

**A PRELIMINARY STUDY OF THE DEVELOPMENT OF EARLY LITERACY
SKILLS IN BILINGUAL CHILDREN WITH
SPECIFIC LANGUAGE IMPAIRMENT**

Sethulakshmi P B

Register No. 11SLP022

A Dissertation Submitted in Part Fulfilment of Final Year
Master of Science (Speech Language Pathology),
University of Mysore, Mysore



All India Institute of Speech and Hearing

Manasagangothri, Mysore-570006

May 2013

CERTIFICATE

This is to certify that this dissertation entitled “*A preliminary study of the development of early literacy skills in bilingual children with Specific Language Impairment*” is a bonafide work submitted in part fulfilment for the degree of Master of Science (Speech Language Pathology) of the student Registration No.: 11SLP022. This has been carried out the under guidance of a faculty of this institute and has not been submitted earlier to any other university for the award of any diploma or degree

Mysore
May, 2013

Dr. S.R. Savithri,
Director,
All India Institute of Speech and Hearing,
Manasagangothri, Mysore – 570 006

DECLARATION

This is to certify that this master's dissertation entitled "*A preliminary study of the development of early literacy skills in bilingual children with Specific Language Impairment*" is the result of my own study and has not been submitted earlier to any other university for the award of any diploma or degree.

Mysore

Register No. 11SLP022

May, 2013

Dedicated to

Amma...

*And all those mothers whom i have met during
these years, who smile, weep and simply live for
their children..*

Acknowledgements:

I'm extremely thankful to:

Shyamala ma'am, for the continuous, valuable guidance. Simply admire you, ma'am..

Savithri ma'am, Director, for permitting me to do this study, and for the enlightening classes as a teacher..

Dr. Samuel, Dr. Anne Varghese, Nirmal Sir for permitting to conduct the data collection

All the wonderful children and their parents who co-operated for the study..

Santhosh sir, for helping out with the statistics.

All my teachers.. Prema ma'am, Pushpa ma'am, Yeshoda ma'am, Sreedevi ma'am, Manjula ma'am, Jayashree ma'am for being the memorable teachers in AIISH..

My brother, madhav for everything from day one of life..

Gopan, for turning out to be my best friend..

Amma, achan, unni chettan, anu chechi, unnimalu, my seven ammayi, mami, all little and big cousins.. for giving the joy of having two extensive families where I find love and freedom..

Ann, Vrinda, Divya, Prasanth, Vivek, Ananthan.. for being the best of friends..*Thulsi, Shilpa* for sharing the tensed moments; *Jyotsna, Nayana, Ankita, Tanu, Vijita, Vijaiitha, Edna, Ceana* for making life easier in AIISH..

TABLE OF CONTENTS

Chapter No.	Title	Page No.
	List of Tables	
	List of Figures	
I	Introduction	1-5
II	Review of Literature	6-38
III	Method	39-61
IV	Results	62-82
V	Discussion	83-91
VI	Summary and Conclusion	92-94
	References	

LIST OF TABLES

Table No.	Description	Page No.
1	Criteria for SLI	9
2	Age wise distribution of children selected as subjects for the present study and the language disorder diagnosis presented	42
3	Formal schooling of children	43
4	Test battery used for the study	48
5	Subsections of Malayalam Language Test	49
6	Subsections of Test of Reading and Metaphonological skills in Malayalam	55
7	Mean, SD and significance value for 9 children with SLI in the age range 4-5 years in English literacy Screening Test	63
8	Mean, SD and significance value for 9 children with SLI in the age range 5-6 years in English literacy Screening Test	66
9	Mean, SD and significance value for 9 children with SLI in the age range 4-5 years in Test of reading and metaphonological skills in Malayalam	71

10	Mean, SD and significance value for 9 children with SLI in the age range 5-6 years in Test of reading and metaphonological skills in Malayalam	73
11	MLT scores, and the severity assigned accordingly for the age group 4-5 years	76
12	MLT scores, and the severity assigned accordingly for the age group 5-6 years	77
13	Category of severity and ELST (Early Literacy Screening Test) and TRMM (Test of Reading and Metaphonological Skills in Malayalam) scores for children in the age range 4-5 years:	78
14	Category of severity and ELST (Early Literacy Screening Test) and TRMM (Test of Reading and Metaphonological Skills in Malayalam) scores for children in the age range 5-6 years:	79
15	Correlation between the scores obtained in language test and literacy tests for the age group 4-6 years:	80
16	Correlation between the scores obtained in language test and literacy tests for the age group 4-5 years:	81
17	Correlation between the scores obtained in language test and literacy tests for the age group 5-6 years:	81

LIST OF FIGURES

Sl no	Figure	Page no
1	Model of the relation between SLI and Dyslexia	28

CHAPTER I

INTRODUCTION

There is always one moment in childhood when the door opens and lets the future in. ~ Graham Greene, The Power and the Glory

Children create a world of happiness and wonder around them when they start to talk. Each child is unique, so are their abilities. A child starts to develop this unique pattern of abilities long before they are born, right from the time they are in the womb of the mother. Environment fosters these abilities, thereby helping a child reach his full potential.

A child initially does not learn things by himself. Many factors in and around him contributes to these learning procedure. He learns language in a similar way. Development of child and his/her language is profoundly influenced by the factors as parental and environmental stimulation, genetic inheritance, cognitive abilities, socio economic status etc.

Language constitutes the content and context of human life, it paves the way for a successful social and cultural basis for the humanity, thereby creating an atmosphere for its members to come and interact. Even though the socio cultural norms demand an interaction from the part of each of its member, some cannot meet the required eligibilities that the society demands.

In the course of development, many children meet some hindrances in between, either as a delay in talking, or cease to talk in between or deviations from the normal language in terms of clarity, length of utterances etc. Other disorders, which affect their physical as well as mental potencies, also make them vulnerable to language

based disorders thereby making it incapable of using the adequate amount or quality of language which is expected to be used. Disorders of the childhood language thus originate from the many known causes of neurological complaints, environmental disadvantage, sensory problems etc.

Specific Language Impairment is a childhood language disorder which prevents the children from using appropriate and enough language to speak, understand and thus restricts his social life too. The term Specific Language Impairment is used to describe children who have problems with the acquisition of spoken language without any known causes (Bishop, 1997). As defined by Leonard (1998), it is a form of developmental language disorder, occurring in the absence of mental retardation, sensory deficits, evident neurological damage, serious emotional problems and environmental deprivation.

Specific language impairment can be viewed as a continuum of late talking, specific expressive language delay and expressive language delay which all affects the child's ability to talk or understand or both. There are 3 types of SLI as per DSM IV:

1. Expressive language disorder
2. Mixed receptive expressive language disorder
3. Developmental articulation disorder

Even though the disorder significantly affects the child in terms of expression and comprehension and many other related domains, it is a relatively less severe disorder which occurs in the childhood and if provided with adequate stimulation and training, many children will be able to overcome the condition as they grow. Because of this

many children with specific language impairment go unnoticed or just are labelled as late talkers by their parents.

The condition even though it is less severe when compared to other disorders like autism, needs to be carefully treated. As language is the medium for communication and also the means of acquiring literacy skills and social skills, the underlying language disorder can contribute to some debilitating conditions later in life. Apart from the language part, it is widely assumed that the academic realm and social life of a child with SLI will also be affected as a consequence of the disorder.

Many studies strongly put forward the opinion that children with SLI during their early years of life carry a chance to turn out to have learning difficulties which is clinically termed as Learning Disability. Many children face problems when they start to read and write in primary classes. Even the simple tasks of writing and reciting alphabets and counting will seem difficult tasks. The early failure in academics can lead to lowered self esteem, less confidence, introversion etc. This can also lead to social, emotional problems in later life whereby the child will become totally withdrawn.

A vast majority of research has found that the early literacy skills in children with Specific Language Impairment to be affected. But similar studies have been very limited in Indian languages. Swapna (2003) studied the reading acquisition in Malayalam of 16 children with Specific language impairment. The findings indicated a significant difference in achievement of reading ability in SLI population from the norms. This suggests that the early literacy skills of the children with SLI can be widely deviated. There is a belief of linearity between language skills and literacy skills. Since the children with SLI are deviated in their language skills, it is necessary

to find out that whether they are deviated in their literacy skills also. A developmental pattern would give an insight into their performance in academics.

The significance of SLI lies with its origin nowhere related to any known causes, nevertheless affecting the children and their family to a considerable extent. An increased awareness to the problem will encourage in creating new assessment and treatment tools, the careful use of which decreases the extent of problems, faced by the children with SLI. The clinical and educational concerns pertaining to this population and the need to assist the children and their families makes it necessary to study the literacy skills of SLI.

The academic scenario which exists currently in many countries consists of studying a second language in addition to the mother tongue. When a child with language disorder enters a school, he is thereby compelled to learn a second language. This adds additional pressure on the child who already has a difficulty with first language thereby disrupting both his first and second language. Apart from the oral language taught, literacy skills are also introduced in both languages, thereby creating an imbalance in the child having a language disorder.

India is a multilingual country, with a wide array of bilingual population. In Kerala, the native language is Malayalam and majority of the schools have an English medium of instruction. This fact directs attention towards SLI population who may face difficulties in acquiring two languages, and similarly, difficulties in achieving the literacy skills in both languages. The performance of a child with SLI when enrolled into such a school needs to be studied for careful monitoring and inventing new intervention strategies for them.

Aim of the study:

- ◆ To study the developmental pattern of literacy skills in L₁ (Malayalam) and L₂ (English) of children with or with a history of Specific Language Impairment (Expressive Language Disorder or Mixed Receptive- Expressive delay) (DSM IV-TR)
- ◆ To examine the effect of early specific language impairment on early literacy skills.
- ◆ If there is an effect of language impairment found in early literacy skills, to examine whether the deficit in literacy presented is more pronounced in L₁ (Malayalam) or L₂ (English)

CHAPTER II

REVIEW OF LITERATURE

1. Specific Language Impairment- Brief history

The term Specific Language Impairment is generally used to describe children who exhibit considerable difficulties in acquiring language even with normal nonverbal abilities (Bishop, 1997). As defined by Leonard (1998), it is a form of developmental language disorder, occurring in the absence of mental retardation, sensory deficits, evident neurological damage, any emotional trauma or environmental disadvantage.

In 1822, a person called Gall gave a description of children who showed problems in language, but who did not show any other complaints and features of any known disorders (Leonard, 1998). The description followed in this way (from the English translation of 1835):

“There are many children, who do not speak to the same degree as other children although they understand well or are far from being idiotic. In these cases the trouble lies not in the vocal organs, as the ignorant sometimes insist, and still less in the apathetic state of the subject. Such children, on the contrary, show great physical vivacity. They not only skip about but pass from one idea to another with great rapidity. If one holds them and pronounces a word in their ear, they repeat it distinctly”.

Gull's report was followed by many, in the following years in many languages. Most of these were written by physicians. Some of the persons were Wilde (1853),

Benedikt (1865), Broadbent (1872), Waldenburg (1873), Clarus (1874), Bastian (1880), Uchermann (1891), Wyllie (1894), Lavrand (1897) and Moyer (1898).

Vaisse (1866) called this group “congenital aphasics”, whereas German physicians called the group having “hearing mutism” (Coen, 1866). All these terms seemed apt, because these children produced very few utterances, in one word length. The consideration that these problems occur largely due to the problems in phonology also came up (Gutzmann, 1894; Treitel, 1893). The grammatical problems were not considered at all during this time.

Liebmann (1898) was the first to give the subtypes of children even though he considered only the children with severe problems in expression. He gave subtypes considering children having motor problems, comprehension problems etc. Terms as “congenital word deafness” (McCall, 1911), “congenital auditory imperception” (Worster- Drought & Allen, 1929) and “congenital verbal auditory agnosia” (Karlin, 1954) were largely in use. The causes were attributed to functional mechanisms (Coen, 1886), problems in attending and retaining in memory (Treitel, 1893).

As the term “congenital aphasia” was used widely, some changes were made in the term in the twentieth century. Gesell and Amatruda (1947) used “infantile aphasia”. “Developmental aphasia” introduced by Kerr in 1917 became the popular term in late 1950s. Authors began to separate the conditions of comprehension and production problems employing the use of different terms as “receptive-expressive developmental aphasia” and expressive developmental aphasia”.

In 1960s the term aphasia was replaced by “dysphasia” (deAjuriahuerria, Jaeggi, Guignard, Kocher, Maquard, Roth & Schmid, 1965; Inhelder, 1963; P. Weiner, 1969). By 1980s, authors preferred to use “developmental dysphasia” (Wyke, 1978, Chiat &

Hirson, 1987; Clahsen, 1989). This was because aphasia implies there is no language, whereas dysphasia signifies there is some language.

The terms dysphasia and aphasia began to be less preferred for two reasons. The first one was that both terms convey that there is a neurological damage involved. But for these children, this was not applicable. Another reason was that many researchers had started to stress the importance of the 'language' component in these children and the condition which convey the 'impairment' part.

Many confusing terms appeared for children with similar conditions as "delayed speech" (Lovell, Hoyle, & Siddhal, 1968), "deviant language" (Leonard, 1972), "language disorder" (Rees, 1973), "delayed language" (Weiner, 1974), "developmental language disorder" (Aram & Nation, 1975), "developmental language impairment" (Wolfus, Moscovitch, & Kinsbourne, 1980), "speech language deficit" (Stark & Tallal, 1981), "language impairment" (Johnston & Ramstad, 1983) appeared in the literature. Some authors used "language/ learning disability" or "language/ learning impaired" to signify the learning disability part of the disorder.

The term "specific language impairment" (Leonard, 1981) and the abbreviation SLI (Fey & Leonard, 1983) is the most accepted term at present. The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DMS-IV)*, American Psychiatric Association, 1994) employs the term "developmental language disorder" and the subtypes "expressive" and receptive-expressive". According to International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10), the criteria of SLI is that the "child's language skills fall more than 2 standard deviation below the mean, with language skills being at least 1 standard deviation below that measured for nonverbal skills" .

2. *The criteria for SLI*

One can diagnose a condition of language disorder without much doubt in mind or rather confidently. But the problem arises when the condition has to be differentially labelled from other similarly occurring disorders. Specific language impairment is one such condition which poses the practitioners with questions and doubts before diagnosis. Rather than the inclusion criteria, many look into exclusion criteria. Table 1.1 gives the areas to be checked for in children with SLI (Leonard, 1998)

TABLE 1

Criteria for SLI:

Factor	Criterion
Language ability	Language test scores of -1.25 standard deviations or lower, at risk for social devalue
Nonverbal IQ	Performance IQ of 85 or lower
Hearing	Pass screening
Otitis media with effusion	No recent episodes
Neurological dysfunction	No seizures, cerebral palsy, brain damage, not under medication for any neurological conditions
Oral structure	No structural abnormalities
Oral motor function	Pass screening
Physical and social interactions	No symptoms of impaired social interactions or limited range of activities

Note: table shows the exclusion areas to be checked for the confirmation of diagnosis of SLI (Adapted from Leonard, 1998)

3. Prevalence of SLI

Tower (1979) estimated the prevalence of SLI and found it to be 1.5%. According to American Psychiatric Association's DSM-IV (1994), the prevalence of children with SLI having only production problems is around 5%. The prevalence reduces to around 3% when comprehension and production are taken together.

Tomblin (1997) did a large scale study of 6000 children and found the prevalence to be 7.4%. The condition is more often found in males than females (Tallal, Ross, & Curtis, 1988). The ratio of males to females averages around 2.8:1 across studies. A high ratio of 4.8:1 is also reported (Haynes, 1992) in school settings. Also, there is a factor of heredity present in the condition of SLI.

4. Oral language problems in SLI

Children with SLI show deficits in all aspects of oral language including the meaning part, the semantics, the word order part, the syntax, and the social use, the discourse. The errors in morphosyntax were the subject of study by many researchers (Leonard, 1998). The difficulty in acquiring the tense markers was used as the identification criteria of SLI (Conti-Ramsden, Botting, & Faragher, 2001; Bedore & Leonard, 1998; Rice & Wexler, 1996).

Tallal, Ross, & Curtis (1988) stated that almost 67% of children diagnosed with SLI at 4 years of age obtain a lower score in word recognition at 8 years of age. Silva, Williams, and McGee (1987) also have given similar evidences.

Study done by Nippold, Mansfield and Billow (2009) show that school-age children and adolescents with a history of language disorders are likely to show deficits in complex syntax compared to their peers with typical language development when speaking in a variety of genres, including conversational, narrative, and expository (Bishop & Donlan, 2005; Nippold, Mansfield, Billow, & Tomblin, 2008). In particular, young people with language disorders tend to produce shorter and simpler utterances with fewer subordinate clauses compared to their typical peers (Nippold, Mansfield, Billow, & Tomblin, 2008).

4. a. Assessment of language in children:

Many researchers (Goffmann & Leonard, 2008) consider 3 measures to assess the oral language skills:

- 1) Mean Length of Utterance in morphemes (MLU) being most important; 2). Diversity of the lexical items produced (number of words produced in 50 utterances); and 3). Verb morphology elements (-ed (past), -s (singular)).

Most frequent Tests used for assessing language in English:

1. The Test of Language Development- Primary: 2 (TOLD-P: 2) (Newcomer & Hammil, 1991) is one of the standardized tests which has been used conventionally to confirm the selection criteria of SLI.
2. Peabody Picture Vocabulary Test- Revised (PPVT- R; Dunn & Dunn, 1981)

Language tests in Malayalam:

Malayalam Language Test (Rukmini, 1994)

Linguistic Profile Test (Asha, 1997)

5. Language and literacy

Literacy refers to the ability of a person which enables him for the full participation in the community (Cazden, 1988). Many educators held the view that a certain maturation level has to be achieved by the children in order to be ready to learn. This view has been replaced to a great extent with the idea that children develop many reading and writing skills during the emergent phase before the formal instruction takes place.

The term literacy most commonly is referred to the reading and written language ability which is not actually true. It covers a much broader realm. Langer (1987) described literacy as a way of thinking, a phenomenon of cultural activity that allows participation in the sharing of knowledge of a culture and, therefore, its goods, services, and power structures. Literacy is a social process influenced by social situations and contexts (Bloome, Harris, & Ludlum, 1991). Just as oral language develops from the interactions of people, literacy skills also develop over time with continued interaction with people.

Language is both the content of and the context for instruction. A strong basis of oral language is very crucial for the later development of literacy skills. In her landmark book on classroom discourse, Cazden (1988) noted that mastering the content of the curriculum means mastering language- learning how to read; write; use mathematical symbols; express the concepts of social studies, science, and literature; and so fort. Students spent most of their school time to interact with teachers and other students using language. The language of schooling is at a time both unique and demanding (Cazden, 1988)

As children become competent to read and write, they use them as ways for developing independent and creative thinking and further communication. Knowledge about typical trends of literacy development will help in assessing and targeting treatment goals for children who fall below the criterion level.

6. Early Literacy skills in children

Literacy begins in a child's life in the stage where several skills related to literacy emerge before the formal training. There is a confusion existing between emergent literacy and early literacy. Emergent literacy is the readiness to read and learn, whereas early literacy is the stage of beginning reading and learning. Children in the emergent stage of development are emergent readers, not beginning readers.

Emergent literacy >>>> Early literacy >>>> Conventional literacy

Emergent literacy includes the skills and attitudes that a child acquires before formal reading ability. Children read logographically in this stage, as they use visual cues to identify environmental print ("stop" sign says stop). If there is no visual cue provided for the same words, children can not read the words. In the early literacy stage, the children begin to decode words to read. They start using their rudimentary knowledge of how letters correspond with sounds to decode words incompletely and invent pronunciations, representing the salient features heard in speech.

Children in the early literacy stage of development need very different form of instruction. They begin to understand that oral and written language connects in systematic ways, the knowledge of which is basic to learning alphabets. The focus of teaching changes to improve comprehension and develop a suitable rate and expression of reading, when the child enters a conventional world of literacy. The

components of teaching which are necessary for children in the early stages consist of phonemic awareness, phonics, fluency, vocabulary, and comprehension.

6.a. Normal development of early literacy skills

A child when he enters the preschool age, enters in a stage where he acquires emergent literacy related skills, and later move on to early literacy skills and gradually conventional academic literacy skills. Emergent literacy skills are the competencies and knowledge bases which emerge before beginning reading acquisition. These serve as developmental precursors to fluent and skilled reading, including both decoding (word recognition) and comprehension (Whitehurst & Lonigan, 1998). Emergent literacy researchers have differentiated emergent literacy skills into those that are foundational for decoding (i.e., code-related skills, decoding precursors, inside-out skills) from those that are foundational for comprehension (i.e., meaning-related skills, comprehension precursors, outside-in skills) (Scarborough, 2001).

Reading is a very dynamic process, which also interacts with the person continuously. It incorporates a lot of essential skills (Maria, 1990), where two components, decoding and comprehension are crucial for the ability to reach meaning from the written text (Kamhi & Catts, 1989; Maria, 1990). The decoding skills are considered to be bottom-up processes which need the print to be detected, analyzed, and then matched to representations (phonetic or visual) in the storage system of mental lexicon (Kamhi & Catts, 1989). Knowledge of letter-name, how a letter corresponds with sound, phonological awareness abilities, and other metalinguistic skills lend support to this.

Reading comprehension on the other hand is considered as a top-down process which process the knowledge to hypothesise, infer, and predict about the information

(including knowledge of syntax, semantics, and morphology; world knowledge, schema theory, and narrative ability) is given emphasis (Catts & Kamhi, 1986; Maria, 1990; Roth & Spekman, 1989). Both reading, and reading comprehension need certain other prerequisites as sound related, meaning related skills by which the child learns to spell out the words and understand its meaning.

Ehri (1979) gave the opinion that various phonological awareness skills are particularly needed for reading skills in English. It establishes the indirect lexical route and there by helps in reading. One of the first phonologic awareness skill developed in children in rhyme (McClellan, et al, 1987). This is clearly related to reading and later literacy skills. Only those who can read can perform the phonemic segmentation task. Studies (Read et al, 1986; Ehri, 1979) link phonemic awareness to alphabetic literacy in particular. This has been supported by Indian studies like Kannada and Hindi (Prakash, 1987, Rekha, 1996).

When children learn to understand and produce words at a faster rate, they acquire many other skills concurrently. Children learn to make differences between words, not purely based on their meanings, but also depending on their sound patterns. A child increasingly understands the word *bat* is not similar to *but* and *cat* is different from *cut*. They internally begin to compare words, thereby establishing the relations between them. (Goswami, 2001). Children who have large vocabularies learn these rules faster than children having smaller vocabularies. Hence the size of vocabulary in other words, the language resource of the child is necessary for him to learn the rules of language and phonological awareness.

Indian languages being transparent do not require phonological awareness as a prerequisite for reading and writing skills (Prakash, 1987, Rekha, 1996). In

Malayalam, Roopa (2000) found out phonological awareness tasks are developed later when compared to reading and writing. But rhyming tasks are developed faster. Syllable related tasks are easier for the children to perform and phoneme related tasks are difficult. In phoneme tasks, by 5 years, children perform tasks of phoneme oddity, and phoneme deletion and very low performance in phoneme reversal.

Many studies have examined the predictors of later literacy outcomes in the preschool years. Code-related skills of particular interest in the literature are knowledge of alphabet, emergent writing, print concepts and phonological awareness. Results of the most comprehensive meta-analysis to date which analysed the relations between emerging literacy skills and reading and spelling outcomes at a later stage suggested that measures of these skills collected during early childhood are among the strongest predictors of school-age decoding outcomes (National Early Literacy Panel [NELP], 2008).

Studies with typically developing children gave the support to a relationship which considers language, processing, and print related skills determined before beginning formal academic training predicts later literacy achievement. The knowledge of letter name and literacy acquisition has been shown a positive relationship (Chall, 1967; Scanlon & Vellutino, 1996), even though recent studies prove that knowledge of print, phonological awareness, and narrative skills are also some measures correlated positively with later reading achievement in typically developing children (Roth, Speece, & Cooper, 1997).

Assessment of literacy skills:

Tests to assess literacy skills in Malayalam:

Test of Reading and Metaphonological Skills in Malayalam (Roopa, 2000)

Tests to assess literacy skills in English:

- ❖ Gray Oral Reading Tests- GORT-4 (Wiederholt & Bryant, 2001)
- ❖ Woodcock Reading Mastery Tests (Johnson, 1987)
- ❖ Test of phonological Awareness (TOPAS) (Newcomer & Barenbaum, 2003)

6.b. Language impairment and the early literacy skills

Many studies have documented that children and young adolescents with language impairment will face literacy difficulties at school. Wise et al (2007) studied 279 students in 2nd and 3rd grades who had reading disability. Pre-reading skills, word identification, reading comprehension, and general oral language skills were assessed using standardized tests. Results indicated the receptive and expressive vocabulary and pre reading skills were related. Authors concluded that reading achievement depends on oral language skills in concordance with other studies done in this area.

Holm, Farrier, and Dodd (2008) signifies the spelling difficulties seen in children with speech and language impairment and Catts et al (2005) found language impairment associated with difficulties in reading comprehension. Sices et al (2007) found difficulties in writing. But it has to be mentioned that certain other studies have found contradictory results. Bishop and Adams (1990) and Catts (1993) stated that some children having speech and language impairment in early childhood will acquire reading skills as any other typical child when they start learning in school.

Kuykendall & Fahey in 2000 examined the children with language impairments for early literacy skills. They found deficits in phonological awareness skills, narration, and print-related skills which are very important to learning literacy related

skills. Gillam and Johnston (1985) found that the children with early speech and language impairments scored poorly in print related tasks as environmental print awareness when compared to their age matched typically developing peers.

Many studies have been done comparing the effects of speech and language impairments and speech impairments alone on literacy skills. Researchers as Fraser & Conti-Ramsden (2008) and Sices et al (2007) stated that children with language impairment are more prone to later literacy difficulties when compared to children having speech difficulties alone. Leitaio & Fletcher (2004) points out that there is an increased chance for these children to have learning disability than their typically developing peers. Fraser and Conti-Ramsden (2008) stated that speech and language skills were essential to acquire reading and spelling abilities, but language (but not speech) abilities were necessary for reading comprehension.

Magnusson and Naucler (1990a, 1990b) conducted a 4year longitudinal study of phonological awareness abilities in 76 children with preschool language impairment, it was found out that metaphonological tasks including rhyme, segmentation, phoneme identification, and judgements of morphosyntactic acceptability, as well as measures of both reading and spelling were poor for children with LI. Similarly, Catts (1993) studied the phonological awareness skills in kindergarten and found it to be related to the reading outcome in initial (first and second) grades for children with language impairment.

Some studies do not support this relation suggesting that the later literacy difficulties exhibited by children depend on their abilities and the specific skills which are assessed. (Hesketh, 2004; Holm, Farrier, & Dodd, 2008). Overall the studies

conclude that a child with language impairment can have negative effects on literacy skills.

6.c. Early Literacy skills in SLI

Many researchers studied the early literacy skills in this population. Cabell et al (2010) assessed fifty-nine children with SLI for emergent literacy skills (alphabet knowledge, print concepts, emergent writing, and rhyme awareness) and oral language skills (receptive/expressive vocabulary and grammar). They found that the children with language impairment show significant deficits in early literacy skills which cannot be related completely to their age or oral language status.

Corriveau, Pasquini and Goswami (2007) studied the auditory processing skills in specific language impairment. They considered 21 children with SLI. They checked mainly for the tapping skills according to the beat heard. They also assessed whether the severity of impairment in paced tapping was linked to language and literacy outcomes. The study aimed at finding out whether children with SLI would show difficulties in tapping in synchrony with the auditory rhythm provided by a metronome beat. Tapping to a rhythm without an auditory stimulus was also measured. Children in the SLI group tapped earlier than normal children. The data show that the children with SLI were significantly impaired in the metronome (paced) tapping conditions, exhibiting poorer performance when tapping at the slower rates of 1.5 and 2 Hz. Children with speech and language impairments (SLI) were significantly less sensitive than controls to two auditory cues to rhythmic timing, amplitude envelope rise time and duration. They found that children with SLI were significantly impaired in their discrimination of rhythmic cues.

Phonological awareness refers to children's sensitivity to the sound structure of oral language. This is an area where many children with SLI show profound weakness (Fraser & Conti-Ramsden, 2008) and reflects a core processing deficit in children who develop dyslexia (Stanovich, 2000). Catts and Kamhi (1999) did a study on 604 second grade children to analyse the reading skills and found that 90% of kindergarteners with language impairment scored poorly on measures of phonological awareness. 67% performed at least one-half of a standard deviation below the mean.

There are also reports on problems in the phonological processing of these children. Phonological awareness (Briscoe, Bishop, & Norbury, 2001; Nathan, Stackhouse, Goulandris, & Snowling, 2004) and phonological memory (Bishop, North, & Donlan, 1996; Briscoe, Bishop, & Norbury, 2001; Ellis Weismer et al., 2000) are especially vulnerable.

Children with specific language impairment show deficits in phonological awareness and phonological processing (Fraser & Conti-Ramsden, 2008), which may be surfaced when they meet with hindrances in learning to read and write. In a longitudinal study of the early **literacy** development of 47 children with language impairment in the age range of 4-7 years, **Nathan**, Stackhouse, Goulandris, and Snowling (2004) found that the risk of **literacy** difficulties was greater for this group and children exhibited problems in phoneme awareness even at 6 years.

Boudreau and Hedberg's (1999) study showed the preschool children's performance on phonological awareness related measures to be considerably lower than typically developing children with a very large effect size ($\eta^2 = .71$). Across languages, the findings of poor phonological awareness skills in children with language impairment (LI) are consistently reported. Magnusson and Naucler (1990)

studied 76 language impaired preschoolers and showed poor phonological awareness when compared to typically-developing peers ($n = 39$).

Nathan, Stackhouse, Goulandris, and Snowling (2004) did a longitudinal study to find out the development of early literacy skills of 19 children with speech and language difficulties, compared to 19 normally developing controls. The children with speech and language deficits showed more difficulties in literacy skills, and they showed problems in phonologic awareness tasks even at 6 years of age. A path analysis which related early speech, language, and literacy skills pointed that language ability in the preschool years was a unique predictor of phoneme awareness at 5.8 years, and early reading skill, predicted literacy outcome at 6.9 years. Those children who had continuing speech and language problems were at greater risk for developing reading related disorders.

Many studies focused on phonological memory (Catts, Adolf, Hogan, & Weismer, 2005). In 1990, Gathercole and Baddeley found that children with SLI scored poorly in nonword repetition, which measures phonological memory. The proposal came with this was that phonological loop of the working memory is not functioning adequately in these children. This also affects the acquisition of language. Studies show that children with SLI show difficulty in identifying the printed words (Bishop & Adams, 1990, Catts, Fey, Tomblin, & Zhang, 2002).

Boudreau and Hedberg (1999) compared the early literacy skills in children with specific language impairment with their typically developing peers, who were matched for age, gender, and socioeconomic status. 18 children of mean age 63 months were considered in each group. Preschool Language Scale-3 (Zimmerman, Steinger, & Pond, 1992) was used to assess language. Expressive and receptive

rhyiming tasks were employed to find the phonological awareness skills. Metalinguistic abilities, knowledge of letter-name, and rhyiming tasks, the skills which are crucial for reading were poor for children with language impairment than peers. Narrative abilities were better, so it could be concluded that narration does not depend on child's print knowledge and phonological awareness.

Cordewener, Bosman, and Verhoeven. (2012) studied 59 first grade children with Specific Language Impairment for their grapheme knowledge and spelling in preschool years. Speed of writing, nature of graphemes, and knowledge of how the acquired spelling was transferred were considered. Four orthographic features which shape early spelling, namely, "Type of Grapheme", "Grapheme Position", "Number of Graphemes", and "Word Structure" were examined at the middle and end of the first grade. They assessed "active grapheme knowledge" when children were between 71 and 97 months (when they were at the beginning of first grade, the performance was much below the norms.

There was a persistent pattern of spelling delay errors which continued, but which were decreased towards middle and end. Even though the delay was present, the findings suggested that early spelling characteristics of children with SLI were almost same as that of normally developing peers. For example, children with SLI acquired more graphemes at the end of first grade than in the beginning, represented initial grapheme in words easier than the final or medial grapheme (Grapheme Position), could spell shorter words more correctly than long words (Number of Graphemes), and spelled simple structured words (CVC) more correctly than those with complex structures (CVCC and CCVC Word Structure).The participants could show they use known graphemes to spell words.

Studies have proved the positive relationship between phonological awareness and vocabulary development (Goswami, 2001), but the relationships between print-related skills (i.e., alphabet knowledge, print concepts, emergent writing) and oral language abilities which are not clearly studied and explained.

Snowling, Bishop, and Stothard (2000). (2000) found that the difficulties of children with SLI face with reading and spelling increased from 8 years to 15 years, and spelling difficulties increased in less proportion compared to reading difficulties. There is no known answer for the question of whether spelling delays arise at the point of start of formal reading and spelling training and if this problem will continue as the child moves on to the end of first grade. The question of to what extent the spelling problems of children with SLI are different from those of children with typical language development also is unanswered.

Name-writing ability, a commonly used measure of emergent writing skill, generally represents young children's understanding of print rather than sound (Cabell et al 2009). Cabell et al in 2009 studied the early name-writing abilities of 4-year-olds with SLI ($n = 23$) and found that this group had significantly less sophisticated name-writing representations than a TL group ($n = 23$) matched for age and SES, with a large effect ($d = 1.31$) (Cabell et al., 2009).

There is considerable evidence showing that young children with SLI as a group exhibit weaknesses in emergent literacy skills compared to their TL peers. A point particularly important is that close examination of the studies suggest that children with SLI show substantial individual differences in their development of these skills, with wide ranges of average performance as proved by reported standard deviations (SD). It should also be considered that development of some emergent literacy skills

may progress relatively independently of children's oral language abilities (Senechal, LeFevre, Smith-Chant, & Colton, 2001).

Studies of the inter-relations among specific skills that pertain to children's understandings about print, such as alphabet knowledge, and specific oral language skills, as vocabulary knowledge and syntactic complexity, showed a modest correlation among typically-developing young children (e.g., $r = .07$) for alphabet knowledge and vocabulary after controlling for age, (Senechal, LeFevre, Smith-Chant, & Colton (2001); $r = .23$) for alphabet knowledge and syntactic complexity, (Boudreau & Hedberg, 1999); as well as among children with SLI (Boudreau & Hedberg, 1999). On the basis of such studies, it should be considered that the relationship between oral language skills and early literacy skills does not follow a linear fashion, such that some children with SLI may, in fact, have relatively well-developed early literacy skills. .

While it is presumed that children with SLI show core deficits in meaning-related skills, a term which is synonymous with traditional definitions of oral language, the development of code-related skills among young children with SLI also requires careful attention and monitoring because of the importance of these skills to later reading achievements.

Some experts argue the importance of differentiation of oral language skills from early literacy skills, stressing that such differentiation is important for building refined theoretical models of the variety of inter-related skills that characterize children's early literacy development (Scarborough, 2001; Senechal, LeFevre, Smith-Chant, & Colton (2001); Whitehurst & Lonigan, (1998). Senechal et al (2001) have also noted that such differentiation is important for understanding how particular experiences

may foster in developing certain types of early literacy skills, which in turn may be useful for developing tailored emergent literacy interventions. The role speech language pathologists play in the assessment and intervention of reading and writing disorders has increased with the improved knowledge base of the positive relation between language and literacy.

Clinicians have been long observing the coexistence of language problems and difficulties in literacy acquisition in children with language impairment. But investigations have begun only recently to sort out this relationship. Often the adequate support needed for the children who present with academic difficulties is not being provided by the clinicians due to the fact that the difficulties are not identified till the child is in first or second grade. This is a crucial point where the child might have begun experiencing failure in academic skills which may undermine their motivation and self esteem in turn leading to future problems.

7. Relationship between Specific Language Impairment (SLI) and dyslexia

The ability to read accurately and fluently is a highly valued skill in any educated society. Upon entering school, most children learn to read without great difficulty. However, each year a portion of children experience significant problems learning to read (Snow, Burns, & Griffin, 1998). One group of children that is at high risk for failure in reading achievement is children with a history of developmental language impairments. Reading is a language-based skill, and thus, deficits in language development can negatively affect reading achievement.

According to the International Dyslexia Association (IDA), dyslexia is a “specific learning disability characterized by difficulties with accurate and/or fluent word recognition and spelling” (Lyon, Shaywitz, & Shaywit, 2003). This definition

concludes that the deficit arises because of a ill functioning phonological component which should occur considering the age, cognitive and academic abilities of the child. Phonological awareness, which is the awareness to the sounds and it structure in a language is most often affected in these children (Stanovich, 1988). The deficit in phonological awareness makes it problematic for children to learn principles of alphabets and decode a word and spell them (Gillon, 2004). A number of studies have reported a deficit in phonological awareness abilities in children with dyslexia or in children who are at risk for this disorder (Gallagher, Frith, & Snowling, 2000).

A close examination into the literacy skills of children with SLI and dyslexia will give the notion that there exists a commonality in the deficits seen between these two disorders. Many deficits seen in SLI when they reach school are also seen in children with dyslexia. This attracted the attention of many researchers who studied whether SLI and dyslexia lies on a continuum ie, preschool language impairment whether actually progress into reading and writing disability at school age.

The language impairments in children may manifest only as a difficulty with spoken language in the early preschool years. When they start formal academic training, they may experience difficulty with acquiring word recognition skills, reading comprehension (Fraser & Conti-Ramsden, 2008; Rescorla, 2005), spelling and other literacy skills. Some longitudinal studies report that even though the language problems are resolved in the children with early language impairments, they continue to contribute at risk group as they move up through their grades (Snowling et al., 2000; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998).

Many studies have reported that children with language impairments develop a risk towards learning to read and write (Aram, Ekelman, & Nation, 1984; Bishop &

Adams, 1990; Catts, 1991, 1993) and the problems continue to exist beyond school years and into adulthood (Rissman, Curtiss, & Tallal, 1990; Stothard, Snowling, Bishop, Chipchase, & Kaplan, 1998).

There is a substantial amount of literature and studies showing that children who have language impairment in their preschool years are at a high risk to develop reading disorders (Aram, Ekelman, & Nation, 1984; Aram & Nation, 1975; Bishop & Adams, 1990; Bishop & Edmundson, 1987; Catts, 1993; Catts, Fey, Tomblin, & Zhang, 2002). Puranik and Lonigan (2010) studied how oral reading fluency develops in children who had speech or language Impairments. The main finding of this study was that a diagnosis of speech impairment or language impairment can have a significant negative and continuing effect on early reading skills. Swapna (2003) found a 60% risk ratio associated with the transition of children with SLI to those with Learning Disability.

The researchers considered developmental dyslexia and specific language impairment (SLI) as separate disorders. However recent studies which emerged due to reviving conceptual knowledge on the language base of dyslexia treat these two conditions as different manifestations of the same underlying problem. These can vary in terms of severity or stage of development. This view but underestimates the independent existence of semantic and syntactic problems in SLI, which also affect reading comprehension and alter the acquisition of fluent reading in later years. (Bishop & Snowling, 2004).

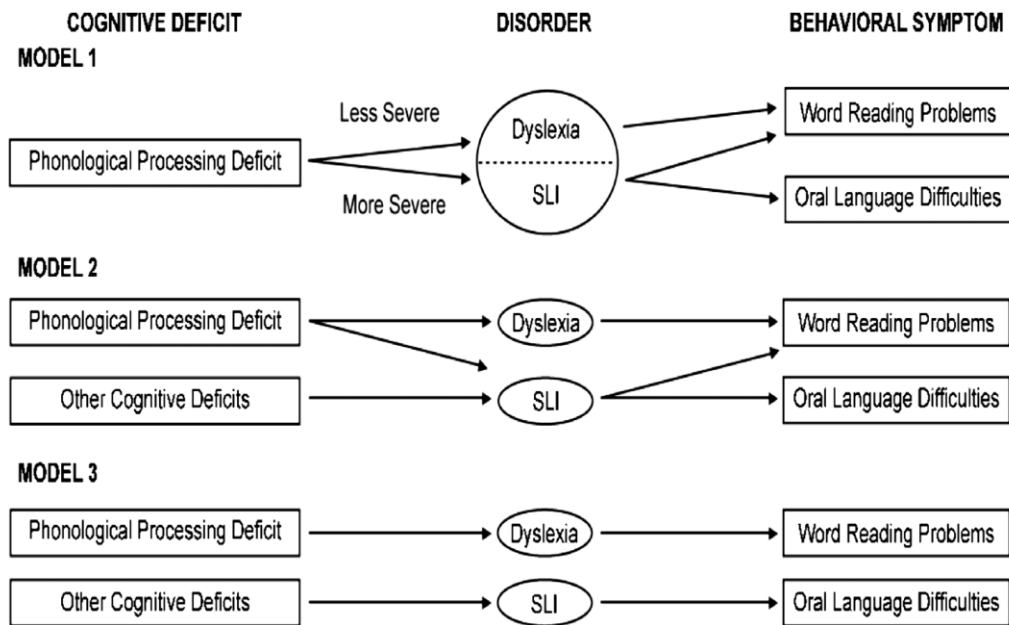


FIGURE 1. *Model of the relationship between specific language impairment (SLI) and dyslexia. (Source: Catts et al., 2005)*

According to model 1, dyslexia and SLI are different manifestations of the same underlying cognitive deficit (Kamhi & Catts, 1986; Tallal et al., 1997). Model 2 as proposed by Bishop and Snowling in 2004 explains both conditions are partially similar but distinct conditions. The similarity lies in the problems with phonological processing which constitutes reading difficulties. Model 3 (Carron & Rutter, 1991) explains that LD and SLI, even though are different disorders, they can occur together in same person.

Although children with speech-language impairments, as a group, shows increased vulnerability to develop reading problems, research demonstrates that there is much variability in reading achievement among these children (Bishop & Adams, 1990;

Tallal, Curtiss, & Kaplan, 1989). Some children with preschool speech-language impairments have been found to develop reading disabilities, whereas others have not. Recent investigations have begun to delineate some of the factors that may be related to this variability in reading outcome. For example, studies have shown that the nature of the speech-language impairment may be an important factor in predicting reading disabilities in these children (Catts 1993). Research indicates the young children with impairments in semantic-syntactic system of language, or what is referred generally to as language impairment; contribute a higher risk group for developing reading disabilities than children with problems limited to articulation or phonology (Bishop & Adams, 1990; Levi, Capozzi, Fabrizi, & Sechi, 1982). In fact, children with articulation impairments have often been reported to have normal reading abilities (Bishop & Adams, 1990). But children with language impairments are frequently found to have reading disabilities.

Aram & Nation followed up sixty-three language-impaired children first evaluated in their preschool years, four to five years later. During follow-up about 40% of these children had continuing speech and language problems and about 40% had other learning problems. The levels of language comprehension, formulation, semantics, syntax, phonology, and speech production in the preschool years were found to be having a moderate correlation with the class which the child attended. The time period for which the children attended therapy in preschool years was not related to the preschool language problems and severity of the problem or the speech or language or academic skills in the later years. But the duration of school therapy showed relation to severity of phonologic deficit and speech or language or academic skills in the later years.

Consistent with these findings, studies have reported significant correlations between measures of semantic-syntactic language abilities and later reading achievement. Tallal, Curtiss, and Kaplan (1989) studied 67 children with speech and language impairments longitudinally found a measure of receptive syntax at age 4 to be moderately correlated with reading achievement at age 8. Bishop and Adams (1990) longitudinally investigated 83 children with speech-language impairments and reported that MLU at 4 1/2 and 5 1/2 years of age accurately predicted reading achievement at age 8. Their results also indicated that a measure of receptive syntactic abilities contributed significantly to predicting reading achievement.

The best predictors of reading achievement, however, were not standardized language measures but rather nonstandardized measures of metalinguistic ability, specifically phonological awareness. The abilities to make rhyme judgments and to identify phonemes in words were found to be significantly related to reading abilities in their subjects with speech-language impairments.

Menyuk et al. (1991) Magnusson and Naucler (1990) found measures of metalinguistic abilities including phonological awareness were reported to be the best predictors of reading achievement.

Catts and Kamhi (1999) examined the reading abilities of children with language impairments (LI). The children who participated in a study by Tomblin et al (1997) were followed up when they were in their second and fourth grades. Language, reading abilities, and nonverbal cognitive skills were checked. Results showed a higher risk for the LI children to develop a reading disability in their second and fourth grades. Those children who had improved in their speech and language abilities by later grades got better result than those had continued with their language

impairments. They concluded that child's knowledge/ experience in literacy in preschool years and reading abilities in second grade acted as good predictors of later reading outcomes.

Bishop and Adams (1990) found that children with SLI typically had better outcomes in reading than did those with NLI. However, the major factor they found to be related to reading outcomes was the persistence of the spoken language impairment. Specifically, they reported that 4-year-old children with LI who continued to have language problems at 5-1/2 years had poor reading achievement at age 8-1/2 years, whereas those who had resolved their language problems did not. Once children with LI begin formal reading instruction, the best predictor of reading outcome is likely to be initial reading success/failure itself. Studies have clearly shown that children who get off to a good start in reading generally maintain that success, whereas those who have initial difficulties often continue to have reading problems (Scarborough, 1998).

Catts et al (2004) examined if specific language impairment (SLI) and dyslexia exists as different developmental disorders. The first study examined 527 children to find the relation between SLI in kindergarten years and reading disability identified in 2nd, 4th, or 8th grades. Second study examined phonological processing in 21 children having dyslexia only, 43 children having SLI only, 18 children having SLI and dyslexia, and 165 children with typical language/reading development. Phonological awareness abilities and non-word repetition were measured. First study showed limited but significant overlap between SLI and dyslexia. According to second study, children with dyslexia or a combination of dyslexia and SLI performed significantly poor on phonological processing measures than children with SLI only and typically developing children. Only mild deficits were shown by children with

SLI in phonological processing when compared to typical children. The results held the view that SLI and dyslexia are different but co morbid developmental language disorders. When there is a deficit in phonological processing, it is closely associated with reading disability but not with SLI when there is no dyslexia present along with it.

It would seem that SLI and dyslexia are two distinct developmental language disorders; SLI primarily represented by difficulties in semantics, syntax, and discourse, and dyslexia characterized by problems in phonological processing and word reading. However, recent findings suggest there may be a closer association between these developmental language disorders. Children with dyslexia have been shown to have early deficits in semantics and syntax (Gallagher, Frith,& Snowling, 2000; Scarborough, 1990)

Children with SLI have often been noted to have phonological processing deficits and subsequent problems in word recognition (Catts, 1993; Snowling, Bishop, & Stothard, 2000). These findings have led some to conclude that dyslexia and SLI represent variants of the same developmental language disorder (Kamhi & Catts, 1986; Tallal, Allard, Miller, & Curtiss, 1997). However, in a recent review of behavioral, neurological, and genetic evidence, Bishop and Snowling (2004) concluded that SLI and dyslexia are best treated as two different but overlapping developmental disorders.

8. Bilingualism and bilingual children

Many people use two languages to communicate in their daily life situations throughout the world (Moreno and Kutas, 2005), and they maintain this simultaneous work load without much difficulty. The operational definition of bilingual children

considers them as individuals who receive their input regularly in two languages in the most potential time period during their communication and language development. This can include children who are exposed to two languages from birth, or those children who have a first language learned from birth and later acquire a second language in early childhood.

A variety of situations provide children the opportunities to learn two languages. Some children get an early exposure soon after birth where the mothers or caretakers talk to them in two languages. The so called simultaneous bilinguals attain the language milestones at the same time for both languages. They use their first words and word combinations at the same time for similar communicative situations as children who use a single language from birth (Petitto & Holowka, 2002).

Simultaneous bilinguals achieve proficiency in both languages only if they receive a ongoing input and meaningful situations and circumstances to develop the linguistic system in each language. Many developing bilinguals use a single language from birth, with exposure to a second language at a later point in childhood. Such bilinguals start to consistently use the second language and attain proficiency in it with major exposure in school settings.

For sequential as well as simultaneous bilinguals, there will likely be differences in relative levels of proficiency in the two languages, due to different social circumstances and opportunities in each. Despite these expected differences in relative skill level, both languages may play important, continuous functional roles.

Windsor, Kohnert, Lobitz, and Pham (2010) administered Spanish and English non word repetition tasks to bilingual and English-only speaking 6–10-year-old

children. Performance was consistently better in English for monolingual participants and in Spanish for bilingual participants.

To date, evidence suggests that cross-language associations are affected by the child's age, developmental stage, skill in each language, exposure to each language, task demands, linguistic level investigated as well as typological features of the languages being learned (Conboy & Thal, 2006; Gildersleeve-Neumann et al., 2008; Kohnert, Hernandez, & Bates (1998).

Miller et al (2006) studied oral language and reading in bilingual children. About 1,500 Spanish-English bilingual children attending kindergarten-third grade participated. Oral narratives were collected in each language along with measures of Passage Comprehension and Word Reading Efficiency. Results indicate that measures of oral language in Spanish predict reading scores in Spanish and that measure of oral language skill in English predict reading scores in English. Cross-language comparisons revealed that English oral language measures predicted Spanish reading scores and Spanish oral language measures predicted English reading scores beyond the variance accounted for by grade. Results indicate that Spanish and English oral language skills contribute to reading within and across languages.

Kohnert (2008) studied Hmong-English preschoolers. The children who had good receptive abilities in Hmong, named English words better. But the vocabulary skills in Hmong reduced children's ability to fast map (learn a new word quickly) a word in English. This indicates when the child has a good vocabulary; it interferes in some way with the learning in English under the situations which demands many cognitive linguistic processes (Kohnert et al, 1999). This finding was consistent with the

theories which propose that for developing sequential bilinguals, the linguistic and cognitive systems are highly interdependent (Kohnert, 2008).

Bruck and Genesee (1995) found that children exposed to more than one phonological system (or orthography) are likely to have heightened levels of explicit phonological awareness, since bilingualism appears to facilitate the acquisition of language related skills (Lesaux & Siegel, 2003). In addition, they found that the development of reading skills in children who speak English as a second language is very similar to the development of reading skills in native English speakers. Thus, bilingualism may impact on phonological awareness, and therefore also on the acquisition of language-related skills such as reading and writing.

9. Bilingualism in Specific Language Impairment

The representation of knowledge in both languages is distinct in children who are bilingual learners. When they receive linguistic stimuli through either auditory or visual mode, it may get processed differently depending upon the duration and rate of it as well as the importance of the stimuli. This may pose difficulties in working and long term memory may also differ under the influence of duration, rate and salience, showing up as difficulties in memory, integration of temporal units and word finding from lexical storage.

When children are developing their second language, they might not be very fluent in each depending on the opportunities they get to use and the knowledge in each of the language. The children with SLI may find it difficult to learn a second language. Even if the language impairment is resolved out, they will still face difficulties in learning the literacy related skills of second language. (Kohnert, 2009).

Majority of children who learn languages are considered to be ‘typical’ children, who can develop their linguistic base for both languages through experiences and exposure. The concern arises when a bilingual child fails to learn both languages despite of any known cause for the delay. Children with Specific language impairment also face difficulties to learn two languages at a same pace.

Monolingual children with SLI are challenged in learning/using one language: bilingual children with SLI are challenged in learning or using two languages. Pearson (2002) found that children with SLI do not show marked impairments in narration skills while measures of morphosyntax are impaired. This along with the extent and direction of switching the two codes can be taken as a clinical marker for bilingual SLI.

Children with SLI will face problems in both languages in terms of acquisition and use of language. They learn language much slowly when compared to their bilingual peers who have a typical development (Hakansson, Salameh, & Nettelblatt, 2003). There will be a difference in the proficiency and the skill which the children with language impairment employ for each language just as their non impaired peers. Research shows that the first language or language at home will reach a plateau or meet with a loss for the bilingual children with LI if it is not adequately supported. (Hakansson et al., 2003; Restrepo & Kruth, 2001; Salameh, Hakansson, & Nettelblatt, 2004). On the other hand, researchers as Roeper (2011) states that bilingualism will help a child with SLI as it helps any other typical child.

Roeper (2011) explains three types of bilingual overlap in a child with SLI.

- 1) Compatible overlap- which has no impact on either languages
- 2) Instructive overlap- which is beneficial to the child in learning both languages

- 3) Conflicting overlap- lead to the need of more exposure time and delayed acquisition.

This suggests that even though the child with SLI may need longer time and intensive exposure to learn grammar in two languages, it may not pose obstacles to him in learning both languages.

There is also evidence that second language learning will not place a language impaired child at advantage or disadvantage when compared to language impaired child learning a single language only when all other factors act equally. Paradis et al (2003) compared 7-year-old simultaneous French–English bilingual children with language impairment with monolingual peers with language impairment. The morpho-syntactic structure of speech samples produced by these children did not vary in nature or severity.

10. Bilingual literacy skills in SLI

Bilingual children with SLI exhibit difficulties in both languages. Generally the children with SLI experience problems with learning language and there by problems in academic, social realms. Robust, responsive intervention is seen as essential for improving language and related social and educational achievements. A critical first step in successful intervention is a full and adequate assessment (Kohnert, 2008).

In sequential bilingual children, many studies have reported that the spoken language proficiency in L1 has a positive relationship with the early reading in L2 even if the structural variations can be seen between these units (Dickinson, McCabe, Clark-Chiarelli, & Wolf, 2004; Miller et al., 2006).

There are no epidemiological studies of literacy skills in children with SLI learning two languages. In the absence of direct evidence, SLI is generally believed to

affect monolingual and bilingual children in similar numbers. The children with SLI may not be able to completely capture the language at any point of time. These in turn will affect the literacy skills later. These children may have only inadequate support for both, and the limited competencies of clinical practitioners make it difficult for assessment and intervention in both languages. Limited understanding of SLI and the developing bilingualism by a speech-language pathologist can result in delays in identification of children having difficulties or detection of only the severe group, or not sufficient support for the child's inherent dual-linguistic system.

All the studies conclude that the knowledge and proficiency of a child with SLI in two languages will vary with the opportunities he gets as any other typically developing bilingual child. The experiences they get and the surrounding atmosphere which facilitates or inhibits the language learning in both should be considered while planning for assessment and intervention for these children.

CHAPTER III

METHOD

The present study aimed to study the literacy skills of children with specific language impairment in Malayalam and English.

The study was cross-sectional involving children from a middle socio-economic status (NIMH SES Scale, Venkatesan, 2011) in two age groups.

Subject selection:

- ◆ Children who had been diagnosed as having Specific Language Impairment in their early preschool years (3 to 4 years) with a complete database and who are presently undergoing formal school education (attending English medium or speaking English at home) were considered as subjects.
- ◆ Two age groups were considered: 4-5years; 5-6years in which 9 subjects in each group were taken.

Inclusion criteria:

- ◆ The children diagnosed as having Specific Language Impairment in their preschool years by a certified speech language pathologist and as having normal intelligence by a certified psychologist.
- ◆ Malayalam was the first language of the children considered for the study and English was the second language, which is the medium of instruction at school or language spoken at home.
- ◆ Absence of mental retardation, neurological anomalies, other physical impairments (ICF checklist (WHO, 2003) was administered to rule out the associated impairments).

- ◆ Absence of any sensory impairment added to the absence of history of otitis media.
- ◆ No significant medical/family history

Procedure:

Step1: Identification of children with language impairment from databases.

- ✓ National Institute of Speech and Hearing, Trivandrum and EMS Memorial Hospital, Malapuram were selected as the centres for the study to be carried out. Identification of children who had been diagnosed with Specific Language Impairment- within the period of 2009-2012- from the database was carried out.
- ✓ A list of 73 children was obtained who had been diagnosed with Expressive Language Delay (ELD)/ Specific Language Impairment in the period of 2009-2012.
- ✓ The original case files were studied to learn about the nature and severity of impairment, to rule out the presence of associated impairments and to calculate the present age.
- ✓ A list of children who could correctly fit into the criteria of the present study was prepared.
- ✓ The list was shortlisted to 59 due to the reasons of unclear addresses, lack of phone number, age criterion mismatches etc.

Step 2: Follow up through phone:

- ✓ The parents of the shortlisted children were contacted by phone. 51 parents could only be contacted out of 59 due to phone number change, non reach ability etc.

- ✓ The parents whose children met the criteria were given a short introduction about the purpose of the call. Details about the child's spoken language to confirm whether or not the child had grown out the language impairment were obtained from the parents.
- ✓ List was shortlisted again into 32 due to bilingual criterion mismatch and parental limitation to bring the child to centre for the study.
- ✓ The parents were requested to bring the children for the follow up for the present study. Date and time was given.

Step 3: Follow up for the study:

18 children turned up for the study (to equalise the number in each age group, the study limited the number of children in each group to 9). Table 2 shows their age in months and gender distribution and the diagnosis each child was presented with.

- ✓ A room with an adequate lighting, space and air was selected.
- ✓ The children were seated in a comfortable position. The mother was permitted to sit with the child. It was made sure that no interruptions occurred from the mother during testing.
- ✓ Positive parental consent was obtained.
- ✓ Paper and pencil were given to the children.
- ✓ Adequate tangible and token reinforcements were provided to the children for correct responses.

TABLE 2

Age wise distribution of children selected as subjects for the present study and the diagnosis presented:

Sl no.	Age in months	Gender	Diagnosis
1	49	M	Expressive Language Delay
2	49	F	Expressive Language Delay
3	50	M	Expressive Language Delay
4	51	M	Specific Language Impairment
5	54	M	Specific Language Impairment
6	55	M	Expressive Language Delay
7	55	F	Specific Language Impairment
8	58	M	Specific Language Impairment
9	59	M	Specific Language Impairment
10	61	M	Expressive Language Delay
11	63	M	Specific Language Impairment
12	64	F	Specific Language Impairment
13	66	M	Expressive Language Delay
14	66	F	Specific Language Impairment
15	67	M	Expressive Language Delay
16	69	M	Specific Language Impairment
17	70	M	Specific Language Impairment

18	70	F	Expressive Language Delay
-----------	----	---	---------------------------

TABLE 3

Formal schooling of children

S		
Sl no.	Age in months	Grade
1	49	LKG
2	49	LKG
3	50	LKG
4	51	LKG
5	54	LKG
6	55	LKG
7	55	LKG
8	58	LKG
9	59	LKG
10	61	LKG
11	63	UKG
12	64	LKG
13	66	UKG
14	66	LKG
15	67	UKG
16	69	LKG
17	70	UKG
18	70	UKG

Note: The table shows the schooling of each child

Description of the children participated in the study:

Child 1: Born out of a non-consanguineous marriage, the child started to speak his first word at 1.4 years. He could speak in two word utterance and had a vocabulary of around 50 words at the time of study. Hearing was normal. Paediatric evaluation showed no medical illnesses. Psychological evaluation showed average intelligence. The child was attending therapy in NISH since 2 months. Could understand English lexical items in English.

Child 2: This child was born to non-consanguineous parents. She said her first word at the age of 1.3 years, but showed significant delay after that. She at present speaks in two word phrases, often unclear and misarticulated. Hearing was normal. No significant prenatal, perinatal complications were reported. English vocabulary was around 20 words

Child 3: The child born to non-consanguineous parents, and started to speak around 3 years. He had a vocabulary of 20-25 words at time of study. Child was attending therapy in NISH since 6 months. Hearing was normal. No neurological or paediatric complications reported. Could identify items by their English names/

Child 4: The child was born out of a non-consanguineous parentage, and started speaking late at 3.5 years. He was attending therapy since 3 months in NISH and was attending therapy in another institute earlier for 7 months. No significant medical history reported. Hearing was normal. Vocabulary of around 50 words was reported. English learning had started, and child had vocabulary of 10 words.

Child 5: the child was born to non-consanguineous parents, being the youngest of two children. The child started speaking /amma/ at the age of 1.3, but significantly delayed after that. He spoke in one word utterances, often unclear and fast. The child did not

report with any medical or nonmedical complaints. Malayalam vocabulary of more than 60 words and English vocabulary of 20 words was reported.

Child 6: the child was born to non-consanguineous parents, started speaking at 1 year, and rate of progression of acquiring the words was slow. The child showed prominent misarticulations, which reduced after therapy. The child had attended therapy since 2.5 years in a private clinic in Thrissur, Kerala. The child had a good vocabulary. English vocabulary consisted of more than 35 words. He could imitate all productions. Syntax was not appropriate for the age. No hearing loss or medical complaints were reported except for frequent attacks of cold and fever.

Child 7: the child, youngest of two children, was born to non-consanguineous parents, by a Caesarean section delivery. Hearing was normal. No history of medical complaints was reported. Normal motor developmental milestones reported. The child started speaking at 2.5 years. She used single words to communicate. She was attending therapy since 3 months in NISH.

Child 8: the child was born to non-consanguineous parents. Hearing was normal. Average intelligence reported. No significant prenatal or birth complaints. He started speaking at 1.8 years. Speech language therapy was given for 8 months after which it was discontinued. Reported to NISH at the age of 4 years for therapy. The child had a vocabulary of around 50 words. English vocabulary was around 15 words.

Child 9: the child was a single child, born of non-consanguineous parents. He started speaking at 1.6 years. Hearing was normal. No significant complaints reported. Average intelligence reported. The child had a vocabulary of around 80 words in Malayalam. The child could speak around 25 words in English, even though misarticulated.

Child 10: born out of a non-consanguineous parentage, the child was eldest of two children. no medical complaints reported. Hearing was normal. The child had a vocabulary of around 110 words. He was attending therapy since 9 months in EMS. English vocabulary was around 40 words.

Child 11: born to non-consanguineous parents, the child started speaking late. He had a vocabulary of more than 90 words. No significant complaints reported and hearing was normal. He was attending therapy since 1.5years. English vocabulary was around 30 words.

Child 12: the child was the youngest of two children. Born to non-consanguineous parents, she started speaking at 3.7 years with monosyllables. She has been attending therapy since 1.5 years, but intermittently. No medical history obtained. Vocabulary of around 30 words was reported, with English vocabulary of less than 10 words.

Child 13: The child was born of a non-consanguineous parentage. He started speaking at the age of 3 years. The current vocabulary is around 80 words. No medical complaints reported. The child has been attending therapy since 4 .3 years.

Child 14: The child was born of a non-consanguineous parentage, the child was attending therapy since 5 months. No medical complaints reported. Normal intelligence reported. Vocabulary was around 85 words which were misarticulated. English vocabulary was around 10 words.

Child 15: the child was born of non-consanguineous parentage. He had a vocabulary of around 120 words. No medical complaints reported. He started attending therapy at 3 years of age. He could speak more than 30 words in English.

Child 16: the child was born to non-consanguineous parents and started speaking at the age of 3.5 years. No medical complaints and normal intelligence reported. Therapy was initiated at 4 years. It was discontinued after some time. Currently undergoing therapy in NISH. Vocabulary of around 50 words reported.

Child 17: born to non-consanguineous parents, the child had no significant complaints. Normal intelligence reported. He had a vocabulary of more than 250 words and English vocabulary was around 50 words. The child had attended therapy in a private clinic in Shornur for one year.

Child 18: born to non-consanguineous parents, child started speaking late at around 2 years. Misarticulations were reported. The child attended therapy for one year at the age of 3 years. No medical complaints reported. Hearing was normal. She had a good vocabulary and spoke in full sentences at the time of study. More than 50 words of English vocabulary was reported.

Test materials used:

A summary of test battery used is given in Table 4.

Malayalam Language Test and A test battery to assess the literacy skills in English and Malayalam were used.

TABLE 4.

Test battery used for the study

Language	Test material used
Malayalam	<p>Malayalam Language Test (Rukmini, 1994) - to assess the oral language abilities in Malayalam; Age range used: 4-6 years;</p> <p>Test of Reading and Metaphonological Skills in Malayalam (Roopa Iyyer., 2000)- to assess the literacy skills in Malayalam. Age range used: 4-6 years</p>
English	<p>Early Literacy Screening Tool (Shanbal et al, 2010)- to assess the literacy skills in English, Age range used: 4-6 years</p>

The tests and their subsections are given below:

1. Malayalam Language Test ((Rukmini, 1994)

TABLE 5.

Subsections of MLT

Subsections	o	Subsections
I. SEMANTICS	S	II. SYNTAX
1. Naming		A. Morphophonemic structures
2. Semantic discrimination		B. Plural forms
3. Lexical categories		C. Tenses
4. Semantic similarity		D. PNG Markers
5. Semantic anomaly		E. Case Markers
6. Semantic contiguity		F. Conditional Clauses
7. Paradigmatic relations		G. Transitives, Intransitives and Causatives
8. Syntagmatic relations		H. Sentence types
9. Polar questions		I. Conjunctives and Quotatives
10. Antonymy		
11. Synonymy		J. Comparatives
12. Homonymy		K. Participial constructions

Description of test items of Malayalam Language Test:

MLT consists of:

Part 1. Semantics

Part 2: Syntax

Both the parts consists 11 subsections each, which inturn consists of 5 items each except for the subsections of semantic discrimination and lexical category. Semantic discrimination tests comprehension only and lexical category tests expression only. Practice items are included in all subsections. Description of the subsections is provided below:

Part 1: Semantics

1. Semantic discrimination

Colors and body parts are tested here. The child is asked to point to the color in the plate specified by the examiner.

2. Naming

The child is shown different plates containing different lexical items. He/she is asked to point to the items named by the examiner to test comprehension. For expression, the child has to name the items shown by the examiner.

3. Lexical category

In this task, the child was asked to name as many items from a lexical category.

4. Synonymy

Synonyms are those words which carry same meanings and this relationship is referred to as synonymy. In the comprehension task, the child will be given a pair of words and has to say whether they are similar or different in meaning. The child has to say either YES or NO. In the expression task, the child will be given a word and will be asked to say another word which has the same meaning.

5. Antonymy

Antonyms are words opposite in meaning. In comprehension task, the child is asked to say whether the given pairs of words are opposite or not. Eg: big-small.

In expression task, the child has to say a word which is opposite to the given word.

6. Polar questions

This employs the existence of either a positive or a negative contrast in language.

In the comprehension task, the child will be asked to say yes or no for a given question.

In the expression task, the child is asked to form a question with a pair of words.

7. Semantic Anomaly

The statements which are not true to our knowledge are called anomalies. For testing comprehension, the child will be asked to say whether a given sentence is correct or not. Example Milk is green. For testing expression, the child will be asked to correct a incorrect statement.

8. Paradigmatic relations

The vertical relation a word has with other words is often called paradigmatic relations. the child will be asked to point out 4 items in the same category from a plate containing pictures to test comprehension. To test expression, the child will be given 2 items and will be asked to name another item which belongs to the same category.

9. Syntagmatic relations

The horizontal relationship a word has with other words is called Syntagmatic relations. For testing comprehension, the child will be given 2 pairs of words,

in which one will be correct and other maybe correct or incorrect. For testing expression, the child will be shown one pair of right word, and another word, for which the child has to find one appropriate syntagm.

10. Semantic Contiguity

This is the relation between a noun and a verb. For testing comprehension, the child will be asked to say whether there is any relationship between the given pair of words.

For testing expression, the child will be asked to say a related word for a given word.

11. Semantic similarity

The knowledge of the inherent relationship between the items is tested. For testing comprehension, the child will be given a pair of words and he has to indicate whether the relationship is meaningful and so acceptable. For testing expression, the child will be asked to say a word related in meaning for a given word.

Part II. Syntax

1. Morphophonemic structures

The child will be given a pair of morphophonemes and has to select the right one among them. For expression, the child will be shown a picture and will be asked a question to get a suitable answer.

2. Plurals

For testing comprehension, the child will be shown pictures and indicate the plurals. For testing expression, the child will be asked to say the plural forms.

3. Tenses

Will be tested with pictures for three tenses-present, past and future.

4. Person, Number and Gender (PNG) Markers

This explains the nature of speakers in a situation. First person is usually the person who speaks when referring to himself (I). Second person is the person spoken to (you) and the third person is the other people who are referred (they). These are tested for both comprehension and expression with picture cards.

5. Case Markers

The syntactic relation between words in a sentence is depicted here. The child will be tested for both comprehension and expression using picture stimuli.

6. Transitives, Intransitives and Causatives

Transitive means verb, which has a direct or indirect object (eating, making eat). The child will be tested for comprehension and expression with picture cards.

7. Sentence types

Different sentence types as simple, declarative, interrogative etc are tested for comprehension and expression. The children has to point to appropriate picture being mentioned. For expression, the child has to say different sentences.

8. Conjunctives and quotatives

Pictures are used to test both comprehension and expression. These join the different elements in a sentence.

9. Comparatives

The examiner will be giving a comparison sentence. The child has to point to the appropriate picture. For expression, the child will be asked to say such sentence.

10. Conditional clauses

The child will be shown many pictures and will be instructed clearly to the child that, if a particular thing is there in the picture, he has to do a specific activity. For testing expression, the child will be asked questions for which the expected answers are required to contain conditional clauses.

11. Participial constructions

A sentence construction wherein a mention of a particular activity will be done when a simultaneous activity is going on.

Scoring:

The responses were rated as correct, incorrect (wrong responses) and no response.

The scoring was done in the following manner except for lexical category, paradigmatic relations, plurals and tenses:

Correct response-1

Partially correct-1/2

Incorrect or no response-0

Scoring for lexical category:

Naming a single item-0

Naming 2 or 3 items-1/2

Naming 4 or more items-1

For paradigmatic relations:

No response or identification of 1 item-0

Identification of 2 or 3 items-1/2

Identification of 4 items -1

For plurals and tenses, each items had two sub items, each of which was given a score of ½.

Literacy tests:

1. Test for Reading and Metaphonological Skills in Malayalam (Iyyer, R.V., 2000)

TABLE 6

Subsections of Test for Reading and Metaphonological Skills in Malayalam

Subsections	Number of items
1. Oral reading	150 words
2. Rhyme recognition	12 pairs
3. Phoneme oddity	12 words
4. Phoneme deletion	32 words
5. Syllable deletion	15 words
6. Phoneme reversal	12 words
7. Syllable reversal	12 words
8. Writing test	15 words

Test for Reading and Metaphonological Skills in Malayalam (Roopa, 2000)

This test consists of 10 subtests in which 8 were used for the present study considering the age group considered.

The subtest of Raven's Colored Progressive Matrices and Shwa writing were not considered for the study. Further modifications were done as the list of 150 words were reduced to 30 as the words proceeded in complexity as it intended to test the

children up to 9 years of age. So the first 30 words were selected so that it suits the children of 4-6 years.

1. Oral reading

Task: to read the words provided

Instruction: I will give you certain words. You will have to read them carefully.

Number of items: 30

Score: 30

2. Rhyme recognition

Task: Child had to tell whether the word pairs presented orally sounded same or different.

Instruction: I will present 2 words. You have to listen carefully and say whether both words sounds similar or different.

Number of items: 12

Score: 12

3. Phoneme oddity

Task: to identify the odd-sounding word

Instruction: i will present a set of four words to you, which has no meaning. .

Three words will be sounding similar. But one will sound different. You have to find it out and tell me.

Number of items: 12

Score: 12

4. Phoneme deletion

Task: to delete a phoneme and tell the rest of the word

Instruction: I will present you a word. You have to remove a part of it and should tell me what is remaining.

Number of items: 32

Score: 32

5. Syllable deletion

Task: to delete a syllable and tell the rest of the word

Instruction: I will present you a word. You have to remove a part of it and should tell me what is remaining

Number of items: 15

Score: 15

6. Phoneme reversal

Task: to reverse the word splitting into phonemes.

Instruction: I will present a word to you; you have to say the word in reverse order splitting into phonemes.

Number of items: 12

Score: 12

7. Syllable reversal

Task:

Instruction: I will present a word to you; you have to say the word in reverse order splitting it into syllables

Number of items: 12

Score: 12

8. Word writing test

Task: to write down the words read out.

Instruction: I will read out a few words. You have to write them down.

Number of items: 15

Score: 15

The testing time was 35 minutes on average.

2. Early Literacy Screening Tool (Shanbal, J. C, Goswami, S.P., Prathima. S, Chaitra. S, 2010)

Consists of separate screening tools to assess the literacy skills for the age group of 4-5 years and 5-6 years. It contains 8 subsections. Each subsection has practice items. There are pictures which are called plates to be employed while testing.

Screening tool for 4-5 years: contains first 4 subsections, and two items from mathematical skills section.

Screening tool for 5-6 years consists of all the 8 subsections.

Subsections:

1. Listening skills

Task: to discriminate minimal pairs.

Instruction: to listen to the two words carefully and to say whether they are same or different.

Number of items: 6

Score: 06

3. Oral Language Skills

Comprehension:

Task: to follow the instructions and answer to the questions asked

Instruction: listen to what I am saying and do accordingly. Answer me if I ask some questions. Show me the correct picture out of these.

Number of items: 3

Score:03

Oral expression:

Task: to describe a picture

Instruction: I will show you a picture. You tell me what you see in that.

Number of items: common objects, subject/verb, negation

Score: 03

4. Verbal Memory

a) Retrieves a specific word

Task: to guess the word from the clues provided

Instruction: I will give certain clues to you. You have to guess the word.

b) Shows no problems in learning names of people or places

Task: to repeat the names (same order not required for two items, same order required for other two items)

Instruction: Listen carefully. I will be telling certain names. You have to repeat it back.

Total Number of items: 6

Score: 06

5. Early Literacy Development

Written Language Awareness:

a) Identification of upper case alphabets

b) Identification of lower case alphabets

c) Child points to the first letter in a word

d) Child distinguishes scribbles from pictures in drawings -2 items

e) Environmental print awareness

Instruction: given according to the task and picture

Number of items: 6

Score: 06

6. Phonological Awareness

a) Phoneme Counting

Instruction: Listen to the word which I say. Say how many sounds you hear in the word.

b) Phoneme Blending

Instruction: I am going to say some words, in which the sounds will be mixed. You have to guess and tell the word.

c) Phoneme Identification

Instruction: I will be saying a word. Listen carefully and tell me which sound you hear first.

d) Phoneme Deletion

Instruction: when I say a word, you have to remove the first part of the sound and say the remaining word.

e) Phoneme substitution

Instruction: I will say a word. I will tell to change one sound to another. You change the sound and tell me the new word.

f) Phoneme Oddity

Instruction: I will tell four words, listen carefully and tell the odd word among them.

Number of items: 6

Score: 06

7. Reading

Task: to read the words shown

Instruction: look at the words in the card, read it carefully

Number of items: 6

Score: 06

8. Writing

a) Words for dictation

Instruction: write down the words I tell

Number of items: 06

Score: 06

b) Words for copying

Instruction: Look at the plate, write down all the words you see in it.

Not scored.

9. Mathematical Skills

Instruction: Answer the questions which I ask. Point to the plate or Write down the answer. Tell me the answer.

Number of items: 6

Score: 06

Total score: 4-5 years: 21;

5-6 years: 39

Time required: 30 minutes

CHAPTER IV

RESULTS

The aim of the present study was to:

- ◆ To study the developmental pattern of literacy skills in L₁ (Malayalam) and L₂ (English) of children with or with a history of Specific Language Impairment (Expressive Language Disorder or Mixed Receptive- Expressive delay) (DSM IV-TR)
- ◆ To examine the effect of early specific language impairment on early literacy skills.
- ◆ If there is an effect of language impairment found in early literacy skills, to examine whether the deficit in literacy presented is more pronounced in L₁ (Malayalam) or L₂ (English)

18 children participated in the study. The children either belonged in the category of Expressive Language Delay or Specific Language Impairment according to the DSM IV criteria.

Statistical analysis:

One sample t test was done to find out the significance of literacy impairments shown by the children in the test compared to the normative score of the test. Pearson's Rank Correlation Coefficient was done to find out the correlation between the language impairment and the literacy impairment in the children.

First aim was descriptively studied with the statistic analysis supporting the study findings. One sampled t test was done to find whether the literacy skills are

lower, if lower how significant they are. After the analysis, each subtest was examined to study the pattern, if any, originating from the results. The test also served to find the second aim of finding whether the language impairment has significant effect on early literacy skills. The results are discussed under three headings:

1. Literacy impairments

One of the aim of the study was to find out whether the children with SLI are showing any difficulties in literacy related tasks.

One sample t test was done to find out the significance of literacy impairments. The results obtained on three different tests of Malayalam Language Test, Test of Reading and Metaphonological Skills in Malayalam and Early Literacy Screening Test are discussed below in Tables 7, 8, 9,10.

Table 7

Mean, SD and significance value for 9 children with SLI in the age range 4-5 years in English literacy Screening Test

<i>Age range-4-5 years; Number of subjects : 9</i>						
Subtests	Mean	SD	Test value	t	d.f.	sig
1. LS	.778	1.301	5.90	-11.805	8	.000
2. OLS	1.44	.527	1.9	-2.593	8	.032
3. VM	2.66	1.118	5.00	-6.261	8	.000
4. ELD	3.222	.833	5.75	-9.100	8	.000
5. Math	1.22	.833	2	-2.800	8	.023

Note: Table showing Mean, SD: Standard Deviation and p: level of significance; t: test statistic; f: degrees of freedom; sig: significance value of the scores obtained by

children with SLI of 4-5 years age; LS: Listening skills; OLS: Oral Language Skills; VM: Verbal Memory; ELD: Early Literacy Development; Math: Mathematical Skills

Description of the results:

Listening skills

As from the results, it is clear that the auditory discrimination skills are the worst affected measure. 5 children did not respond to this subtest. Others were confused and said same or different without constancy. One child could come out with 4 correct responses. The results were statistically significant.

Oral language skills

Oral language skills were also poor with p value 0.01. In this subtest, the 4 children responded to the instruction of 'clap your hands' in the comprehension section and item description in the expression section and scored full. 5 children either responded to the instruction or the description. One child did not respond to the instruction even though the mother informed that the child does know to clap to the command. Item description was also not very complete with most of the children responding with the common words as *glass, plate, spoon* and not higher level items as *vessel, stove, cooker*.

Verbal memory

The verbal memory test shows a p value of 0.05 which signifies the difference in the performance of these children. Most of the children could respond to retrieval of a specific word that is the first question of guessing the animal (*Its an animal. It says bow bow*). In the recall task, children could tell back two word items rather than three

word items. In that, the words *fan, pencil* was recalled easily. In the three word recall, 3 children could say two words-table, car. *Zoo, market, temple* was not even attempted by many children. Only one child could achieve full score (6th child). It is noteworthy that every child attempted and came out with at least one correct response.

Early literacy development

All children scored above 2 in the subtest, even though the mean score needed was 5.75. The test of significance shows *p* value to be significantly below 0.05. In the subtests, Upper case alphabets were the easily identified items. Lower case alphabets were also identified without much difficulty. The first word of a letter was confusing to the children. Distinguishing scribbles from writing was attempted at, but children made mistakes by random pointing at picture and writing. In Environmental print awareness, the children responded better to the logo of *dairy milk* better than the practice item of *Dust bin*. Most common correct responses were to identification of upper case alphabets, distinguishing scribbles from writings, and environmental print awareness. Many children were emerging in their environmental print awareness. Many answered with the word *chocolate*. Only 1 child (child no.7) answered with the word *Dairy milk*. Children took longer than required time to respond.

Mathematical skills

The children in the study scored a mean of 1.22 against the expected mean of 2.00. There is a significant difference since the *p* value is <0.05. Except two children, all showed good counting skills and scored the item correctly. 4 children scored correctly for coin identification also. 2 children did not respond to either counting or coin identification.

Overall, the results showed a significant difference in the literacy skills in English compared to the normative scores.

In the increasing order of difficulty the tasks could be listed as below:

Oral language- comprehension and expression tasks showing almost similar performance

Mathematical skills- counting was the easiest task

Early literacy skills - with upper case alphabet identification being the easiest task, followed by scribble and writing identification, environmental print awareness.

Listening skills was found to be the poorest.

TABLE 8

Mean, SD and significance value for 9 children with SLI in the age range 5-6 years in English literacy Screening Test

Subtests	Age range-5-6 years;		Number of subjects : 9		
	Mean	SD	Test value	T	Sig
1. LS	2.66	1.732	6.00	-5.774	.000
2. OLS	3.666	1.000	5.7	-6.100	.000
3. VM	4.33	1.000	5.80	-4.400	.002
4. ELD	4.3	1.00	6.00	-4.400	.002
5. PA	1.44	.527	2.30	-4.870	.001
6. Rd	1.55	1.13	3.90	-6.222	.000
7. Wr	.6667	.7071	1.80	-4.808	.001
8. Math	2.11	1.16	4.20	-5.371	.001

Note: Table showing Mean, SD: Standard Deviation and p: level of significance; T: test statistic sig: significance value of the scores obtained by children with SLI of 5-6 years age LS: Listening skills; OLS: Oral Language Skills; VM: Verbal Memory; ELD: Early Literacy Development; PA: Phonological Awareness; Rd:Reading; Wr:Writing; Math: Mathematical Skills. Degrees of freedom considered is 8.

Description

Listening skills

The auditory discrimination skills showed an increase from younger age group. The mean of the scores is 2.66, even though the test of significance showed a significant difference in the score when compared with the assumed mean of 6. All children attempted to respond with some answer. The mean showed an increase also because the 9th child in this group scored 6 (out of 6). Two children scored 4 each and one child scored 3. Random answers were a problem. Without consistency, the children responded with either same or different and also both answers for one single item.

Oral language skills

Oral language skills showed a significant difference from normative score, which signifies the impairment. p value is <0.00 for the subsection scores. Comparison with younger age group is not possible because of the different test total score and items used for both groups. There are only two items tested in oral language section for younger group with a total score of 2, whereas the total number of items is 6 and total score is 6 for elder group. Two children got a score of 2 and below. Three children scored 4 out of 6, two children scored 5, and none of the children responded correctly and got a full score of 6. Eight children out of 9 did not answer the negative question correctly, with only one child answering it correctly. Children also made errors in the yes/no question, subject-verb agreement in expression part of the subtest. The

children used words like glass, spoon, stove, tin etc. Three children made articulation errors in the expression tasks. Substitution and omission were observed (coor for cooker, poon for spoon etc).

Verbal memory

The verbal memory test shows a mean of 4.3 which is lower from the normative score of the test. *p* value showed the difference was significant. Here also, most of the children could respond to retrieval of a specific word that is the first question of guessing the animal (*It's an animal. It says bow bow*).

In the recall task, almost all children could tell back two word items. The words *fan, pencil* was again recalled easily. The three words *table, car and parrot* were also recalled easily amongst the three words task. In the three words recall, *Zoo, market, temple* was attempted and got responded correctly by 3 children.

Early literacy development

Mean score was 4.2 in this subsection. The test of significance shows *p* value to be significantly below 0.05. All children could score 3 or above 3. The children showed better awareness about the alphabets, scribbles and environmental logos. In the subtests, Upper case alphabets and Lower case alphabets were identified easily by six children. 3 children responded correctly to the first letter identification of the word task.

Distinguishing scribbles from writing was also attempted at and made correct. In Environmental print awareness, here also, the children responded better to the logo of *dairy milk* better than the practice item of *Dust bin*. Most common correct responses were to identification of upper case alphabets, distinguishing scribbles from writings,

and environmental print awareness. Two children gave emerging responses in their environmental print awareness. Three children answered with the word *Dairy milk*.

Phonological awareness

The task showed significant difference below the normative value with a mean of 1.44 against the population mean of 2.30 and with a *p* value of 0.01. In this subsection, phoneme identification was the easier task followed by phoneme blending and last phoneme substitution. In fact, phoneme substitution was found confusing for the children. None of the children got it correct.

Reading

The mean score was 1.55 against the standard mean of 3.90, with a higher significance in the difference. Children read the word *cap* easily and then followed by *ant*. The three non words were difficult to read. Only one child read four words correctly.

Writing

Writing also was poorer when compared to standard score with a mean of .66 against the standard mean of 1.80. The children wrote *cat* easily, but *book* was difficult. Only one child wrote book correctly. Others, who attempted, wrote *bok*, *buk* etc instead of book.

Mathematical skills

The children in the study scored a mean of 2.11 against the mean of 4.20. There is a significant difference since the *p* value is <0.05. Three children scored 3 or higher

than 3. Counting was the easiest task followed by coin identification. Days of the week as well as the simple addition and subtraction tasks were difficult.

Overall, the results showed a significant difference in the literacy skills in English compared to the normative scores. The children showed better performance in oral language, early literacy development, and mathematical skills. Reading, Writing, and phonological awareness tasks were the difficult tasks.

The scores obtained by the children with SLI in Test of Reading and metaphonological skills in Malayalam were analysed and statistical significance was measured using one sample t test for both age groups (Table 9 and 10).

Results of test with Test of Reading and Metaphonological Skills in Malayalam:

TABLE 9

Mean, SD and significance value for 9 children with SLI in the age range 4-5 years in Test of Reading and Metaphonological Skills in Malayalam

Age range: 4-5 years; Number of subjects:9					
Subtests	Mean	SD	Test value	t	Sig
1. Oral reading	1.777	1.855	28.6	-43.357	.000
2. Rhyme recognition	.7778	1.563	11.3	-20.190	.000
3. Phoneme oddity	.000	.000	---	---	---
4. Phoneme deletion	.111	.333	9.6	-85.400	.000
5. Syllable deletion	.111	.333	11.2	-99.800	.000
6. Phoneme reversal	.000	.000	---	---	---
7. Syllable reversal	.000	.000	---	---	.000

8. Writing	.333	.5000	4.2	-23.200	.000
-------------------	------	-------	-----	---------	------

Note: Mean, SD: Standard Deviation, p value (significance value), t:test statistic of the scores obtained by children with SLI of 4-5 years age showing the high significant difference between the scores obtained by children with SLI and normative score. Degrees of freedom considered are 8.

Description:

1. *Oral reading*

Reading scores were significantly poor. The mean was only 1.77 against 28.6. *p* value showed high significance. The children found when compared to English test, did not attempt to read the words in Malayalam.

2. *Rhyme recognition*

The scores were significantly low.

3. *Phoneme oddity*

None of the children attempted to do the task. all children seemed confused.

4. *Phoneme deletion*

Scores were significantly low.

5. *Syllable deletion*

Scored poorly in this subtest also.

6. *Phoneme reversal*

None of the children scored in the subtest.

7. *Syllable reversal*

This was also a difficult task for the children since none attempted to do the task,

8. *Writing*

Writing scores were also significantly low. Children could write very simple 2 letter words as aana.

TABLE 10.

Mean, SD and significance value for 9 children with SLI in the age range 5-6 years in Test of Reading and Metaphonological Skills in Malayalam

Age range: 5-6 years; Number of subjects:9					
Subtests	Mean	SD	Test value	T	Sig
1. Oral reading	14.00	16.80	90.65	-13.687	.000
2. Rhyme recognition	3.222	2.773	11.7	-9.169	.000
3. Phoneme oddity	.111	.333	6.75	-59.750	.000
4. Phoneme deletion	1.666	1.80	17.5	-26.348	.000
5. Syllable deletion	1.666	2.44	14.0	-15.105	.000
6. Phoneme reversal	.000	.000	---	---	---
7. Syllable reversal	1.11	1.364	9.8	-19.107	.000

8. Writing	2.333	2.121	9.35	-9.923	.000
-------------------	-------	-------	------	--------	------

Note: Mean, SD: Standard Deviation, p value (significance value), t: test statistic of the scores obtained by children with SLI of 5-6 years age showing the high significant difference between the scores obtained by children with SLI and normative score. Degrees of freedom considered is 8.

1. *Oral reading*

Reading scores showed an overall improvement from the younger age group even though there is a significant difference between standard mean. One child scored 56 in the reading test raising the mean value. Others scored below 30. The children read mainly short words, and those without clusters. Words starting with vowels as aa, i were easily read. Words with consonants as /s/, /ch/, dh/was difficult to read.

2. *Rhyme recognition*

The scores were significantly low from the standard score.

3. *Phoneme oddity*

Children seemed confused. The scores were significantly low as the p value is <0.05

4. *Phoneme deletion*

Scores were significantly low.

5. *Syllable deletion*

Children scored poorly in this subtest.

6. *Phoneme reversal*

None of the children scored in the subtest.

7. *Syllable reversal*

Syllable reversal was attempted at even though the scores were significantly low.

8. *Writing*

Writing scores were also significantly low. Children could write simple words only.

Which language is more difficult for literacy acquisition?

The third aim of the study was to find out which language (L1 or L2) poses more difficulty for the children in the acquisition of literacy skills. Even though it is not statistically restricting to do a comparison between the two tests because of the different subsections and variability in the total scoring system used for the two, an informal examination could be done. This gives the idea of L1 (Malayalam) being more difficult for the children. The scores were comparatively very poor. Children could not even attempt to do the tasks.

111. Relation of Malayalam Language Test Scores and literacy measures:

The children were grouped into mild, moderate and severe language impairment according to the scores obtained in the Malayalam Language Test (Table 11 and 12). This informal classification was done so as to find a better correlation with the literacy outcome measures. Statistical analysis was not carried out since the number of subjects in each category was not equalised.

The children were grouped informally into mild, moderate and severe language impairment according to the MLT scores

1. Age group: 4-5 years

Score 100-153.5-Mild

Score 50-100-Moderate

Score 0-50-Severe

Table 11

MLT scores, and the severity assigned accordingly for the age group 4-5 years

No	AGE	MLT	SEVERITY
1	49	51.5	Moderate
2	49	57.5	Moderate
3	50	31.5	Severe
4	51	39	Severe
5	54	43.5	Severe
6	55	96.5	Mild
7	55	26.5	Severe
8	58	44.5	Severe
9	59	55	Moderate

Note: MLT: Malayalam Language Test; severity: severity of the

Language impairment

2. Age group: 5-6 years

Score 110-174.5-Mild

Score 60-110-Moderate

Score 0-60-Severe

Table 12

MLT scores, and the severity assigned accordingly for the age group 5-6 years

No	AGE	MLT score	SEVERITY
1	61	70.5	Moderate
2	63	61	Moderate
3	64	41.5	Severe
4	66	73	Moderate
5	66	64	Moderate
6	67	84.5	Moderate
7	69	34	Severe
8	70	93	Moderate
9	70	135.5	Mild

Note: MLT: Malayalam Language Test; severity: severity of the

Language impairment

The scores obtained in the Malayalam Language Test for both age range and the scores obtained in both literacy tests were listed out (Table 13, 14). The correlation between these measures was found out using appropriate statistical method (Pearson Rank Correlation) (Table 15, 16).

TABLE 13

Category of severity and ELST (Early Literacy Screening Test) and TRMM (Test of Reading and Metaphonological Skills in Malayalam) scores for children in the age range 4-5 years:

Child no.	Severity	ELST	TRMM
1	Moderate	5	0
2	Moderate	10.5	1
3	Severe	7	2
4	Severe	9	2
5	Severe	9.5	0
6	Mild	17.5	11
7	Severe	6	0
8	Severe	10	8
9	Moderate	9.5	4

Note: The severe groups achieved poorer scores in both the literacy tests in the age range of 4-5 years.. MLT: Malayalam Language Test; ELST: early Literacy Screening Test; TRMM: Test of Reading and Metaphonological skills in Malayalam.

The children who scored well in the language test (Malayalam Language Test) achieved relatively higher scores than other children in both literacy related measures.

TABLE 14

Category of severity and according ELST (Early Literacy Screening Test) and TRMM (Test of Reading and Metaphonological Skills in Malayalam) scores for children in the age range 5-6 years:

Child no.	Severity of language impairment (MLT)	ELST	TRMM
1	Moderate	20	6
2	Moderate	15	4
3	Severe	13	13
4	Moderate	26	19
5	Moderate	16.5	22
6	Moderate	24	26
7	Severe	12	2
8	Moderate	27.5	37
9	Mild	35	88

Note: The severe groups achieved poorer scores in both the literacy tests in the age range of 5-6 years.. MLT: Malayalam Language Test; ELST: early Literacy Screening Test; TRMM: Test of Reading and Metaphonological skills in Malayalam.

The children who scored well in the language test (Malayalam Language Test) obtained relatively higher scores than other children in both literacy related measures.

Correlation between language and literacy:

Pearson's rank correlation was done to find out the overall correlation between language scores and literacy scores.

TABLE 15

Correlation between the scores obtained in language test and literacy tests for the age group 4-6 years:

Variables	Correlation coefficient	Significance
MLT-ELST	.889	.000
MLT-TRMM	.844	.000

Note: Correlation between MLT-ELST (Malayalam Language Test- Early Literacy Screening Test) scores for children in the age range 4-6 years showing high positive correlation between language and literacy; which is highly significant.

TABLE 16

Correlation between the scores obtained in language test and literacy tests for the age group 4-5 years:

Variables	Correlation coefficient	Significance
MLT-ELST	.855	.003
MLT-TRMM	.703	.035

Note: table showing high positive correlation between the language and literacy as shown in the tests for the age group 4-5 years. Highly significant results obtained. MLT: Malayalam Language Test; ELST: early Literacy Screening Test; TRMM: Test of Reading and metaphonological skills in Malayalam.

TABLE 17

Correlation between the scores obtained in language test and literacy tests for the age group 5-6 years:

Variables	Correlation coefficient	Significance
MLT-ELST	.952	.000
MLT-TRMM	.912	.001

Note: table showing high positive correlation between the language and literacy as shown in the tests for the age group 5-6 years. Highly significant results obtained. MLT: Malayalam Language Test; ELST: early Literacy Screening Test; TRMM: Test of Reading and metaphonological skills in Malayalam.

A high correlation was found between the language test and both the literacy tests. These values were found out to be highly significant. Children with severe language impairments performed very more poorly on literacy tests.

CHAPTER V

DISCUSSION

The present study examined 18 children with Expressive Language Delay/Specific Language Impairment to study the development of early literacy skills. Results showed significant difference in the performance of children with SLI compared to the standard scores in each subtest of literacy tests in both languages. Results obtained in the present study underlines that the development of literacy skills in children with SLI is not similar to their age matched typically developing peers. The examination of early literacy skills in both languages showed that the pattern of development was more or less the same as normal children (as compared to normative score), but the progress in the pattern of the skills much slower than expected.

In English literacy related tasks, auditory discrimination skills were poor when compared to normative score. Even the rhyming skills which develop faster than other literacy related skills in typical children were not developed in children with SLI. The reason might be attributed to auditory processing dysfunction in children. The study seeks supports from findings of Snowling et al (2000) that the auditory processing abilities in this group of children are deficient to hear and process the required information in the auditory stimuli. Auditory discrimination plays a major role in extraction and utilization of required information we hear. This is important for learning language and literacy. As stated by **Corriveau, Pasquini & Goswami** (2007), the children with SLI shows delayed and poor discrimination skills, which originates from the inefficient mapping of an internal rhythm or pattern of the sounds heard.

The oral language skills were much below the norms as shown by MLT and ELST. Even at the age of 5.10 years, the children had not achieved the typical speech and language skills. The children selected were those with persistent impairments, attending therapy at various clinical centres and institutes, hence this might be explained. The comprehension and expression skills were found to be affected. Leonard (1998) stated that the oral language skills of children with SLI are deviant from other children of same age. This is in concordance with the findings of Rice, Buhr, and Nemeth (1990) who stated found out that the children with SLI showed poor comprehension abilities and names of actions were very difficult for them. A study which does not support this is by Chapman, Leonard, Rowan, and Weiss (1983) which found that the children with SLI can acquire as many words as any normal child. The newly introduced words were learned by these children as their age-matched typical peers.

Production tasks were also affected as noted by both language and literacy tests. The children had not achieved normal or near normal speech and language skills except for 2 children, who obtained reasonably good scores in these tasks. All the children had attended therapy at some point of time. This defines the nature of language deficit they carry. The present results are supported by many others studies done in the area of oral language skills in SLI, as by Leonard (1984) and Leonard, Steckol, and Panther, (1983) who found that the word combinations used by children with SLI conveyed very narrow meanings. They used words combinations like *me do*, *me make*, *me reach*. Morehead and Ingram (1973) stated that children with SLI did not use major syntactic categories like nouns, verbs, embedded sentence etc. On contrary, it does not support the findings of Leonard, Sabbadini, Volterra and Leonard (1988) that children with SLI use major syntactic categories in their

spontaneous speech. Also it does not find support from Leonard, Bolders and Miller (1976) who found that there was no difference in meaning relations present in the spontaneous speech of children with SLI.

The verbal memory was found out to be poor. The reason might be problems in registering and retrieval of information from memory. The study supports the finding by Gathercole and Baddeley in 1990 that SLI scored poorly in nonword repetition due to problems in working memory. This also supports the view by Catts (1993) who stated that the phonological working memory functions less adequately in children with SLI. But all the children could at least respond with one correct answer. This could in turn lead to the hint of working with these children efficiently giving strategies for appropriately directing their cognitive resources to use language in a better way.

Early literacy development was also found to be affected in children with SLI. This supports the study by **Nathan**, Stackhouse, Goulandris, and Snowling (2004) **in which they** state that the early skills were problematic in children who had continuing speech and language difficulties and they were at a greater risk for developing reading disorders. It can be seen that even though the skills are deviated from normal values, the early literacy skills are found to be developing in both age group children. This could be attributed to the awareness and education level of parents and the training by therapists who constantly sing alphabetic rhymes and teach alphabets to children. This also gives the indication of effective training through therapy so that the children can progress faster in these skills.

Counting in mathematical skills subsection was faster acquired in almost all the children. This also could be attributed to the training strategies, where the parents and therapists use reciting numbers as a major activity.

The scores were poor for phonological awareness for the age range 5-6 years. This is in concordance with the findings by Boudreau and Hedberg (1999) who stated that the children with SLI show poor phonological awareness skills along with other metalinguistic skills. The study is also supported by **Nathan**, Stackhouse, Goulandris, and Snowling (2004) found that the risk of **literacy** difficulties was greater for this group and children exhibited problems in phoneme awareness even at 6 years.

In reading section, children could reads on an average 2 words only. The notion that reading difficulties emerge when a child with SLI enter the academic realm is supported. The study supports the view of Gillon (2004) who found that the deficit in phonological awareness makes it problematic for children to learn principles of alphabets and decode a word and spell them. As put forward by Puranik, & Lonigan (2010), diagnosis of speech impairment or language impairment can have a significant negative and continuing effect on early reading skills. This does not support the finding of Bishop and Adams (1990) who found that children with SLI typically had better outcomes in reading than did those with NLI.

In writing subsection, children showed many spelling errors which support the study by Cordewener, Bosman, and Verhoeven (2012) who found that the grapheme knowledge is poor for children with SLI.

The present study found that the children with SLI face major problems in academics when they start learning to read and write. The early literacy skills, if not meeting the required criteria, will definitely affect the later academic skills. The study

supports the findings of Fraser and Conti-Ramsden, 2008 who found the detrimental effect of failure in early literacy skills on later reading and writing skills. The study does not support the view of Bishop and Adams (1990) who held that children with SLI will acquire reading skills as any other typical child when they start academics.

In Malayalam test to study literacy, the children scored very poorly in all the subsections. Reading and writing was difficult, with short words being the easier for both tasks. Substitutions and omissions were common in reading and writing. There was no particular pattern observed, as scores were well below the comparison score. There is a developmental progression seen in all the skills with higher age group achieving higher scores. But this can not be generalized since the distribution of children was not even across the age groups. The severity varies among children, making generalizations difficult.

In phonemic awareness related tasks, all children were considerably behind the standard test score. The phoneme deletion, phoneme oddity, phoneme reversal were the most difficult tasks with phoneme reversal being the most difficult with '0' scores even for the 5-6 year age group children. The reason might be that the phonemic awareness skills develop much later in normal children also, along with the alphabetic knowledge in languages as Malayalam (Prema, 1997). The children studied here were less exposed to alphabets of Malayalam, which makes it difficult for them to perform the phoneme related tasks.

For the children, it was found out that the syllable related tasks were easier, which is in consonance with finding of Liberman et al (1980) that it is easier to segment words into syllables than to segment it into phonemes. It also supports the view of Prema (1997) that phonological awareness develops as the age progresses.

Results indicate that the children with Specific Language Impairment are at a considerable risk to develop academic problems later in their life. This is in perfect consonance with Swapna (2003) who studied Malayalam speaking children with SLI and Learning disability and compared them with normal children. The author found that there is a high risk factor associated with children with SLI to develop learning disability. The study also supports many other studies as who found out those children with SLI exhibits major literacy impairments upon entering school.

The results show that the results of Malayalam Language Test are positively correlated with the scores of literacy tests in both languages. The poorer scores in the language test correlates well with the poor scores in the literacy measures. The highly verbal children have come out with a better outcome in both the literacy tests. The view that language is essential for learning literacy related skills is supported.

The language impairment exhibited by the children is also perfectly correlating with the literacy impairments shown. The children scoring poor in the Malayalam Language Test obtained a poorer score in the literacy related measures. This supports study by Swapna (2003), Nathan et al (2004), Wise et al (2007) who found out that the language impairment and the literacy impairment exist in proportions. But this also meets failure of generalization since there were only 2 children who scored well in the MLT. So it will be appropriate to say the literacy impairments exist independently of the language impairment.

From the results it is clear that the children with mild impairment scored better in literacy measures in both languages. As seen, the children with moderate impairment were more in number. Statistical analysis was not done since the number of subjects in each category was not equalised. The severe group consistently performs poorer in

the reading, writing skills, mathematical skills and the metaphonological skills in both languages. The child who has a mild language impairment performed well, nearing the normal group.

Even though the results of the study show near 100 % significance of learning disorders in the group of children with Specific Language Impairment, it would be inappropriate to say that the study results can be fully generalized. The fact that 18 children only turned up for the study can point to many reasons. The parents who were contacted were clearly told about the academic part of the study. Still their not turning up can be related to the simple reason of the child not showing any academic difficulties in the school. Those children might have grown out of language impairment. The actual results would be yielded only if all the children were examined. It should be assumed that the children with persisting impairments were only brought for the study. This can be related to the parents' enthusiasm to bring the children. The second reason can be that the reluctance of the parents to visit and thereby indicating their negligence part. Still it is not worthwhile to assume these many parents are negligent in the matter of their children, especially in Kerala, where the parents generally tend to be over concerned. To generalize the study results, more number of children is required as subjects and a longitudinal study of the speech, language and literacy skills of those children is needed.

One of the interesting finding was that contrary to the presupposition held prior to testing, children performed better in English related tasks rather than Malayalam tasks. This can be attributed to many reasons. The parents of the children participated in the study were educated, some of them being highly educated. The parents' high education and the current standards of education force or even pressurise the children to learn English compulsorily in an English medium school, whereas the literacy

skills in Malayalam are introduced later. Even before 3 years of age, the parents of the present era recite alphabets to children which incur a significant influence on the later language and literacy skills in the child.

The view that bilingualism plays an enhancing or suppressing role is not proved. Kohnert (2009) stated that the children with SLI would face difficulties in learning the literacy related skills of second language. This view is also not proved as the children studied in the present study showed better skills in second language. It is better to assume that bilingualism does not place a language impaired child at advantage or disadvantage when compared to language impaired child learning a single language only when all other factors act equally as stated by Paradis et al (2003). The view of Salameh, Hakansson, & Nettelbladt, (2004) that first language or language at home will reach a plateau or meet with a loss for the bilingual children with LI if it is not adequately supported can be assumed since the children having already a language impairment, if not adequately stimulated with the mother tongue, it can lead to a gradual loss of language as well as literacy skills in that particular language (Hakansson et al., 2003; Restrepo & Kruth, 2001).

The view that alphabetic literacy enhances phonemic awareness is established in Malayalam, which is a alphabetic language (Roopa, 2000). But the minimum exposure to the alphabets in Malayalam might have contributed to reduced performance in phonemic awareness related tasks for children with SLI.

The effect of therapy was not studied since that time period was short for many children. But two children who had attended one year of speech and language therapy performed better in literacy and language tests. The results cannot be generalized since a consistent effect was not seen.

It was observed that many of the parents were not actually aware of the fact that their children can show a poor performance in class because of the deficits which they have. Many parents, especially of those of the younger age group, in spite of having a good education believed that the language impairment will resolve out by itself, thereby attaining normal academic skills. This calls for a more language and academic oriented counselling for the parents of this group of children.

The present study found that the children with specific language impairment are significantly at higher risk for developing reading and writing disorders, and that language impairment correlates well with the literacy failures exhibited by these children even though the results cannot be generalized since the subjects were only till 6 years of age. Better intervention and prevention can lead to a better performance in following years there by decreasing their chances of incurring with a learning disability.

CHAPTER VI

SUMMARY AND CONCLUSION

A child with specific language impairment is a bit complicated to understand. Without any reasons, the child may not speak. Many of these children grow up continuing the deficit in language or being resolved out of it. Literature with the support of many numbers of studies holds the viewpoint of a child with SLI having an academic problem upon entering the school. The present study was formatted on the thought of whether Malayalam speaking children with Specific Language Impairment upon entering an English medium school, would face additional difficulties with the burden of an extra second language upon entering an English medium school.

The aim of the present study was to study the developmental pattern of literacy skills of children with SLI in English and Malayalam and to examine whether they show impairments in these skills. The study also aimed to find the level of impairment in each language.

18 children with Specific Language Impairment were selected for the study from different institutes in Kerala. Malayalam Language Test (Rukmini, 1994), Early Literacy Screening Tool (Shanbal et al, 2010) and Test for Reading and Metaphonological Skills in Malayalam (Roopa, 2000) were used to assess the oral language skills of the children and the early literacy skills in English and Malayalam.

All the 18 children participated in the study were found to have deficits in the academic skills. The level of literacy impairment could be traced back to the severity of language impairment exhibited by the children. Results are attributed to the general deficits shown by the children with SLI in the areas of working memory, phonological

awareness and top to bottom level processing skills which correlate with the other studies in the area of SLI. Children scored better in English literacy tasks, the reason of which might be attributed to reduced exposure to Malayalam alphabets.

There was a consistency of results for all the children participated, but considering the fact that all the children selected were those with persisting impairments in language and were either attending speech language therapy or had attended for a period earlier. A study considering children with both persisting and resolved impairment would have given the better idea of existence of, if any, literacy impairment even after the language impairment is resolved. It is always advisable to follow up the children longitudinally, so as to make sure they move up in their grades without any difficulty. Such difficulties can be tackled effectively by timely intervention programs thereby not degrading the child's confidence as he grows up.

Implications:

- ◆ The study found a significant impairment in the performance of children with SLI in literacy related measures. The study stresses the importance of early intervention for the children with SLI.

This calls attention towards better intervention strategies which focuses not only on speech, but on the overall development for these children.

- ◆ This suggests the construction of new test batteries for assessment of early literacy skills in different languages.
- ◆ The study also signifies the importance of appropriate parental counselling regarding the future directions for the child in all the developmental realms including speech, language, cognition and academics.

Limitations:

- ◆ Limited sample size
- ◆ The study materials used for the study considered different subtests with different number of items, thereby limiting the statistical analysis.
- ◆ The subjects considered were all from persistent language disorder group, thereby limiting the generalization to such group only.
- ◆ The study could have yielded better results if a control group of monolingual SLI children were also considered, giving a stronger basis for the difficulties involving the two languages a child with SLI exposed to.
- ◆ The study did not consider those children with specific language impairment who had resolved completely, which could have yielded a clearer and globalistic perception about the relation between prognosis and literacy impairments in SLI.

REFERENCES

- Aram, D.M. Ekelman, B. L., & Nation, J. E.(1984). Preschoolers with language disorders: 10 years later. *Journal of Speech and Hearing Research.*, 27, 232-244
- Aram, D., & Nation, J. (1975). Pattern of language behaviour in children with developmental language disorders. *Journal of Speech and Hearing Research.* 18, 229-241
- Asha, M.(1997). *Linguistic Profile Test*. Unpublished masters dissertation. University of Mysore. Mysore.
- Aram, D., & Nation, J. (1980). Preschool language disorders and subsequent language and academic difficulties. *Journal of Communication Disorders.* 13, 159-179.
- Bastian, H. (1880). *The brain as an organ of mind*. New York: Appleton In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Bedore, L., & L. Leonard. (1998). Specific language impairment and grammatical morphology: A discriminant function analysis. *Journal of Speech, Language, and Hearing Research*, 41, 1185–1192
- Benedikt, M. (1865). Ueber Aphasie, Agraphie und verwandte pathologische Zustände (English translation), Wiener Medizinische Press, 6, 1189-1190. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Bishop, D. (1997) *Uncommon Understanding: Development and disorders of language comprehension in children*. Psychology Press, Hove

- Bishop, D., & Adams, C. (1990). A prospective study of the relationship between specific language impairment, phonological disorders, and reading retardation. *Journal of Child Psychology and Psychiatry*, 3, 1027–1050.
- Bishop, D., & Donlan, C. (2005). The role of syntax in encoding and recall of pictorial narratives: Evidence from specific language impairment. *British Journal of Developmental Psychology*, 23, 25-46.
- Bishop, D., & Edmundson, A. (1987). Language impaired 4-year-olds: Distinguishing transient from persistent impairment. *Journal of Speech and Hearing Disorders*, 52,156–173.
- Bishop, D., & Leonard, C. (2000). *Speech and Language Impairments: From Research to Practice*. Hove: Psychology Press.
- Bishop V., North T, & Donlan, C. (1996). Nonword repetition as a behavioural marker for inherited language impairment: Evidence from a twin study. *Journal of Child Psychology and Psychiatry*. 1996;37:391–403
- Bishop, D. V. M., & Snowling, M. J. (2004). Developmental dyslexia and specific language impairment: Same or different? *Psychological Bulletin*, 130, 858–886.
- Bloome, D., Harris, L. H, & Ludlum, D. E. (1991). Reading and writing as sociocultural activities: Politics and pedagogy in the classroom. *Topics in Language Disorders*, 11, 14–27.
- Bodreau, D., & Hedberg, L.N., (1999). A comparison of early literacy skills in children with specific language impairment and their typically developing peers. *American Journal of Speech Language Pathology*, 8, 249-260.

- Briscoe J, Bishop D., & Norbury C. F (2001), “Phonological processing, language and literacy: A comparison of children with mild to moderate sensori-neural hearing loss and those with specific language impairment”, *Journal of Child Psychology and Psychiatry*. 42: 329-340.
- Broadbent, W. (1872). On the cerebral mechanism of speech and thought. *Medico-Chirurgical Transactions*, 55, 145-194 In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Bruck, M., & Genesee, F. (1995). Phonological awareness in young second language learners. *Journal of child language*, 22, 2, 307-324.
- Cabell, S.Q., Lomax, R. G., Justice, L.M., Breit-Smith, A., Skibbe, L.E., & McGinty, A.S. (2010). Emergent literacy profiles of preschool-age children with Specific Language Impairment. *International Journal of Speech-Language Pathology*, 12, 472-482: 472-482.
- Caron C, Rutter M. (1991). Comorbidity in child psychopathology: Concepts, issues and research strategies. *Journal of Child Psychology and Psychiatry*.;32:1063–1080.
- Catts, H.W. (1991). Early identification of dyslexia: Evidence from a follow up study of speech- language impaired children. *Annals of Dyslexia*, 46,163-177.
- Catts, H. W. (1993). The relationship between speech- language impairments and reading disabilities. *Journal of Speech and Hearing Research*, 36:948–958.
- Catts, H.W., Adolf, S.M., Hogan, T.P., & Weismer, S.E. (2005). Are specific language impairment and dyslexia distinct disorders? *Journal of Speech, Language, and Hearing Research*, 48, 1378-1396

- Catts, H. W., Fey, M. E., Zhang, X., & Tomblin, J. B. (1999). Language basis of reading and reading disabilities: Evidence from a longitudinal investigation. *Scientific Studies of Reading*, 3, 331–361.
- Catts, H.W., Fey, E.M, Tomblin, J.B, & Zhang, X. (2002). **A Longitudinal Investigation of Reading Outcomes in Children with Language Impairments** *Journal of Speech, Language, and Hearing Research*, 45: 1142 – 1157.
- Catts, H. C., & Kamhi, A. G. (1986). The linguistic basis of reading disorders: Implications for the speech-language pathologist. *Language, Speech and Hearing Services in Schools*, 17:318–328.
- Catts, H. W., & Kamhi, A. G. (Eds.) (1999). *Language and Reading Disabilities*. Needham Heights, MA: Allyn & Bacon.
- Cazden, C.B. (1988). *Classroom discourse: The language of teaching and learning*. Portsmouth, NH: Heinemann.
- Chall, J.S. (1996). *Learning to read: The great debate (revised, with a new forward)*. New York: McGraw-Hill. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Chapman, K., Leonard, L., Rowan, L., & Weiss, A. (1983). Inappropriate word extensions in the speech of young language disordered children. *Developmental Psychology*, 19, 427-439.
- Chiat, s., & Hirson, A. (1987). From conceptual intention to utterance: A study of impaired language output in a child with developmental dysphasia. *British*

- Journal of Disorders of Communication, 22,37-64 In L. Leonard. (1998).
Children with Specific Language Impairment. Cambridge: MIT Press.
- Clahsen, H. (1989). The grammatical characterization of developmental
dysphasia. *Linguistics*, 27, 897-920. In L. Leonard. (1998). *Children with
Specific Language Impairment*. Cambridge: MIT Press.
- Clarus, A. (1874). Ueber Aphasie bei Kindern. *Jahrbuch für Kinderheilkunde und
Physische Erziehung*, 7, 369-400. In L. Leonard. (1998). *Children with
Specific Language Impairment*. Cambridge: MIT Press.
- Coen, R. (1866). *Pathologie und Therapie der Sprachanomalien*. Vienna: Urban &
Schwarzenberg. In L. Leonard. (1998). *Children with Specific Language
Impairment*. Cambridge: MIT Press.
- Conboy, B.T. & Thal, D. (2006). "Ties between the lexicon and grammar: Cross-
sectional and longitudinal studies of bilingual toddlers." *Child Development*,
77(3), 712-735.
- Conti-Ramsden, G., Botting, N., & Faragher, B. (2001). Psycholinguistic markers for
specific language impairment. *Journal of child psychology and psychiatry*. 42,
741-748
- Cordewener, K., Bosman, A., & Verhoeven, L. (2012) Characteristics of early
spelling of children with specific language impairment. *Journal of
Communication Disorders*. 45, 212-222.
- Corriveau, K, Pasquini, E & Goswami, U** (2007) Basic Auditory Processing Skills
and Specific Language Impairment: A New Look at an Old Hypothesis,
Journal of Speech, Language, and Hearing Research June, Vol.50 647-666

- deAjuriahuerra, J., Jaeggi, A., Guignard, F., Kocher, F., Maquard, M., Roth, S., & Schmid, E. (1965). Evolution et pronostic de la dysphasie chez l'enfant. *La Psychiatrie de l'Enfant*, 8, 291-352. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Diagnostic and Statistical Manual of Mental Disorders (2000). Fourth edition. Text Revision
- Dickinson, D.K., McCabe, A., Clark-Chiarelli, N., & Wolf, A. (2004). Cross-language transfer of phonological awareness in low-income Spanish and English bilingual preschool children. *Applied Psycholinguistics*, 25, pp. 323-347
- Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test* (3rd ed.). Circle Pines, MN.
- Ehri, L.C. (1979). Linguistic insight: Threshold of reading acquisition. In T.G. Waller and G.E. Mackinnon (Eds.). *Reading research advances in theory and practice*, New York: Harcourt Brace Jovanovich.
- Ellis Weismer, S., Tomblin, J. B., Zhang, X., Buckwalter, P., Chynoweth, J. G., & Jones, M. (2000). Nonword repetition performance in school-age children with and without language impairment. *Journal of Speech, Language, and Hearing Research*, 43, 865–878
- Fey, M., & Leonard, L. (1983). Pragmatic skills of children with specific language impairment. In T. Gallagher & C. Prutting (Eds.), *Pragmatic assessment and intervention issues in language* (pp. 65-82). San Diego: College- Hill Press.

- Fraser, J., & Conti- Ramsden, G. (2008). Contribution of phonology and broader language skills to literacy. *International Journal of Communication Disorders*, 43:552-569
- Gall, F. (1835). The function of the brain and each of its parts. 5, *Organology*. Boston: Marsh, Capen, & Lyon. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Gallagher, A., Frith, U., & Snowling, M. J. (2000). Precursors of literacy delay among children at genetic risk of dyslexia. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 41, 202–213.
- Gathercole, S. E. & Baddeley, A. D. (1993). *Working Memory and Language*. Hove, England: Lawrence Erlbaum Associates Ltd. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Gesell, A., & Amatruda, C. (1947). *Developmental diagnosis* (Second Edition). New York: Hoeber. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Gildersleeve-Neumann, C., Kester, E., Davis, B., & Pena, E. (2008). English speech sound development in preschool-aged children from bilingual English-Spanish backgrounds. *Language, Speech and Hearing Services in Schools*, 39, 314-328
- Gilliam, R. B., & Johnston, J. R. (1985). Development of print awareness in language disordered preschoolers. *Journal of Speech, Language and Hearing Research*, 28, 521-526.
- Gillon, G. T. (2004). *Phonological awareness: From research to practice*. New York: Guilford Press.

- Goffman, L., & Leonard, J. (2000). Growth of language skills in preschool children with specific language impairment: implications for assessment and intervention. *American Journal of Speech Language Pathology*, 9, 151-161
- Goswami, U. (2001). Early Phonological Development and the Acquisition of Literacy. In Neuman, Susan B. & Dickinson, David K. *Handbook of Early Literacy Research*. (pp. 111-125). New York, NY: Guilford Press.
- Gutzmann, H. (1894). *Des Kindes Sprache und Sprachfehler*. Leipzig: Weber.
- Leonard (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Hakansson, G, Salameh, E-K & Nettelbladt, U. (2003) Measuring language proficiency in bilingual children. Swedish-Arabic bilingual children with and without language impairment. *Linguistics* 41 (2), 255-288
- Haynes, C. (1992). A longitudinal study of language impaired children from a residential school. In P. Fletcher & D. Hall (Eds.), *Specific speech and language disorders in children* (pp.166-182). London. Whurr.
- Hesketh A. (2004). Early literacy achievement of children with a history of speech problems. *International Journal of Language and Communication Disorders* 39(4):453-468.
- Holm, A., Farrier, F., & Dodd, B. (2008). Phonological awareness, reading accuracy and spelling ability of children with inconsistent phonological disorder. *International Journal of Language and Communication Disorders*, 43, 300-322

ICF Checklist (2003) Version 2.1 a, *Clinician Form for International Classification of Functioning, Disability and Health*. World Health Organization.

Johnston, J., & Ramstad, V. (1983). Cognitive development in preadolescent language impaired children. *British Journal of Disorders of Communication*, 18, 49-55.

Kamhi, A. G., & Catts, H. W. (1986). Towards an understanding of developmental language and reading disorders. *Journal of Speech and Hearing Disorders*, 49, 169-176

Kamhi, A. G., & Catts, H. W. (1989). Language and Reading: Convergences, Divergences, and Development. In A.G. Kamhi & H.W. Catts (Eds.), *Reading disabilities: A developmental perspective* (page: 131). Boston: College Hill.

Karlin, I. (1954). Aphasia in children. *American Journal of Disabilities in Children*, 87, 752-767. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

Kerr, J. (1917). Congenital or developmental aphasia. *Journal of Delinquency*, 2, 6. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

Kohnert, K. (2008). *Language disorders in bilingual children and adults*. San Diego, CA: Plural

Kohnert, K. (2009) Bilingual children with primary language impairment: Issues, evidence and implications for clinical actions. *Journal of Communication Disorders*, 43:456-473

- Kohnert, K., Hernandez, A. E., & Bates, E. (1998). Bilingual performance on the Boston Naming Test: Preliminary norms in Spanish and English. *Brain and Language*, 65, 422–440.
- Kuykendall, M. & Fahey, K. R (2000).The development of written language in
Fahey, K. R & Reid, D. K.(Ed.) *Language development, differences, and disorders*. PRO-ED Austin, Tex
- Langer, J. (Ed.) (1987). *Language, Literacy and Culture: Issues of Society and Schooling*. Norwood, NJ: Ablex Publishing Corp
- Lavrand, M. (1897). Mutite chez des entendants. *Revue Internationale de Rhinologie, Otologie et Laryngologie*, 3, 95-97. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Leiato, S., & Fletcher, J. (2004). Literacy outcomes for students with speech impairment: long-term follow-up. *International Journal of Language and Communication Disorders*, 39, 245-256.
- Leonard, L. (1972). What is deviant language? *Journal of Speech and Hearing Disorders*, 37, 427-446
- Leonard, L. (1981). Facilitating children with Specific language impairment. *Applied Psycholinguistics*, 2, 89-118
- Leonard, L. (1984). Semantic considerations in early language training. In K.ruder & M. Smith (Eds.) *Developmental language intervention* (pp.141-169). Baltimore: University Press.

- Leonard, L. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Leonard, L., Bolders, J., & Miller, J. (1976) An examination of the semantic relations reflected in the language usage of normal and language handicapped children. *Journal of Speech and Hearing Research*, 19, 371-392.
- Leonard, L., Sabbatini, L., Leonard, J., & Volterra, V. (1987). Specific language impairment in children: A cross-linguistic study. *Brain and Language*, 32:233-52
- Leonard, L., Sabbatini, L., Volterra, V., & Leonard, J. (1988). Some influences on the grammar of English and Italian speaking children with specific language impairment. *Applied Psycholinguistics*, 9, 39-57
- Leonard, L., Steckol, K., & Panther, K. (1983). Returning meaning to semantic relations: Some clinical applications. *Journal of Speech and Hearing Disorders*, 48, 25-36.
- Lesaux, N. K., & Siegel, L. S. (2003). The development of reading in children who speak English as a second language. *Developmental Psychology*, 39, 1005–1019
- Levi, G., Capozzi, F., Fabrizi, A., & Sechi, E. (1982). Language disorders and prognosis for reading disabilities in developmental age. *Perceptual and Motor Skills*, 54, 1119-1122. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Lieberman I.Y., Lieberman, A.M., Mattingly, I.G., & Shankweiler, D. (1980). Orthography and the beginning reader. In J.F.Kavanagh & R. Venezky (Eds),

Orthography, reading and dyslexia (pp137-153). Baltimore, MD: University Park Press

Liebman, A. (1898). *Vorlesungen uber Sprachstorungen*, 3, Horstummheit. Berlin: Coblentz. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

Lovell, K., Hoyle, H., & Siddhal, M. 1968). A study of some aspects of the play and language of young children with delayed speech. *Journal of Child Psychology and Psychiatry*, 9, 41-50. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2003). A definition of dyslexia. *Annals of Dyslexia*, 53, 1–14

MacLean, M. Bryant, P. E. & Bradley, L. (1987) ‘Rhymes, nursery rhymes and reading in childhood’. *Merrill-Palmer Quarterly*, 33, 255-282. In A. Holm, F. Farrier, & B. Dodd, (Ed.) (2008). Phonological awareness, reading accuracy and spelling ability of children with inconsistent phonological disorder. *International Journal of Language and Communication Disorders*, 43, 300-322

Magnusson, E., & Naucler, K. (1990a). Reading and spelling in language-disordered children. Linguistic and metalinguistic prerequisites: Report on a longitudinal study. *Clinical Linguistics and Phonetics*, 4, 49–61.

Magnusson, E., & Naucler, K. (1990b). Can preschool data predict language-disordered children’s reading and spelling at school? *Folia Phoniatria*, 42, 227–282

- Maria, K. (1990). *Reading comprehension instruction: Issues and strategies*. Maryland: York Press.
- Mccall, E. (1911). Two cases of congenital aphasia in children. *British Medical Journal*, 1, 2628, 1105; 2632, 1407. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Menyuk, P., Chesnick, M., Liebergott, J., Korngold, B.,D' Agostino, R. (1991). Predicting reading problems in at risk children. *Journal of Speech, Language and Hearing Research*, 34,893-903.
- Miller, C., Kail, R., L. Leonard., & Tomblin, J. (2006). Speed of processing in children with specific language impairment. *Journal of Speech, Language and Hearing Research*.44, 416-433.
- Morehead, D., & Ingram, D. (1973). The development of base syntax in normal and linguistically deviant children. *Journal of Speech and Hearing Research*. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Moreno, E., Kutas, M. (2004). Processing semantic anomalies in two languages: an electrophysiological exploration in both languages of Spanish- English bilinguals. *Cognitive Brain Research*. 22, 205-220.
- Moyer, H.(1898). Dumbness or congenital aphasia of a family type without deafnes or obvious mental defect. *Chicago Medical Recorder*,15, 305-309. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

- Nathan, L., Stackhouse, J., Goulandris, N., & Snowling, M.J. (2004). The development of early literacy skills among children with speech difficulties. *Journal of Speech, Language, and Hearing Research*, 47, 377-391
- National Early Literacy Panel. (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy.
- Newcomer, P., Barenbaum, E.(2003) *Test of Phonological Awareness (TOPAS)*, PRO-ED.
- Newcomer, P., & Hammill, D. (1988). *Test of Language Development—Primary* (2nd ed.). Austin, TX: PRO-ED.
- Paul R. (2001). *Language disorders from infancy to adolescence: Assessment and intervention*. St. Louis, MO: Mosby
- Paradis, J., Crago, M., Genesee, F., & Rice, M. (2003). Bilingual children with specific language impairment: How do they compare with their monolingual peers? *Journal of Speech, Language and Hearing Research*, 46, 1–15.
- Pearson, B. Z. (2002). Narrative competence in bilingual school children in Miami. In D. K. Oller & R. E. Eilers (eds.) *Language and Literacy Development in Bilingual Children*, pp. 135-174. Clevedon, UK: Multilingual Matters.
- Petitto, L., Holowka, S. (2002). Evaluating attributions and delay and confusion in young bilinguals: Special insights from infants acquiring a signed and a spoken language, *Sign Language Studies*, 3, 5-33.

- Prakash, P.(1987). *Reading development, metalinguistic awareness and cognitive processing skills*. Unpublished doctoral thesis. Utkal University. Bhubaneshwar, India.
- Prema K.S. (1997). *Reading Acquisition Profile in Kannada (RAP-K)*. Doctoral dissertation, University of Mysore, Mysore
- Puranik, C.S., & Lonigan, C.J. (2010). Early writing deficits in pre-schoolers with oral language difficulties. *Journal of Learning Disabilities*, 45(2):179-190.
- Puranik, C.S., Petscher ,Y., Al Otaiba, S., Catts, H.W., & Lonigan, C.J. (2008). Development of oral reading fluency in children with speech or language impairments: A growth curve analysis. *Journal of Learning Disabilities*, 41(6):545-560
- Rapin, I. (1996). Developmental language disorders: A clinical update. *Journal of Child Psychology and Psychiatry*, 37, 643–655.
- Read, C., Zhang, Y.N., & Ding, B. (1986). The ability to manipulate speech sounds depends on knowing alphabetic writing. In P. Bertleson (Ed.). *The onset of Literacy: Cognitive Processes in Reading Acquisition* (pp:31-44). Cambridge, MA & London: MIT Press
- Rees, N. (1973). Auditory processing factors in language disorders: The view from Procrustes' bed. *Journal of Speech and Hearing Disorders*, 38, 304-315.
- Rekha, D. (1987). *A study on development of reading and phonological awareness in Kananda speaking children*. Unpublished masters dissertation. University of Mysore, Mysore. India.

- Rescorla, L. (2005). Age 13 Language and reading outcomes in late talking toddlers, *Journal of Speech, Language, and Hearing Research*, 48:459-472
- Restrepo, M. A, Kruth, K. Grammatical characteristics of a bilingual student with specific language impairment. *Journal of Children's Communication Development*. 2000;21:66–76.
- Rice, M., Buhr, J., & Nemeth, M. (1990). Fast mapping word-learning abilities of language delayed preschoolers. *Journal of Speech and Hearing Disorders*,55,33-42.
- Rice, M. L., & Wexler, K. (1996). Toward tense as a clinical marker of specific language impairment in English speaking children. *Journal of Speech and Hearing Research*,39, 1239-1257.
- Rissman, M., Curtiss, S., & Tallal, P. (1990). School placement outcomes of young language impaired children. *Journal of Speech Language Pathology and Audiology*, 14, 49-58
- Roeper, T. (2012). Minimalism and bilingualism: How and why bilingualism could benefit children with SLI. *Bilingualism: Language and Cognition*, 15, 88-101
- Roopa, I. (2000). *A study on development of reading and metaphonological skills in Malayalam speaking children*. An unpublished Master's dissertation. University of Mysore. Mysore. India.
- Roth, F. P., & Spekman, N. J. (1989). Higher-order language processes and reading disabilities. In A. G. Kamhi & H. W. Catts (Eds.), *Reading disabilities: A developmental perspective*. 159–198). Austin, TX: Pro-Ed

- Rukmini, A.P. (1994). *Malayalam Language Test*. Unpublished Master's dissertation. University of Mysore. Mysore. India.
- Salameh, E-K, Håkansson, G & Nettelbladt, U (2004). Developmental perspectives on bilingual Swedish- Arabic children with and without language impairment: a longitudinal study. *International Journal of Language and Communication Disorders*, 39, 65-93
- Scanlon, D. M., & Vellutino, F. R. (1996). Prerequisite skills, early instruction, and success in first-grade reading: Selected results from a longitudinal study. *Mental Retardation and Developmental Disabilities Research Reviews*, 2, 54–63
- Scarborough, H.S. (2001). Connecting early language and literacy to later reading disabilities: Evidence, theory, and practice. In S.B. Neuman, & D.K. Dickinson (Eds.), *Handbook of early literacy research* (pp.97-110). New York, NY: Guilford Press.
- Scarborough, H. S., & Dobrich, W. (1990). Development of children with early language delay. *Journal of Speech and Hearing Research*, 33, 70–83.
- Senechal, M., LeFevre, J., Smith-Chant, B. L., & Colton, K. V. (2001). On refining theoretical models of emergent literacy: The role of empirical evidence. *Journal of School Psychology*, 39, 439–60.
- Shanbal, J. C, Goswami, S.P., Prathima. S, & Chaitra. S, (2010) ***Early Literacy Screening Tool***. Departmental project. All India Institute of Speech and Hearing, Mysore.

- Sices, L., Taylor, H., Freebarin, L., Hansec, A., Lewis, B. (2007). Relationship between speech sound disorders and early literacy skills in preschool age children: Impact of comorbid language impairment. *Journal of Developmental Behavioural Paediatrics*. 28 (6), 438-447.
- Silva, P. A., Williams, S. M., & McGee, R. (1987). A longitudinal study of children with developmental language delays at age three: Later intelligence, reading and behaviour problems. *Developmental Medicine and Child Neurology*, 29,630-640.
- Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Snowling, M., Bishop, D. V. M., & Stothard, S. E. (2000). Is preschool language-impairment a risk factor for dyslexia? *Journal of Child Psychology and Psychiatry*, 41, 587–600.
- Stanovich, K. E. (1988). Children's reading and the development of phonological awareness. Detroit, MI: Wayne State University Press. In Catts, H.W., Adolf, S.M., Hogan, T.P., Weismer, S.E. (2005). Are specific language impairment and dyslexia distinct disorders? *Journal of Speech, Language, and Hearing Research*, 48, 1378-1396
- Stanovich, K. E. (2000). *Progress in understanding reading: Scientific foundations and new frontiers*. New York: Guilford Press.
- Stanovich, K.E., Cunningham, A.E., and Freeman, D.J. (1984). Intelligence, cognitive skills and early reading progress. *Reading Research Quarterly*, 19, 278-303.
- Stark, R., & Tallal, P. (1981). Selection of children with specific language deficits. *Journal of Speech and Hearing Disorders*, 46, 114-122

- Stothard, S. E., Snowling, M. J., Bishop, D. V. M., Chipchase, B. B., & Kaplan, C. A. (1998). Language-impaired preschoolers: A follow-up into adolescence. *Journal of Speech, Language, and Hearing Research, 41*, 407–418
- Swapna, S. (2003) *Comparative Study of the Speech and Language Development in Normal Children and Children with Learning Disability. Unpublished Doctoral thesis. University of Mysore. Mysore. India*
- Tallal, P. 1988. Developmental language disorders. In J. F. Kavanaugh and T. J. Truss, Jr. Parkton (Eds) *Learning Disabilities: Proceedings of the National Conference*, MD: York Press.
- Tallal, P., Allard, L., Miller, S., & Curtiss, S. (1997). Academic outcomes of language impaired children. In C. Hulme & M. J. Snowling (Eds.), *Dyslexia: Biology, cognition, and intervention* (pp. 167–181). London: Whurr
- Tallal, P., Curtiss, S., & Kaplan, R. (1988). The San Diego longitudinal study: Evaluating the outcomes of preschool impairments in language development. In S. Gerber & G. Mencher (Eds.), *International perspectives on communication disorders* (pp 86-126). Washington, DC: Gallaudet University Press.
- Tomblin, J. B., Records, N., Buckwalter, P., Zhang, X., Smith, E., & O'Brien, M. (1997). Prevalence of specific language impairment in kindergarten children. *Journal of Speech, Language, and Hearing Research, 40*, 1245–1260
- Treitel, L. (1893). Uber Aphasie im Kindesalter. *Sammlung Klinischer Vortrage*, 64, 629-654. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

- Uchermann, V. (1891). Drei Falle von Stummheit (Aphasie). *Zeitschrift für Ohrenheilkunde*, 21, 313-322. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Venkatesan, S (2011). NIMH. *Socio Economic Status Scale*. Revised edition. **All India Institute of Speech and Hearing**, Mysore.
- Vaisse, L. (1866). Des sourds-muets et de certains cas d'aphasie congénitale. *Bulletin de la Société d'Anthropologie de Paris*, 1, 146-150. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Waldenburg, L. (1873). Ein Fall von angeborener Aphasie. *Berliner Klinische Wochenschrift*, 10, 8-9. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Weiner, P. (1969). The perceptual level functioning of dysphasic children. *Cortex*, 5, 440-457. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Weiner, P. (1974). A language delayed child at adolescence. *Journal of Speech and Hearing Disorders*, 39, 202-212
- Whitehurst, J., & Lonigan, C.J., (1998). Child development and emergent literacy. *Child development*. 69, 848-872.
- Wiederholt, J. L., & Bryant, B. R. (2001). *Gray Oral Reading Test (GORT-4)* 4th edition. PRO-ED.

- Wilde, W. (1853). Practical observations on aural surgery and the nature of treatment of diseases of the ear. Philadelphia: Blanchard & Lea. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.
- Windsor, J., Kohnert, K., Lobitz, K., & Pham, G. (2010). Cross-language nonword repetition by bilingual and monolingual children. *American Journal of Speech-Language Pathology*, 19, 298-310.
- Wise, J. C., Sevcik, R. A., Morris, R. D., Lovett, M. W., & Wolf, M. (2007) The relationship among receptive and expressive vocabulary, listening comprehension, pre-reading skills, word identification skills, and reading comprehension by children with reading disabilities. *Journal of Speech, Language and Hearing Research*, August: 50 (4): 1093-109
- Wolfus, B., Moscovitch, M., & Kinsbourne, M. (1980). Subgroups of developmental language impairment. *Brain and Language*, 10, 152-171.
- Woodcock R. Woodcock Reading Mastery Tests—Revised. Circle Pines, MN: American Guidance Service; 1987. In H. W. Catts, S.M. Adolf, T. Hogan, S.E. Weismer (2005) (Eds). Are specific language impairment and dyslexia distinct disorders? *Journal of Speech and Hearing Research*, 48, 1378-1396.
- Worster- Drought, C., & Allen, I. (1929). Congenital auditory imperceptions (congenital word deafness): With report of a case. *Journal of Neurology and Psychopathology*, 9, 193-208. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

Wyke, M. (Ed.) (1978). *Developmental dysphasia*. London: Academic Press. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

Wyllie, J. (1894). *The disorders of speech*. Edinburgh: Oliver & Boyd. In L. Leonard. (1998). *Children with Specific Language Impairment*. Cambridge: MIT Press.

Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (1992). *Preschool Language Scale (PL3)*. 3rd edition. The Psychological Corporation.