneme reversal, phoneme stripping, GAP - II and SHWA could be potential indicators of reading ability. One of the objectives

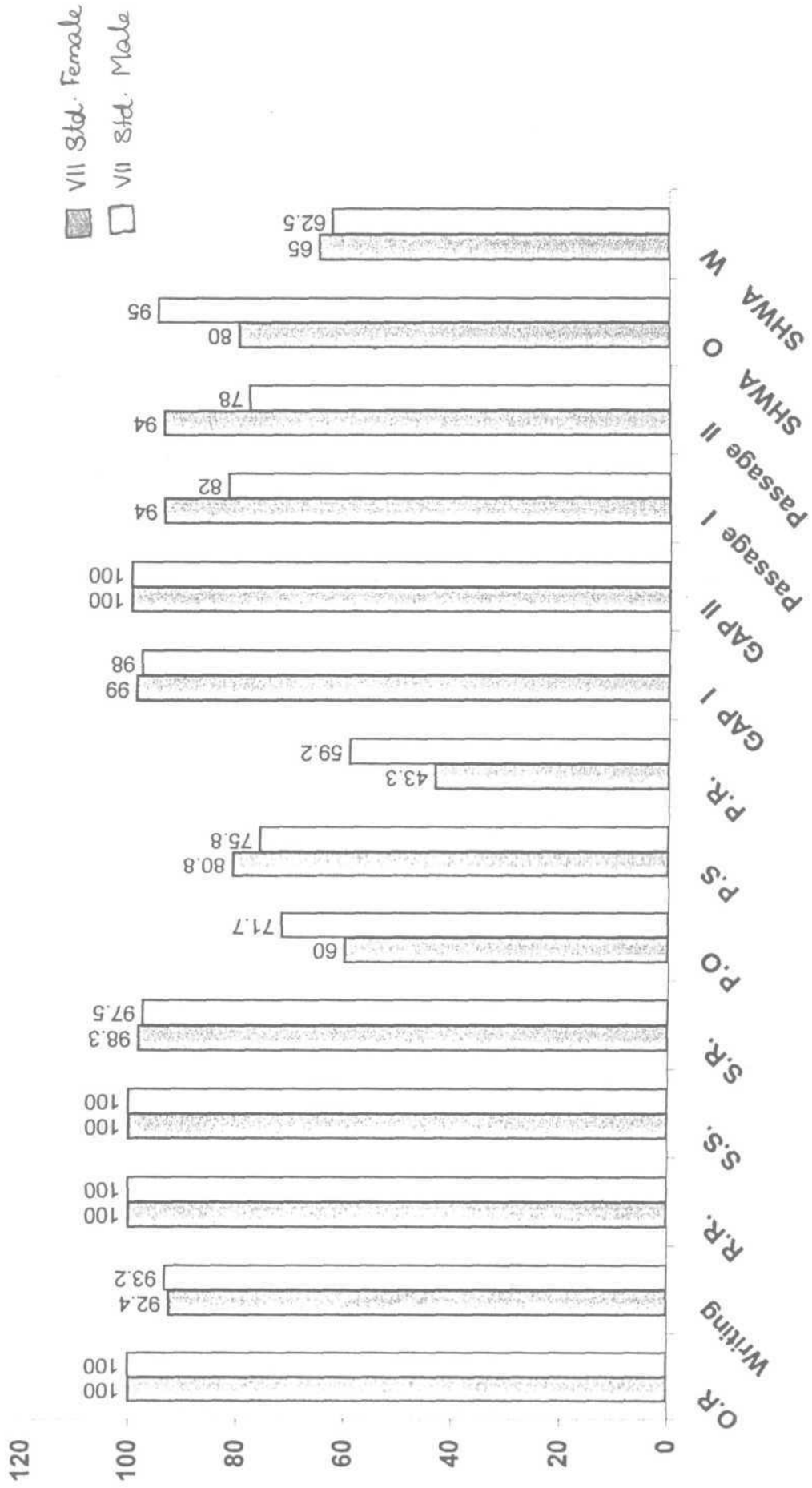


Figure-6 : Percentage scores between gender for grade VII

of the study (Objective - 4) being identification of potential task/s, it may be proposed that writing, phoneme reversal, phoneme stripping, GAP-II and SHWA could be treated as potential tasks to differentiate good readers from poor readers. However, the difference in performance of children of grade V and VII on various tasks strongly suggest that the crucial parameters to indicate reading ability or disability would vary with age and grade (V and VII). This should be taken into cognisance while - developing tests or profiles for assessment of reading.

#### B. Qualitative Analysis :

In addition to statistical analysis, qualitative analysis of the data was also done.

- On oral reading task, subjects took a longer time to read the words with clusters and blends.
- Metaphono logical test had 6 subtests. Of the six tests, rhyme recognition was the easiest and the subjects responded faster also. Floor effect was seen on the task and hence was easier for the children. Syllable tasks were easier than phoneme tasks. Among the phoneme tasks, phoneme stripping and phoneme reversal were difficult. Subjects asked for more illustrations for those tasks.
- For the phoneme oddity tasks subjects asked for more repetitions of each test item. Few subjects took more time in answering. On phoneme reversal task some of them could not answer any item correctly even with repeated illustrations.
- Phoneme stripping was comparatively easier to respond but some did mistakes on few items. Some who got poorer scores on other phoneme tasks found this easier, and got better scores.

- Subtests for reading comprehension was administered as a group task and response was elicited in written mode. In GAP test few made mistakes like putting the same answer in more than one GAP. Passages had questions which were direct (literal) and indirect (inferential). Some difficulty in literal comprehension was evident in answering but inferential comprehension was poor.
- SHWA test needed repeated illustrations. Subjects performed comparatively better on oral mode than written mode. Addition of vowels /i, o/ in oral mode was correct for most of them. When they were asked to combine the phoneme with the vowel and say, they added vowel in front of the phoneme eg: /Z<sup>h</sup> + i / was said as /iZ<sup>h</sup> / or /Z<sup>h</sup> / and /i / and not /Z<sup>h</sup>i /. Whereas in written mode, some made similar errors in writing also. Errors for the vowel combination of /o/ and /o:/ was more than /i/ and /i:/. Different kinds of errors by the same subjects in oral 'O' and written 'W' mode indicate use of different strategies.

When children were asked to combine <sup>/o/ and /o: /</sup> with phoneme /K<sup>h</sup> / and write, they wrote it wrongly.

eg:		<u>Actual Response</u>	<u>Target Response</u>
	/ɔ/ + /o/ -	oɔ	oɔo
	/ɔ/ + /o:/ -	oɔo	oɔo

Most of them wrote only the initial part, either 'o' or 'o:' and did not add the 'o', even though they said it correctly in oral mode. Most of the subjects required more time. Subjects who performed poorly in SHWA did perform poorly in other subtests also.

## CHAPTER V

### SUMMARY AND CONCLUSION

The present study aimed at profiling the secondary graders (V and VII) on various parameters of reading, writing and metaphonological skills. Subjects participated in the study include 20 children from each grade (10 males and 10 females), studying in Malayalam medium.

A test which measures reading and writing, metaphonological skills, reading comprehension and sensitivity to orthographic principles was administered on the subjects.

Data obtained was subjected to statistical analysis. Also qualitative analysis was done. A summary of the results is as follows :

- I. A profile of reading, writing, metaphonological skills, reading comprehension and sensitivity to orthographic principles has been established on grade V and VII children learning to read and write Malayalam language.
  - (a) Syllabic tasks were easier to perform compared to phoneme tasks.
  - (b) Acquisition of writing skill follows acquisition of reading skills.
  - (c) Performance on writing to dictation, shows that writing skill is not complete even by grade VII (12 years).
  - (d) GAP II showed correlation with writing, SHWA 'W' and syllable stripping suggesting that these skills are essential for reading comprehension.

- (e) Subjects in the present study were above the age range of stage 3, 9-14 years proposed by Chall (1983) in terms of their performance on reading.
- II. Significant difference was seen between gender for phoneme stripping, phoneme reversal, passage 1 and II and total metaphono logical skills.
- III. (a) The potential tasks to find out any problem in reading could be writing skills, phoneme reversals, phoneme stripping, GAP II and SHWA for the age range of 10-12 years.
- (b) Potential tasks to identify reading ability/disability vary with age and grade.
- IV. The present study on Malayalam language, which is phonemic, in contrast to the western and Indian literature which highlight that the acquisition of phonological awareness is dependent on script specific features. The results indicate better performance on syllables than phonemes. Further studies on different grades and ages would be required to resolve this contradictory findings
- V. Metaphonological skills are important for writing and comprehension than for mere decoding (reading) in Malayalam language.
- VI. Children who performed poor in SHWA consistently performed poor on other subtests also.
- VII. Strategies used for reading and writing in Malayalam language could be distinct.
- VIII. The incidence of reading disability which was found on a qualitative analysis was about 15-17% ie., approximately 5 out of 40.

### **Implications**

- The present study contributes to the literature on acquisition of reading and writing in Malayalam, which is scarce.
- It can be used as a screening tool to identify children who are at risk for reading disability.
- As most of the Indian languages being based on semisyllabic script, this study contributes to the literature on reading processes from the perspective of an Indian Dravidian language with a phonemic script (Malayalam).

### **Limitations**

- As the number of subjects was only 20 in each grade, the data is limited.
- Because for the secondary grade level only two grades are selected, the results cannot be generalized.



## BIBLIOGRAPHY

- Adams, M.J. (1990).** Beginning to Read : Thinking and Learning About Print. Cambridge MA : MIT Press.
- Akila, P. (2000).** Phonological Awareness and Orthographic skills in Tamil speaking children. An unpublished Master's dissertation submitted to University of Mysore, Mysore.
- Anne, V. (2000).** Listening comprehension and Reading comprehension among third and fourth graders. An unpublished Master's dissertation submitted to University of Mysore, Mysore.
- Bai, J (1958).** Kannda Oral Reading Test. An unpublished Master's dissertation, Department of Education, University of Mysore, Mysore.
- Bakker.D.J.(1992).** Neuropsychological Classification and treatment of Dyslexia, Journal of Learning Disability, 25(2), 102-109.
- Blachman,B.A.(1984).** Language Analysis Skills and Early Reading Acquisition. In G. Wallach and K.Butler (Eds.) Language Learning Disabilities in School Age children, Baltimore, M.D.Williams and Wilkins, p. 271-287.
- Boden,C, and Brodeur, D.A. (1999).** Visual processing of verbal and nonverbal stimuli in Adolescents with Reading Disabilities, 32, 58-71.

- Boder, E. (1973).** Developmental Dyslexia : A Diagnostic Approach Based on Three Atypical Reading Spelling Patterns, *Developmental Medicine and Child Neurology*, 15, p. 663-687.
- Bradley, L., and Bryant, P.E., (1983).** Categorizing Sounds and Learning to Read-a Causal Connection. In B. Gelder and J. Morais, (Eds.). (1994). *Speech and Reading - A Comparative Approach*: Erlbaum, U.K.
- Brown, D. (1978).** Speech and Reading. In D.J. Doehring, Patel, P.G, Trites and C.A.M. Fiedorowicz (Eds.) (1981). *Reading Disabilities - The interaction of reading, Language and Neuropsychological deficits*: Academic Press: N.Y.
- Bryant, P.E and Bradley. L. (1981).** Visual Memory and Phonological Skills in Reading and Spelling Backwardness. In Catts, H.W. and Kamhi, A.G. (Eds.) (1986). *The Linguistic Basis of Reading Disorders*, LSHSS, 17.
- Catts, H.W. and Kamhi, A.G. (1986).** The linguistic basis of reading disorders, LSHSS, 17 p. 329-334.
- Cazden, C.B. (1972).** *Child Language and Education*, Holt, Rinehart and Winton: N.Y.
- Chacko,R. (1999).** Normalisation for writing test in Malayalam. An unpublished Master's dissertation submitted to the University of Mangalore, Mangalore.
- Chall, J.S (1983).** *Stages of reading development*. McGraw Hill: N.Y.

- Coltheart, M. (1984).** Writing Systems and Reading Disorders. In E.H. Hendersen (Ed.) (1984). Orthographies and Reading: Perspectives from Cognitive Psychology, Neuropsychology and Linguistics: Lawrence Erlbaum Asso.: London.
- Crystall, D., Fletcher, R. and Garman, L. (1979).** The Grammatical Analysis of Language Disability. Studies in Disorders of Communication: Whurr Publishers: London.
- Daniels, P.T, and Bright, W. (1996).** The World's Writing System: Oxford University Press: N.Y.
- Devi, D (1978).** Reading readiness Test in Kannada, An unpublished Master's dissertation submitted to University of Mysore, Mysore.
- Ehri, L.C. (1975).** The Development of Reading and Spelling in Children **an** Overview. In M. Snowling and M. Thomson (Eds.) (1992). Dyslexia - Integrating Theory and Practice: Whurr Publishers.
- Ehri, L.C. (1978).** Beginning Reading from a Psycholinguistic Perspective: Amalgamation of Words Identities. In F.B. Murray (Ed) The Development of the Reading Process, IRA Monograph, No. 3, p. 1 - 33.
- Ehri, L.C. (1989).** The Development of Spelling Knowledge and its Role **in** Reading Acquisition and Reading Ability: Journal of Learning Disability, 22, p.356-365.
- Ehri, L.C. (1993).** How English Orthography Influences Phonological Knowledge as children Learn to Read and Spell. In R.J. Scholes (Ed) Literacy and Language Analysis, Lawrence Erlbaum Asso., London, p. 21-43.

- Frith, U (1985).** Beneath the Surface of Developmental Dyslexia. In K.E. Patterson, J.C. Marshall and M.Coltheart (Eds.) Surface Dyslexia: Lawrence - Erlbaum Asso., London.
- Frost, R (1993).** Prelexical and Post Lexical Strategies in Reading : Evidence from a Deep and a shallow Orthography. Status Report on speech Research, SR- 113, 1993, p. 3-25.
- Gibson, E.J.(1972).** Reading for some Purpose. In J.K. Kavangh and I.G.Mattingly (Eds.) Language by Ear and Eye. The Relationship Between Speech and Reading, Cambridge, Mass, M.J.Press.
- Girija, (1998).** Analysis of writing errors in Malayalam speaking LD children. An unpublished masters dissertations submitted to the University of Mangalore, Mangalore.
- Gokani, P.V. (1992).** Orthographic feature in Phonological Awareness with relation to reading. An unpublished Master's dissertation submitted to University of Mysore, Mysore.
- Gonzalez, J.J.E and Valle, I.H (2000).** Word Identification and Reading Disorders in Spanish Language. Journal of Learning Disability. 33 , 44-60.
- Goswami, U., and Bryant, P. (1990).** Phonological Skills and Learning to read: Lawrence Erlbaum Association., Hove, U.K.

- Gough, P.B. and Tunmer, W.E. (1986).** Decoding and Reading and Reading Disorders. In W.E. Tunmer (Ed.) Metalinguistic Awareness in Children: Theory, Research and Implications: Springer - Verlag, N.Y.
- Harris, P., and Colthart, M. (1989).** Language Processing in Children and Adults - An Introduction. Introduction to Modern Psychology Series: Routledge, N.Y
- Hatano, G.(1986).** How do Japanese Children Learn to Read? Orthographic and Eco-cultural Variables. In H.R. Foorman and A.W. Siegel (Eds) Acquisition of Reading Skills Cultural Constraints and Cognitive Universals: Lawrence Erlbaum Asso., Hillsdale, N.J., 81-114.
- Hulme, C. (1988).** Short-Term Memory Development and Learning to Read. In C. Hulme and M. Snowling (Eds.) (1994). Reading development and dyslexia: Whurr Publishers, London.
- Iyyer , R.V. (2000).** A study on development of reading and metaphonological skills in Malayalam speaking children. An unpublished Master's dissertation submitted to University of Mysore, Mysore.
- Jagadish L,M. (1991).** Logographic reading skills. An unpublished Master's dissertation submitted to University of Mysore, Mysore.
- Jayaram, M. (1986).** Sound and Syllable Distribution in Written Kannada and Their Application to Speech and Hearing, J. AIISH, 16-17, p. 19-30.
- Kamhi, A.G., and Catts, H.W (1989).** Reading Disabilities : A Developmental Language Perspective. Allyn and Balon: London.

- Kamhi, A.G., and Catts, H.W. (1991).** Language and Reading : Convergences, Divergences, and Development. In Kamhi and Catts (Eds.) (1994). Reading Disabilities. A developmental language perspective. Allyn and Balon: London.
- Karant, P. and Prakash, P. (1996).** A Developmental Investigation on Onset, Progress and Stages in the Acquisition of Literacy; Project funded by NCERT, India
- Katz, L., and Frost, R. (1992).** Reading in Different Orthographies : The Orthographies Depth Hypothesis. In R Frost (Ed.) Prelexical and Post Lexical Strategies in Reading. Evidence from a Deep and Shallow Orthography. Status report on speech research, 113, Haskins Lab. 153 — 170.
- Kolb and Winshaw (1980).** cited in A.G. Kamhi and H.W. Catts (Eds) (1991). Reading Disabilities. A developmental language perspective. Allyn and Balon: Boston.
- La Berge, D. and Samuels, S.J. (1974).** Towards a Theory of Automatic Information Processing in Reading, cognitive Psychology, 6, p. 293-323.
- Liberman, I.Y. and Shankweiler, D. (1979).** Speech, the Alphabet and Teaching to Read. In L.D Resnick and P.A.Weaver (Eds.) Theory and Practice of Early Reading Vol.2. Lawrence - Erlbaum Association: N.J.
- Liberman, I.Y. and Shankweiler, D. (1983).** A Language Oriented View of Reading and its Disabilities. In H.R. Myklebust (Ed.) Progress in Learning Disabilities, Vol. 5. Grune and Stratton : N.Y.

**Liberman, I.Y., Liberman, A.M., Mattingly, I.G and Shankweiler, D. (1980).**

Orthography and the Beginning Reader. In R Frost (Ed.) Prelexical and Post Lexical Strategies in Reading. Evidence from a Deep and Shallow Orthography, Status Report on Speech Research, SR-113, Haskins Lab. 153-170.

**Liberman, I.Y., Shankweiler, D., Fischer, F.W. and Carter, B. (1974).**

Phonological and Grammatical Skills in Learning to Read. In B. Gelder and J. Morais, J. (Ed) (1994). Speech and Reading. A Comparative Approach. Erlbaum: U.K.

**Lombardino, L.J., Marris, D., Mercado, L., De Filippo, F., Sarisky, C, and**

**Montgomery (1999).** The early reading screening instrument : a method for identifying kindergartens at risk for learning to read. International Journal of Language and Communication Disorders, 34 (2), 135-150.

**Loomba, M. (1995).** Sequential reading skills among Indian children. An

unpublished Master's dissertation submitted to University of Mysore, Mysore.

**Lund berg, I., Frost, J and Peterson, O. (1988).** Effects of an Extensive

program for Stimulating Phonological Awareness in Preschool Children. Reading Research Quarterly, 23, p. 263-84.

**Malini, R.J. (1996).** Comparison Between Blind and Normal Children on some

Reading Related Skills. An unpublished Master's dissertation submitted to University of Mysore, Mysore.

- Marsh, G. Friedman, M., Welsh, V and Dcsberg. P. (1981).** A Cognitive Developmental Theory of Reading Acquisition. In G.H.Mackinnan and T.G.Waller (Eds) Reading Research : Advances in Theory and Practice. Academic Press: N.Y.
- Mattingly, I.G. (1972).** Reading - The Linguistic Process and Linguistic Awareness. In J.P. Kavanagh and I.G. Mattingly (Eds), Language by Ear and Eye. MIT Press: Cambridge.
- Mattingly, I.G. (1980).** Reading - Linguistic Awareness and Language Acquisition. In D.G. Doehring, P.G. Patel, R.L. Trites and C.A.M. Fiedorowicz (Eds.) (1981). Reading Disabilities - The Interaction of Reading, Language and Neuropsychological Deficits: Academic Press, N.Y.
- Merritt, J.E. (1970).** What is reading readiness? In J.F. Reid (Ed.) (1972). Reading Problems and Practices: Wardlock Educational, p. 386-392.
- Mohanty, A.K. and Sahoo, R.N. (1985).** Graded Oral Reading Test, Department of Psychology, Utkal University. Bhubaneshwar, India.
- Morais, J., Bertelson, P., Carey, L., and Alegria, J. (1979).** Does Awareness of speech as a Sequence of Phonemes Arise Spontaneously?, Cognition, 7, p. 323-33.
- Morais, J., Bertelson, P., Carey, L., and Alegria, J. (1986).** Literacy Training And Speech Segmentation, Cognition, 24, p. 45-64.



- Mullimani, S.G.(1997).** Diagnosis of aural and reading comprehension difficulties in primary school children of III and IV. An unpublished Master's dissertation submitted to University of Mysore, Mysore.
- Neisser, U. (1967).** Cognitive Psychology In D.G. Doehring, P.G. Patel, R.L. Trites and C.A.M. Fiedorowicz (Eds.) (1981). Reading Disabilities - The Interaction of Reading, Language and Neuropsychological Deficits: Academic Press: N.Y.
- Patel,P.G. (1977).** The left Parieto-Temporal Occipital Junction, Semantic Aphasia and Language Development Around Age sexes. In D.J. Doehring, Patel, P.G, Trites and C.A.M. Fiedorowicz (Eds.) (1981). Reading Disabilities - The interaction of reading, Language and Neuropsychological deficits. Academic Press: N.Y.
- Perfetti, C.A. (1986).** Cognitive and Linguistic components of reading ability. In B.R. Foorman and Seiget, A.W. (Eds.) Reading Acquisition: Hillsdale, Lawrence - Erlbaum Association: N.J.
- Pillincr, A.E.G. and Reid J.F. (1972).** The Definition and Measurement of Reading Problems. In J.F. Reid (Ed.) (1972). Reading Problems and Practices. Wardlock Educational.
- Prakash, P. and Mohanty. A.K, (1989).** Reading Proficiency and Metalinguistic Awareness. Paper presented at the Interdisciplinary National Seminar on Language Processes and Language Disorders: Hyderabad, India.

- Prema, K.S. (1997).** Reading acquisition profile in Kannada. A Thesis submitted to University of Mysore, Mysore.
- Purushothama, G. (1991).** Items for Reading Test and Construction of a Diagnostic Reading Test in Kannada. *J. AIIISII*, 22, p. 15-30.
- Ramaa, S. (1985).** Diagnosis and Remediation of Dyslexia — An Attempt. A Doctoral Thesis, University of Mysore. Mysore.
- Read, C, Zhang, Y., Nie, H., and Ding, B. (1986).** The Ability of Manipulate Speech Sounds Depends on Knowing Alphabetic Writing, *Cognition*, 24, p. 31-44.
- Rekha, D., (1987).** Reading Acquisition and Metaphonological Awareness: A Longitudinal Study, Doctoral Thesis, University of Mysore, Mysore.
- Rosner, J. (1979).** Teaching Hard to Teach Children to Read: a Rationale for Compensatory Education. D.G. Doehring, P.G. Patel , R.L. Trites and C.A.M. fiedorowicz (Eds.) (1981). *Reading Disabilities. The Interaction of Reading, Language and Neuropsychological Deficits*, Academic Press: N.Y.
- Ryan, E.B. (1981).** Identifying and Remediating Failures in Reading Comprehension : Toward an Instructional Approach for Poor Comprehenders. In G.E. Mackinnon and T.G. Waller (Eds.) *Reading Research. Advances in Theory and Practice*. Academic Press: N.Y.
- Saymour, P.H.K and Evans, H.M (1999).** Foundations- Level Dyslexia. *Assessment and Treatment* 32, 394-405.

- Scheerer, E. (1986).** Orthography and Lexical Access. In R.Frost (Ed.) Prelexical and Post Lexical Strategies in Reading. Evidence from a Deep and Shallow Orthography, Status Report on Speech Research, S R - 113, Haskins Lab. P. 153-170.
- Shankweiler, D. and Liberman, I.Y., Fowler and Fisher, F.W. (1977).** cited in Kamhi and Catts (Eds) Reading Disabilities. A developmental language perspective. Allyn and Balon: Boston.
- Smith, F. (1973).** Psycholinguistics and Reading, Holt. Rinehart and Winston Inc.: N.Y.
- Sreedevi, B. (1991).** Syntactic patterns of Malayalam and Telugu. Vivek Publications: Thiruvananthapuram.
- Stanovich, K.E. (1980).** Towards an interactive compensatory model of individual differences in the development of reading fluency, Reading Research Quarterly, 16 (1), p. 32-70.
- Swaroop, K.P. (2001).** Checklist for screening language based reading difficulties (Che-SLR) in children. An unpublished Master's dissertation submitted to University of Mysore, Mysore.
- Thomson, M.(1990).** Developmental Dyslexia. Studies in Disorders of Communication. Whurr Publishers: London.
- Tonnessen, F.E. (1999).** Options and Limitations of the cognitive psychological approach to the treatment of dyslexia, 32, 386-393.

- Treiman, R. (1985).** Phonemic analysis, spelling and reading, In Carr T.H. (Ed.)  
The Development of Reading Skills - New Directions for Child  
Development. San Francisco: N.J.
- Treiman, R. (1991).** Phonological Awareness and Its Role in Learning to Read  
and Spell. In D.J.Sawyer and B.J. Fox (Eds.) Phonological Awareness in  
Reading. Springer-Verlag: Berlin.
- Treiman, R. and Baron, J. (1981).** Segmental Analysis Ability: Development  
and Relation to Reading Ability. In G. Mackinnon and T. Waller (Eds.)  
Reading Research: Advances in Theory and Practice. Vol.- 3. Academic  
Press: N.Y.
- Tunmer, W.E. and Bowey, J.A (1984).** Metalinguistic Awareness and Reading  
Acquisition. In W.E. Tunmer, C.Pratt and M.L. Herriman (Eds.)  
Metalinguistic Awareness in Children: Theory, Research and  
Implications. Springer - Verlag: N.Y.
- Tunmer, W.E. and Nesdale, A.R. (1985).** Phonemic Segmentation Skill and  
Beginning Reading. *Journal of Educational Psychology*, 77, p. 417-427.
- Tunmer, W.E., Pratt, C. and Herriman, M.L. (1984).** Metalinguistic  
Awareness in Children : Theory, Research and implications. Springer-  
Verlag:, N.Y.
- Vellutino, F.R. (1979).** *Dyslexia : Theory and Research.* M.A : MIT Press:  
Cambridge.



- |  |     |    |
|--|-----|----|
| 8. Did the (child's) mother have illness such as measles, mumps, chicken pox, etc., during pregnancy?          | YES | NO |
| 9. Did the (child's) mother require treatment for conditions such as high/low blood pressure during pregnancy? | YES | NO |
| 10. Did the (child's) mother notice bleeding during Pregnancy?   | YES | NO |
| 11. Was the child's mother exposed to radiations, such as X-rays, during pregnancy <sup>9</sup>                | YES | NO |
| 12. Was the (child's) mother hospitalized for long prior to delivery of the child?                             | YES | NO |
| 13. Did the child weigh much less than normal at the time of birth ?   | YES | NO |
| 14. Was the child born prematurely? By how many weeks?<br>If yes, say the number                               | YES | NO |
| 15. Was the child's appearance blue at the time of birth?  | YES | NO |
| 16. Did the child not cry immediately after birth but did so after some time?                                  | YES | NO |
| 17. Was the child given blood transfusion soon after birth?  | YES | NO |
| 18. Was the child's appearance yellow at the time of birth?  | YES | NO |

If the answer to any one of the above questions is 'Yes', then contact any speech and Hearing Center.

If you don't remember details regarding any of the above, can you get it from the person who assisted you at the time of delivery?

# APPENDIX - II

## Oral Reading Test

ഓല	/o:la/
ഇല്ലം	/illam/
മഴ	/maza/
കാറ്റ്	/ka:ttə/
വഴി	/vazi/
മുറിവ്	/muriva/
പറമ്പ്	/parambə/
ശൈലി	/saili/
കൃഷി	/krusi/
നന്മ	/nanna/
രക്തം	/raktam/
തിങ്കൾ	/tinggal/
യുദ്ധം	/juddam/
തൃപ്തി	/trupti/
ഗ്രന്ഥി	/granthi/
കള്ളൻ	/kallan/
കല്പന	/kalpana/
ഗൃഹം	/gruham/
വിവാഹം	/vidva:ra/
ഭക്ഷണം	/b'akṣaṇam/
മുത്തശ്ശി	/muttasi/
കൃത്രിമം	/krutrimam/
വൃശ്ചികം	/vrushtikam/
സാഹചര്യം	/sa:hatṣarjam/
ശേഖരണം	/se:kharaṇam/

## Word Writing Test

- കാലം /ka:lɑm/  
സൂചി /su:tʃi/  
കീരിടം /ki:ri:ɖɑm/  
ചകോരം /tʃko:rɑm/  
തടാകം /t̪ɑɖɑ:kɑm/  
പക്ഷി /pɑkʃi/  
മോതിരം /mo:t̪i:rɑm/  
സുതാര്യം /sut̪ɑ:rjɑm/  
ചൂരൽ /t̪u:rɑɭ/  
തേവാരം /t̪e:vɑ:rɑm/  
വൃഷം /vɾi:ʃɑm/  
വാതിൽ /vɑ:t̪il/  
സ്വന്ദനം /spɑɳɖɑnɑm/  
താക്കോൽ /t̪ɑ:kko:ɭ/  
സാകേതം /sɑ:kɛ:t̪ɑm/  
ചിതൽ /t̪it̪ɑɭ/  
ചേതന /t̪e:t̪ɑnɑ/  
ചോദ്യം /t̪ɔ:ɖjɑm/  
തീരഭൂമി /t̪i:rɑb̪u:mi/  
ഗുരുകുലം /gurukulɑm/  
വാസ്തുഹാര /vɑ:st̪uhɑ:rɑ/  
വഴുതനങ്ങ /vɑ:rut̪ɑnɑɳ̃ɳɑ/  
സങ്കോചം /sɑŋgo:t̪jɑm/  
പഞ്ചസാര /pɑɳɖɑsɑ:rɑ/  
ശുശ്രൂഷ /ʃuʃru:ʃɑ/



## Rhyme Recognition

### Demonstration items

അല്ലി - പല്ലി  
/aɻɻi/ - /paɻɻi/

പടി - മടി  
/paɻi/ - /maɻi/

കരം - മരം  
/kaɻam/ - /maɻam/

പറ - വട  
/paɻa/ - /vaɻa/

കട - തറ  
/kaɻa/ - /taɻa/

### Test Items

താറാവ് - പാറാവ്  
/ta:ɻa:və/ - /pa:ɻa:və/

ചരണം - മരണം  
/tʃaɻaɻanam/ - /maɻaɻaɻanam/

തെറ്റി - മറഞ്ഞു  
/teɻteɻi/ - /maɻandʒu/

കാട് - നാട്  
/ka:ɻaɻ/ - /na:ɻa:ɻ/

ഞണ്ട് - പല്ല്  
/ɻeɻaɻteɻ/ - /paɻɻa/

കേരം - നേരം  
/ke:ɻam/ - /ne:ɻam/

പറഞ്ഞു - ജോടി  
/paɻaɻaɻɻeɻu/ - /dʒo:ɻi/

കോടി - നെറ്റി  
/ko:ɻi/ - /neɻteɻi/

എവിടെ - അവിടെ  
/eɻviɻeɻeɻ/ - /aɻviɻeɻeɻ/

മണം - പണം  
/maɻaɻam/ - /paɻaɻam/

തടി - വണ്ട്  
/taɻi/ - /vaɻaɻteɻ/

കല്ല് - വടി  
/kaɻɻa/ - /vaɻi/

## Syllable Stripping

### Demonstration Items

പുടവ - /pudava/	പു /pu/	=	ടവ /dava/
കരുണ - /karuna/	രു /ru/	=	കണ /kana/
ചതുരം - /tʃatʃuram/	രം /ram/	=	ചതു /tʃatʃu/
ചകിരി - /tʃakiri/	ച /tʃa/	=	കിരി /kiri/
മനസാക്ഷി- /manasa:ksi/	ക്ഷി /ksi/	=	മനസാ /manasa:/

### Test Items

മരണം - /marana/	മ /ma/	=	രണം /rana/
അലം - /alam/	ച /tʃa/	=	അലം /alam/
ചവണ - /tʃavana/	ണ /na/	=	ചവ /tʃava/
പരിച - /paritʃa/	പ /pa/	=	രിച /ritʃa/
ആധുനികം- /a:du:ni:kam/	കം /kam/	=	ആധുനി /a:du:ni/
മകുടം - /makudam/	കു /ku/	=	മടം /madam/
കമനീയം - /kamaniiyam/	യം /yam/	=	കമനീ /kamanii:/
കുടിൽ - /kudila/	ൽ /la/	=	കുടി /kudi/
മരിച്ചു - /maritʃu/	ച്ചു /tʃu/	=	മരി /mari/
കരടി - /karadi/	ടി /di/	=	കടി /kadi/
പൊലിമ - /polim/	മ /ma/	=	പൊലി /poli/
ഗരുഡൻ - /garudana/	ൻ /na/	=	ഗരുഡ /garudana/

## Syllable Reversal

### Demonstration Items

പരവ /pəɾəvə/	-	വറവ /vəɾəpə/
കടല /kadələ/	-	ലടക /ladəkə/
തവള /təvəɳə/	-	ഉവത /kəvətə/
കളരി /kəɳəɾi/	-	രിളക /riɳəkə/
ആകാശം /ə:kə:ʃəmə/	-	ശംകാആ /ʃəməkə:ə:/

### Test Items

പടല /pəɳələ/	-	ലടപ /ladəpə/
കറവ /kəɾəvə/	-	വറക /vəɾəkə/
ചവണ /tʃəvəɳə/	-	ണവച /ɳəvətʃə/
പലക /pələkə/	-	കലപ /kələpə/
പുടവ /puɳəvə/	-	വടപു /vəɳəpu/
മഞ്ചാടി /məɳə:ɳə:di/	-	ടിഞ്ചാമ /ɳə:ɳə:mə/
ഭവനം /bəvəɳəmə/	-	നംവഭ /ɳəməvəbə/
ചിരവ /tʃiɾəvə/	-	വരച്ചി /vəɾətʃi/
കരടി /kəɾəɳədi/	-	ടിരക /ɳəɳəkə/
കടുവ /kaduvə/	-	വടുക /vəɳəkə/
ചെമ്പകം /tʃəməbəkəmə/	-	കംമ്പചെ /kəməbətʃə/
ചങ്ങാതി /tʃəɳə:ɳə:ti/	-	തിങ്ങാച /tiɳə:ɳə:tʃə/

Phoneme Oddity

Demonstration Items

മുട /mudə/	മിത /mitə/	മെച്ചി /metʃi/	തടു /tədu/
ജുത /dʒutə/	കെതി /keti/	ബിനു /binu/	സത /satə/
മഞ്ചു /mɔŋdʒu/	കിട /kida/	തിജ്ജ /tidʒe/	പിക /pika/
ജുകെ /dʒuke/	മസ /masə/	ശൂന /ʃunə/	മുതി /muti/
പഗി /pəgi/	ജിത /dʒitə/	തൂര /tuɾə/	മിസ /misə/

Test Items

ചെട്ടി /tʃetʃi/	ഭിക /bʰika/	ചെമ /tʃemə/	ചൂലി /tʃuli/
വഗെ /vəge/	ഭഗി /bʰgi/	തില /tʰila/	കഗോ /kəgə:/
കൊത /kətə/	നാഗ /nə:gə/	പാലി /pə:li/	മാലു /mə:lɯ/
മത /matə/	നീകു /ni:kɯ/	ബുതി /buti/	സിതെ /sitə/
നലി /nəli/	മികെ /mike/	കതെ /katə/	പുനെ /pune/
തൊന /tənə/	പൊരി /pəri/	മൊറെ /məre/	ഇടു /idu/
തുക /tʰukə/	മന /manə/	തലി /tʰali/	തിഗു /tʰigu/
വെച്ചു /vetʃu/	കെട്ടി /keti/	മില /mila/	പെട /pedə/
തപ /tʰapə/	മനോ /manə:/	കിടോ /kida:/	പുകോ /pukə:/
കച /katʃə/	കെനി /keni/	കുടു /kudu/	ചൊന /tʃənə/
സനി /səni/	ധൂലി /dʰuli/	വൊപ /vəpə/	കിരി /kiri/
ടഭെ /dabʰe/	രിഭ /rəbʰə/	കുഭു /kubʰu/	ജത /dʒətə/

## Phoneme Stripping

### Demonstration Items

/bʱəmgɪ/	-	m̥	=	ഭഗി /bʱəgi/
/pakəɫ/	-	ɫ/	=	പക /pakə/
/kəɻəɻm/	-	ə/	=	കറം /kəɻəɻm/
/pakʃi/	-	ʃ/	=	പകി /paki/
/kuntʌm/	-	n/	=	കുന്തം /kuntʌm/

### Test Items

/və:ɫiɫ/	-	ɫ/	=	വാതി /və:ɫi/
/səmbʱəvɻm/	-	m̥/	=	സഭവം /səmbʱəvɻm/
/mənəm/	-	m/	=	അനം /ənəm/
/dʒəɻləm/	-	ə/	=	ജലം /dʒəɻləm/
/ne:həm/	-	s/	=	നേഹം /ne:həm/
/tʃə:ɻəm/	-	ʃ/	=	താഗം /tʃə:ɻəm/
/kəmməm/	-	ɻ/	=	കമ്മം /kəmməm/
/ʃəkɪr/	-	t̪/	=	ശകി /ʃəki/
/sə:mbə:ɻ/	-	m/	=	സാബാർ /sə:mbə:ɻ/
/kə:nɪ/	-	d/	=	കാണി /kə:nɪ/
/məkəɻ/	-	n/	=	മക /məkə/
/pə:ləm/	-	p/	=	ആലം /ə:ləm/

## Phoneme Reversal

### Demonstration Items

ലയം /ləjam/	-	മയൽ /məjal/
കരി /kəri/	-	ഇറക് /irəkə/
ഇല /ilə/	-	അലി /əli/
അരി /əri/	-	ഇര /irə/
നിറം /niɾəm/	-	മരിൻ /məriɳə/

### Test Items

പഴം /pəzam/	-	മഴപ്പ് /məzəpə/
നാല് /na:lə/	-	ലാൻ /la:ɳə/
പാൽ /pa:lə/	-	ലാപ്പ് /la:pə/
കടൽ /kadələ/	-	ലടക് /lədəkə/
നടി /nədi/	-	ഇടൻ /idənə/
കളി /kali/	-	ഇളക് /iləkə/
എലി /eli/	-	ഇലൈ /ile/
നഖം /nəkəm/	-	മഖൻ /məkənə/
നട /nədə/	-	അടൻ /ədənə/
നലം /nələm/	-	മലൻ /mələnə/
കുട /kudə/	-	അടുക /ədukə/
ഉമി /umi/	-	ഇമു /imu/

## GAP TEST -I

പണ്ടൊരു കുഞ്ഞിക്കിളിയുണ്ടായിരുന്നു. ആ -----സന്തോഷിച്ചു  
കുവിയാൽ കാടു പൂക്കും.-----വാലിളക്കിയാൽ കാടു കുലുങ്ങും.  
അതിനാൽ-----ദേഷ്യപ്പെട്ടു വാലിളക്കുകയും ചെയ്യും.കുഞ്ഞിക്കിളിയു  
ടെ-----കൊണ്ട് കാടു വിഷമിച്ചു. അതിനാൽ -----  
എല്ലാജീവികളും ഒരുമിച്ചാലോചിച്ചു. "ഞാനൊരു-----പ്രയോഗിച്ചു  
നോക്കാം", കൊച്ചു ചിലന്തി-----അവൻ കുഞ്ഞിക്കിളിയുടെ കു  
ട്ടിൽ ഒളിച്ചിരുന്ന് -----വിടാൻ തുടങ്ങി. നൂല് കിളിയുടെ-----  
-----ചിറകും മുഴുവൻ പൊതിഞ്ഞുചുറ്റി.----- അതോടെ

...വാലിളക്കാൻ കഴിയാതെ ആയി.

[വാദ്യ, വാലും, ദേഷ്യപ്പെട്ടു, വാലിളക്കൽ, കുഞ്ഞിക്കിളി,  
പറഞ്ഞു, എപ്പോഴും, നൂലുണ്ടാക്കി, അതിന്, കാട്ടിലെ]

## GAP TEST - I

/paṇḍoṣu kuññikkilijunda:jirunṇu. a:

\_\_\_\_\_ sando:sitṣu ku:vija:l ka:du pu:kkum.

\_\_\_\_\_ va:lilakkija:l ka:du kuluṇṇum.

aṭṭina:l \_\_\_\_\_ de:sjappetṭu va:lilakkukajum  
tṣejjum. kuññikkilijude \_\_\_\_\_ konda

ka:du viṣamitṣu. aṭṭina:l \_\_\_\_\_ ella:

dzi:vikalum oṣumitṣa:lo:tṣitṣu. "ṇa:ṇoṣu

\_\_\_\_\_ praṣo:gitṣu ṇo:kka:m", koṭṣu tṣilandi

\_\_\_\_\_ aṇṇo kuññikkilijude ku:tṭil

oṭṣitṣirunṇo \_\_\_\_\_ vidja:n tṭudaṇṇi. ṇu:lo

kiṭṭijude \_\_\_\_\_ tṣirukum maṣuvan poṭṭiṇṇu

tṣutti. \_\_\_\_\_ aṭṭo:de va:lilakka:n

kaṣija:tṭe a:ji /

[vidja , va:lum , de:sjappetṭu , va:lilakkal,  
kuññikkili , paṣaṇṇu , eppo:ṣum ,  
nu:lunda:kki , aṭṭina , ka:tṭile ]



## GAP TEST -II

വനദേവതമാർക്ക് തിരിച്ച് പോകാനുള്ള സമയമായിരുന്നു.----- പറന്ന്  
ഒരു കൃഗ്രാമത്തിന്റെ അടുക്കലെത്തി.----- പുകൾ വിരിഞ്ഞിട്ടുണ്ട്.  
പുമ്പാറ്റകൾ പാറിനടക്കുന്നുണ്ട് -----പാടുന്നുണ്ട്. പുകളുടെ പുഞ്ചി  
രിയും പുമ്പാറ്റകളുടെ ഭംഗിയുള്ള-----<sup>“</sup>അവസാനം ഒരു നല്ല കാഴ്ചയെങ്കി  
ലും-----<sup>”</sup>ദ്യവവും മത്സരവുമൊക്കെയുണ്ടെങ്കിലും ഭൂമിയിൽ ----  
----- പോകാൻ പിഞ്ചു വനദേവതയ്ക്ക് വല്ലാത്ത വിഷമം----- ത  
ന്നോടടുക്കുന്നവരെ ആകർഷിച്ചു നിർത്തുന്നതാണല്ലോ ഭൂമിയുടെ-----  
മുടൽ മഞ്ഞിന്റെ നിറത്തെ നേർത്ത -----ഒരു കുടിലിന്റെ മുറ്റത്ത്-----  
ദേവത ----- ഒരു സാധുസ്ത്രീ കരയുന്നത് കണ്ടു.

[പക്ഷികൾ, കണ്ടല്ലോ, അവർ, പോലെയുള്ള, അവിടെ, തോന്നി,  
കുഞ്ഞുങ്ങളുമുണ്ട്, നിലാവത്ത്, സ്വഭാവം, നിന്നു]

## GAP TEST - II

vanade: vadama: xkka t̄iit̄s̄a p̄o:k̄a: null̄a samajama:  
jirun̄u. \_\_\_\_\_ paranna oru kugra: mat̄t̄inde  
adukkalet̄t̄i. \_\_\_\_\_ pu:kkaḷ viriññit̄t̄unda.  
pu:mba:t̄t̄akal̄ p̄a:riṇadakkun̄ṇunda \_\_\_\_\_  
P̄a:t̄t̄upa: dunn̄unda. pu:kkaḷude p̄undzirijum  
pu:mba:t̄t̄akal̄ude b̄h̄angijulla \_\_\_\_\_ . "avaṣa: nam  
oru nalla k̄a: r̄ts̄ajeggilum \_\_\_\_\_ . duk̄avum  
mat̄saravumokkejundeggilum b̄u: mijil \_\_\_\_\_  
p̄o:k̄a: n̄ p̄indzu vanade: vaṭ̄ajkk̄a valla:t̄t̄a  
vijamam \_\_\_\_\_ . t̄aṇo: daḍukkun̄ṇavaṣe a:k̄ar̄sit̄ju  
niṭ̄t̄un̄t̄a: n̄llo b̄u: mijude \_\_\_\_\_ . mu: dal  
maññinde ne: r̄tt̄a \_\_\_\_\_ oru kudilinde  
mut̄t̄at̄t̄a de: vada \_\_\_\_\_ oru sa: d̄ust̄ri:  
karajun̄ṇat̄a k̄andu /

[pak̄ikal̄ , kandallo, vaṣe , p̄o: lejulla,  
avide , t̄o: ṇ̄i , kuññuññalumunda ,  
nila: vaṭ̄t̄a , sv̄ab̄a: vam , niṇ̄u]

## PASSAGE I

കോടാനുകോടി നക്ഷത്രങ്ങളും ഗ്രഹങ്ങളും ഉൾപ്പെട്ടതാണ് ഈ പ്രപഞ്ചം. എങ്കിലും അതിലെ ഒരു കൊച്ചുഗ്രഹം മാത്രമായ നമ്മുടെ ഈ ഭൂമിക്ക് ചില പ്രത്യേകതകളുണ്ട്. അറിയപ്പെട്ടിടത്തോളം നമ്മുടെ ഭൂമിയിൽ മാത്രമാണ് ജീവൻ നിലനിൽക്കുന്നത്. ഇതിന് പല കാരണങ്ങളുണ്ട്. ഭൂമിക്ക് ചുറ്റും വായു ഉണ്ടെന്നുള്ളതാണ് ഒരു കാരണം.

1. പ്രപഞ്ചത്തിലെ ഘടകങ്ങൾ ഏവ?
2. ഭൂമിയുടെ പ്രത്യേകത എന്ത് ?
3. ജീവൻ നിലനിൽക്കാൻ വേണ്ടത് എന്ത്?
4. ഏത് ഗ്രഹത്തിന് ചുറ്റും വായു വലയം ചെയ്യപ്പെട്ടിരിക്കുന്നു ?
5. ജീവൻ നിലനിൽക്കുന്നുവെന്നു കരുതപ്പെടുന്ന മറ്റൊരു ഗ്രഹത്തിന്റെ പേര് ?

## PASSAGE I

/ko:da:nuko:di naksatvaññalūm grahaññalūm  
ulppettatā:na i: prapandzam. ergilum  
attile oṣu kotjugrahaṁ mā:tvama:ja nammude  
i: bhū:mikṣa tṣila pratjekaṭakalūda.  
arijappettidattō:lam nammude bhū:mijil mā:tvama  
dzi:van nilanilkkunṇatā. itṣilna pala  
ka:raññalūda. bhū:mikku tṣuttum va:ju  
undennuḥlatā:nu oṣu ka:raṇam./

1) Prapandzatṣile gṛadakaññal e:va ?

2) bhū:mijude pratjekatā endā ?

3) dzi:van nilanilkkā:n ve:ndatā endā ?

4) e:ṭā grahatina tṣuttum va:ju valajam  
tṣisjappettirikkunṇu ?

5) dzi:van nilanilkkunṇuvenṇu karuṭappedunṇa  
matṣoṣu grahatṣinde pe:va ?

PASSAGE II

മനുഷ്യർ സാമൂഹിക ജീവിതം ആരംഭിക്കുന്നത് കൃഷിയുമായി ബന്ധപ്പെട്ടാണ്. ഇടതൂർന്ന വനങ്ങളിൽ നിന്ന് മാറി മനുഷ്യർ ക്രമേണ നദീതീരങ്ങളിൽ വാസമുറപ്പിച്ചിരിക്കണം. എന്താണ് അവരെ നദീതീരങ്ങളിൽ പാർപ്പുറപ്പിക്കാൻ പ്രേരിപ്പിച്ചത്? ജലത്തിന്റെ ലഭ്യതയോ മീനിനെ വേട്ടയാടിത്തുടങ്ങി ക്രമേണ മീൻപിടിത്തം വശമാക്കിയതോ ആവാം. വേട്ടയാടി ജീവിച്ചുപോന്നതിനിടയിൽ സത്രീകൾ കാട്ടിൽ നിന്നു തേനും ഫലമൂലാദികളും ശേഖരിച്ച് പോന്നു. കാടുകളിൽ തഴച്ചുവളർന്നിരുന്ന ചോളം, ഗോതമ്പ്, നെല്ല് തുടങ്ങിയവയുടെ ധാന്യങ്ങളും മറ്റും ശേഖരിച്ച് അവർ സൂക്ഷിച്ചു. അതിൽ ചില ധാന്യങ്ങൾ മണ്ണിൽ വീണു. അവ പതുക്കെ മുളച്ചുവളരാനും തുടങ്ങി. ഇങ്ങനെ മുളച്ചുവളർന്ന സസ്യങ്ങളെ നിരീക്ഷിച്ച മനുഷ്യർ ക്രമേണ വിതയ്ക്കാനും മുളച്ചു വരുന്നവയെ പരിപാലിക്കാനും പഠിച്ചിരിക്കണം.

- 1.മനുഷ്യർ സാമൂഹിക ജീവിതം ആരംഭിച്ചത് എന്തുമായി ബന്ധപ്പെട്ടാണ്?
- 2,കൃഷി ആദ്യമായി ആരംഭിച്ചത് എങ്ങനെ?
- 3, കൃഷിക്കാവശ്യമായ ഘടകങ്ങൾ ഏവ?
- 4.കാടുകളിൽ വസിച്ചിരുന്ന മനുഷ്യരെ നദീതീരങ്ങളിൽ പാർപ്പുറപ്പിക്കാൻ പ്രേരിപ്പിച്ചതെന്ത്?
5. ഭക്ഷണത്തിന് വേണ്ടി ആദിമ മനുഷ്യർ എന്ത് ചെയ്തു?

## PASSAGE II

manuſjaſa: mu: hika dʒi: vitʃam a: ʒambikkunnaṭṭa  
kruſi juma: ji bandʰappettā: nā . idaṭṭu: ʒunna vanāññilil  
niṅṅu ma: ʒi manuſjaſa krame: na naḍi: ṭi: ʒaññalil  
va: samuſappitʃirikkanam . endā: nā avare naḍi: ṭi: ʒa -  
ññalil pa: ʒppuſappikkaṅ pre: ʒippitʃaṭṭa? dʒalaṭṭinde  
labʒaṭṭjō: mi: nine ve: ṭṭa: ja: diṭṭudaññi krame: na mi: n  
piduṭṭam vaſama: kkiṭṭa: a: va: m. ve: ṭṭa: ja: di  
dʒi: vitʃu po: ʒaṭṭinidajil eṭṭi: kal ka: ṭṭil niṅṅu te: num  
pʰalamu: la: di kaḷum ſe: ka: ʒiṭṭu po: nu . ka: dukaḷil  
ṭa: ʒaṭṭu va: ʒa: ni ruṅṅa eṭṭi: lam, ʒo: ṭṭamba, nella,  
ṭudaññi ʒava: ʒude dā: njaññal lum maṭṭum ſe: ka: ʒiṭṭa  
ava: ʒ su: kʃiṭṭu . aṭṭil eṭṭi: la dā: njaññal maṅil vi: nu .  
ava paṭṭukke muḷaṭṭu va: ʒa: ʒa: num ṭudaññi . iññe  
muḷaṭṭu va: ʒa: ʒa: sa: ʒa: ʒe ni: ʒi: kʃiṭṭa manuſjaſa krame: na  
viṭṭa: kka: num muḷaṭṭu va: ʒa: ʒa: ʒa: pa: ʒi: pa: likkanum paṭṭi: ʒi: ʒi: ka: ʒa: m.  
1) manuſjaſa sa: mu: hika dʒi: vitʃam a: ʒambikkatṭu enduma: ji  
bandʰappettā: nā?  
2) kruſi a: dʒama: ji a: ʒambitʃaṭṭu eññane?  
3) kruſikka: va: ʒama: ja ʒāḍakaññal e: va?  
4) ka: dukaḷil va: ʒi: ʒi: ruṅṅa manuſja: ʒe naḍi: ṭi: ʒaññalil  
pa: ʒppuſappikka: n pre: ʒippitʃaṭṭendā?  
5) bʰakṣaṅaṭṭi: nu ve: nelī a: di ma manuſjaſa  
endu eṭṭeṭṭu?

## SHWA TEST

### Demonstration Items

ത /t/	+	ഇ /i/	=	തി /ti/
പ /p/	+	ഉ /u/	=	പു /pu/
ക /k/	+	ആ /a:/	=	കാ /ka:/
സ /s/	+	ഓ /ɔ/	=	സോ /so/
മ /m/	+	എ /e/	=	മെ /me/

### Test Items

ട /tʰ/	+	ഇ /i/	=	ടി /tʰi/
ട /tʰ/	+	ഇഃ /i:/	=	ടി /tʰi:/
ട /tʰ/	+	ഓ /ɔ/	=	ടോ /tʰɔ/
ട /tʰ/	+	ഓഃ /ɔ:/	=	ടോ /tʰɔ:/
ക /kʰ/	+	ഇ /i/	=	കി /kʰi/
ക /kʰ/	+	ഇഃ /i:/	=	കി /kʰi:/
ക /kʰ/	+	ഓ /ɔ/	=	കോ /kʰɔ/
ക /kʰ/	+	ഓഃ /ɔ:/	=	കോ /kʰɔ:/

APPENDIX III

Reading Acquisition in Malayalam : A Profile of the secondary graders

(RAMP) score sheet

Skills		Max. Scores	Scores Obtained	V Standard		VII Standard	
				Mean	S.D	Mean	S.D
Reading & Writing	Oral reading	25	-	24.80	0.52	25.00	0.00
	Writing	25	-	21.60	2.26	23.20	1.79
Metaphonological skills	Rhyme Recog	12	-	12.00	0.00	12.00	0.00
	Syll Stripping	12	-	11.70	0.47	12.00	0.00
	Syll.Rev.	12	-	11.35	0.88	11.75	0.64
	Phon. Oddity	12	-	7.50	1.47	7.90	1.80
	Phon. Striping	12	-	8.20	1.44	9.40	1.43
	Phon. Rev.	12	-	3.45	3.05	6.15	2.68
Reading Comprehension	GAP-1	10	-	9.60	0.82	9.85	0.49
	GAP-2	10	-	8.75	1.37	10.00	0.00
	Passage - 1	5	-	4.25	0.44	4.40	0.50
	Passage - 2	5	-	3.65	1.04	4.30	0.75
Sensitivity to Orthographic principles	SHWA 'O'	5	-	6.00	3.31	7.00	2.55
	SHWA 'W'	5	-	5.00	3.40	5.10	3.07



# APPENDIX - IV

## MALAYALAM SCRIPT

*Vowel Symbols (svaram); Vowel-Consonant Combinations*

Svaram	Transliteration	Pronunciation	Diacritic (with p-)	
അ	a	[a]	—	പ
ആ	ā	[a:]	—ാ	പാ
ഇ	i	[i]	—ി	പി
ഈ	ī	[i:]	—ീ	പീ
ഉ	u	[u]	—ു	പു
ഊ	ū	[u:]	—ൂ	പൂ
ഋ	r̄	[ri]	—ു	പു
എ	e	[e]	—െ	പെ
ഈ	ē	[e:]	—േ	പേ
ഌ	ai	[aj]	—ൈ	പൈ
ഒ	o	[o]	—ൊ	പൊ
ഓ	ō	[o:]	—ോ	പോ
ഔ	au	[au]	—ൌ	പൌ
ഌ	a	[ə]	—	പ്

*Consonant Symbols (vyanjanam)*

	VOICELESS PLOSIVES		VOICED PLOSIVES		NASALS
	Unaspirated	Aspirated	Unaspirated	Aspirated	
Velar	ക k [k]	ഖ kh [kʰ]	ഗ g [g]	ഘ gh [gʰ]	ങ ñ [ŋ]
Palatal	ച c [tʃ]	ഛ ch [tʃʰ]	ജ j [dʒ]	ഝ jh [dʒʰ]	ഞ ñ [ɲ]
Retroflex	ട ṭ [ʈ]	ഢ ṭh [ʈʰ]	ഡ ḍ [ɖ]	ഢ ḍh [ɖʰ]	ണ ṇ [ɳ]
Dental	ത t [t]	ഥ th [tʰ]	ദ d [d]	ധ dh [dʰ]	ന n [n]
Labial	പ p [p]	ഫ ph [pʰ]	ബ b [b]	ഭ bh [bʰ]	മ m [m]
Sonorants	യ y [j]	ര r [r]	ല l [l]	വ v [v]	
Fricatives	ശ ś [ʃ]	ഷ ṣ [ʃ]	സ s [s]	ഹ h [h]	
Miscellaneous	ഛ ṣ [ʃ]	ക്ഷ kṣ [kʃ]	ഴ ḷ [ɻ]	റ r [r]	