# DEVELOPMENT OF A TOOL FOR SCREENING EMERGENT LITERACY IN MALAYALAM

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May, 2017

## CERTIFICATE

This is to certify that this dissertation entitled **"Development of a Tool for Screening Emergent Literacy in Malayalam"** is a bonafide work submitted in part fulfilment for degree of Master of Science (Speech-Language Pathology) of the student Registration Number: 15SLP004. This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Mysuru
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## CERTIFICATE

This is to certify that this dissertation entitled **"Development of a Tool for Screening Emergent Literacy in Malayalam"** has been prepared under my supervision and guidance. It is also being certified that this dissertation has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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## DECLARATION

This is to certify that this dissertation entitled **"Development of a Tool for Screening Emergent Literacy in Malayalam"** is the result of my own study under the guidance of Dr. K.S. Prema, Professor of Language Pathology,Department of Speech Language Sciences, All India Institute of Speech and Hearing, Mysuru, and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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# CHAPTER 1

## INTRODUCTION

Learning to read is a crucial milestone for children living in this century. Learning to read during the early of school is necessary for the later success in academic and social life (Burns, Roe & Ross, 1999). A critical part of the foundation for children's academic success is given by the reading skills. From the literature available in the field of early childhood education, it is clear that learning to read is influenced by the skills like phonological processing, print awareness, and oral language.

Emergent literacy refers to the developmental precursors of conventional literacy skills and which origins long before the formal schooling. It consists of the knowledge, skills and attitudes that are developmental precursors to writing and reading. This concept advances from an older perspective where the reading acquisition verifies the 'process of learning to read'. This commences with formal school-based instruction in reading readiness skills or with reading which is generally trained in kindergarten as letter recognition. This reading readiness approach creates a boundary between everything that comes before reading and after which the children are taught in educational settings. In contrary, an emergent literacy perspective in the preschool period is viewed as the literacy-related behavior which occurs important and as aspects of the developmental continuum of literacy.

Components of emergent literacy include oral language skills, phonological awareness and print awareness.

**Oral language skills**

It refers to vocabulary as well as the ability to use words to understand and convey meaning. Learning to read and oral language skills are considered as a developmental continuum, in which oral language forms the foundation for written language (Goldsworthy, 2003). According to Whitehurst and Lonigan (2003), vocabulary and other oral language skills like story retelling, story comprehension etc are very much related to reading during the development of the child.

**Phonological awareness**

According to Torgesen (1998), "phonological awareness is the ability to notice, think about, and manipulate the individual sounds in words". Phonological awareness skills are important in order to develop good reading skills. It is considered as a metaphonological skill. A child with good phonological awareness is able to manipulate sounds and words, or "play" with sounds and words. Children begin to read by listening to others read aloud, then recognizing sounds in words, sounding words out for themselves, recognizing familiar words, and so on. By engaging in word play, children learn to recognize patterns among words and use this knowledge to read and build words. Phonological awareness includes several skills like rhyme awareness, syllable identification, syllable deletion, alliteration awareness, syllable blending, syllable segmentation etc. Importance of phonological awareness varies with the language structure for alphabetic languages phoneme awareness is more important than non alphabetic languages.

**Print awareness**

Print knowledge describes children's early discoveries about the orthography of a language. Print knowledge comprises of skills like letter knowledge, letter name knowledge, letter discrimination, print convention, word recognition, identification of word boundaries, awareness of left to right progression in writing etc. Knowing of the alphabet at school entry is one of the single best predictors of eventual reading achievement (Adams, 1990; Stevenson & Newman, 1986). In alphabet writing systems, decoding text involves the translation of units of print to units of sound, and writing involves translating units of sound into units of print. In alphabetic language like English letters are representing phonemes while in an alpha syllabic language like Malayalam letters are representing the syllable. There is transparency for letter to sound, so decoding would have been better for this language. But studies reveal that due to the orthographic complexity akshara knowledge development is delayed in children speaking Malayalam language. A beginning reader who cannot recognize and distinguish the individual letters of the alphabet will have difficulty learning the sounds those letters represent (Bond & Dykstra, 1967; Chall,1967; Mason,1980).

Assessment is a process of collecting data to measure the abilities, performance or progress of an individual, group or program. Emergent literacy assessment is carried out to promote children's learning and development, to identify children who need intervention or special services and to monitor progress. It focuses on 3 important areas that are predictive of children's later reading success including oral language skills, phonological awareness and print awareness. Assessments with the goal of identifying children who may require intervention or special services are generally conducted through 2 measures, screening measure and diagnostic assessment. Screening measures

are brief and easy to administer and are designed to provide a global measure of children's emergent literacy skills and abilities and may provide a snapshot of children's performance in a particular skill area. Diagnostic assessments measure specific areas of language and emergent literacy in a thorough fashion which includes items or subscales that tap specific dimensions. Most of the studies on emergent literacy are focused on alphabetic language like English. Also, the tools available for emergent literacy are based on English language. Literature shows that very few researches are focused on non-alphabetic languages or languages like Chinese where syllables or morphemes are representing the graphemes.

There are few Indian studies which focused the assessment of emergent literacy in Kannada. Screening emergent language and literacy (SELL) is an online screening test developed by Prema (2005-06). It measures early language, phonological awareness and print awareness of emergent literacy in Kannada. Checklist for screening language based reading disabilities (Che-SLR, Swaroopa & Prema, 2003) is a study carried out to identify children with language based reading disability in Malayalam. Early literacy screening tool (ELST, Shanbal & Goswami, 2010) is a screening tool for identifying children at risk for Learning Disability within the age range of 3-6 years.

**Need for the study**

Emergent literacy consists of the skills, knowledge and attitudes that are presumed to be developmental precursors to conventional forms of reading and writing. This has to be screened or assessed to predict the further reading success of children.

Screening tools for emergent literacy skills in Indian languages are very few and much fewer in Malayalam language. So, a screening tool which could screen for the

emergent literacy skills in Malayalam becomes important. This screening tool can be used by teachers and SLPs to screen the preschool children for emergent literacy. If one fails in this tool, s(h)e can be referred for detailed assessment. Based on that, focused instruction can be provided so as to improve the further reading and writing skills. Considering the technology advancement as well as accessibility to those Malayalam speaking children who are at other places, developing a computerized screening tool is necessary. So, this study aims at developing a computerized emergent literacy screening tool in Malayalam to identify the children at risk of academic difficulty.

**Objectives of the present study**

1) To study the developmental pattern of emergent literacy in children who are native speakers of Malayalam
2) To develop a screening tool for emergent literacy in Malayalam language

**Hypotheses**

- There is no significant main effect of age on emergent literacy skills of children in 3-5years
- There is no significant difference between sub domains across age groups.
- There is no significant difference across sub domains within each age group

# CHAPTER 2

## REVIEW OF LITERATURE

Emergent literacy refers to the developmental precursors of formal reading that have their origins very early in the life of a child. It consists of the skills, knowledge, and attitudes about literacy skills that children develop prior to formal education. From birth until the beginning of formal education children growing in literate cultures accumulate knowledge about letters, words and books while children growing in less literate cultures develop limited knowledge. In theories of reading development, the period of time before children go to school is usually referred to as the emergent literacy period. How much literacy knowledge children acquire during this period depends on how much exposure they have to literacy activities and events as well as their interest and facility in learning and is thus highly variable. Most children acquire these knowledge by themselves if the environment provides enough opportunity, whereas few do not. So it seems important to know what children can learn about literacy, language and learning before they have any formal instruction.

The term ‘emergent literacy’ was first termed by Clay(1966) to describe the behaviors used by young children when reading or writing even though the children could not actually read and write in a conventional sense. Many Authors have given numerous definitions of emergent literacy. According to Sulzby (1989),emergent literacy includes the reading and writing behaviors of young children that precede and develop into conventional literacy. Whitehurst and Lonigan (1998) claimed that emergent literacy describes the concepts, skills and knowledge that young children have about reading and writing prior to beginning their formal literacy instruction in elementary school.

Researchers in this field 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) (Whitehurst & Lonigan,1998; Scarborough, 2001). Koenig (1992) stated that "emergent literacy is characterized by the early development of understanding that abstract symbols have meaning and that people use these symbols for the communication of ideas. Children acquire the literacy and language foundation during the infant, toddler, and preschool years which helps them to succeed once they begin formal schooling". (Snow, Burns, & Griffin, 1998).

**Development of emergent literacy**

Children's experiences with oral language and literacy starts as early as the first two years of life which are considered as the precursor of later reading success (Snow et al.,1999; Strickland & Morrow,1988; Weaver,1988). From three to four years of age, children show rapid growth in literacy. Eventually, they progress from telling about each picture individually to weaving a story from picture to picture using language that sounds like reading or written language (Holdway, 1979; International Reading Association & National Association for the Education of Young Children, 1998; Sulzby, 1991).

Children also experiment with writing by forming scribbles, letter like forms, and random strings of letters(Barcay, 1991;Clay, 1975; Burns et al., & Grifiin, 1998; McGee & Richgels, 1996). Children shows interest in reading the printed messages using language that sounds like reading and interpret meaning from the printed materials (Clay, 1975;McGee & Richgels, 1996; Sulzby, 1985b). Knowledge of print, phonological

awareness, and narrative skills are few parameters that are positively related with later reading acquisition in typically developing children.

**2.1 Domains of emergent literacy**

According to Whitehurst & Lonigan, 1998, domains of emergent literacy includes:

1. Oral language skills

2. Phonological awareness

3 .Print awareness.

Oral language skills, Phonological awareness, and Print awareness are three areas associated with emergent literacy that play a crucial role in the acquisition of reading.

***2.1.1 Oral language skills***

Reading is a process of translating visual codes into meaningful language. In the earliest stages, reading in an alphabetic system involves decoding letters into corresponding sounds and linking those sounds to single words. Imagine the scenario of a child who has never seen a particular object and does not know what the word means. In this case, the child's attempt to help is useless because the child has no semantic representation to which the phonological code can be mapped. Several studies (Bishop & Adams, 1990; Butler, Marsh, Sheppard & Sheppard,1985; Pikulski & Tobin,1989; Scarborough,1989; Share, Jorm, Maclean & Mathews,1984) have demonstrated a longitudinal relation between the extent of oral language and later reading proficiency within typically developing, reading-delayed, and language-delayed children.

Many studies have been found the association between reading ability and vocabulary, especially expressive vocabulary (Wolf, 1991). Walley (1993) has suggested that vocabulary growth plays an active, causal role in phoneme awareness of reading success. Vocabulary skills are very important because it has a very strong link between vocabulary and the development of reading. Scarborough's (1990) early work has found that receptive and expressive vocabulary deficits in three year olds with the subsequent development of reading disabilities. Reading disabled second grade children had poor scores in receptive and expressive vocabulary in kindergarten (Tomblin, Records, Buckwalter, Zhang, Smith & O'brien, 1997). Bowey (1995) reported that differences in receptive vocabularies of preschool children predicted word-level reading skills in first grade. Children with larger vocabularies become more proficient in reading than children with smaller vocabularies.(Bishop & Adams, 1990; Scarborough, 1989; Storch & Whitehurst, 2002).

Researchers have identified vocabulary skills as predictor of later reading success. In contrast, NELP (2005) has reported that oral language skills have a weak relation with both decoding skills and reading comprehension

### *2.1.2 Phonological awareness*

Phonological awareness refers to the ability to detect and manipulate the sounds of spoken language independent of meaning (Lonigan,2006;Wagner & Torgesen, 1987). It is a metalinguistic that children develop during their early stages of development about the sound units in the language which they are exposed to. It is a skill acquired during the preschool period, prior to formal reading instruction (Lonigan et al., 1998, 2000).

Phonological awareness skills are important in order to develop good reading skills. Having good phonological awareness skills means that a child is able to manipulate sounds and words, or "play" with sounds and words. Phonological awareness is important because it is a basis for reading.

Manrique and Signorini (1998) referred to two levels of phonological awareness: basic metaphonological skills and segmental awareness. Basic metaphonological skills consists of rhyming, syllable awareness and sound matching, which children often learn indirectly as they master speech sounds and due to exposure to songs, word games etc. Phonological awareness is strongly associated to the literacy development of children. Studies shows that children who are better at detecting syllables (Mann & Liberman, 1984), rhymes (Bradley, 1988c; Bradley & Bryant, 1983; Ellis & Large, 1987;Lundberg, Olofsson, & Wall, 1980), or phonemes (Lundberg et al., 1980; Stanovich, Cunningham, & Cramer, 1984; Tunmer & Nesdale, 1985), will be the faster in their progress with reading. Lack of phonological awareness might be the most important barrier to reading acquisition(Gough & Hillinger, 1980). Studies done by Ehri (1979,1980 & 1984) showed that phonological awareness skills are very important for English reading skills. It creates the indirect lexical route and helps in reading.

Phonological awareness includes skills like rhyme awareness, syllable deletion, syllable blending, syllable segmentation, alliteration awareness. Phonological processing skills like non word repetition, rapid automatized naming are also considered to very important in the development of reading development.

#### *2.1.2.1 Rhyme awareness*

Research findings on the link between rhyme awareness and reading are contradicting . Few researches found an association between levels of rhyme awareness and early reading skills (Bryant, 1997; Bradley & Bryant, 1983, 1991), but others provide data that are against this association (Duncan, Seymour, & Hill, 1997; Muter, Hulme, Snowling, & Taylor, 1998; Muter & Snowling, 1998). Likewise, some studies suggest that rhyme awareness is a developmental antecedent and a precursor of phoneme awareness ( Bradley & Bryant, 1983; Bryant & Goswami, 1987; Treiman & Zukowski, 1991), whereas other few studies note that phoneme awareness and rhyme awareness are not dependent (Duncan & Johnston, 1999). Study carried out by Stanovich, Cunningham, and Cramer (1984) did not find a relation between rhyme awareness and phoneme detection and children reach ceiling level by 5 years of age for the rhyme test. Many researchers emphasizes phonemic awareness as the powerful predictor of emerging reading skill in children on the brink of kindergarten entry than rhyme awareness. (Hulme, 2002; Hulme et al., 2002; Marshall et al., 2001)

#### *2.1.2.2 Syllable awareness*

Syllable awareness refers to the ability to manipulate the syllables ie syllable blending, syllable segmentation, syllable deletion etc. Children are able to isolate and detect relatively large units such as syllables from their early age itself and can identify rhymes also (Knafle, 1973, 1974; Lenel & Cantor, 1981; MacLean, Bryant, & Bradley, 1987). Children who does not know to read found difficulty in detecting the single phoneme (Bruce, 1964, Liberman et al, 1974, Liberman et al, 1978, Bryant & Goswami,

1987). Phonological skills of blending and segmentation were the strongest predictor of later word recognition (Torgesen et.al, 1994).

Young children perform poorly on tasks of segmenting words into syllables (Ehri, 1975), or words into phonemes (Liberman, Shankweiler, Fischer, & Carter, 1974). Phoneme deletion tasks are difficult for children upto 5 years of age (Bruce, 1964). syllable awareness and access is easier and universal than accessing phonemes(Tunmer & Bowey, 1984) while ability to delete the phoneme develops only after continuous practice (Content, Kolinsky, Morais, & Bertelson, 1986). Identification of words by initial and final sounds, rhyming words, and identifying or blending segmented words are important for word-level reading skills (Bowey, 1995; Scarborough, 1990; Vandervelden & Siegel, 1997). Ziegler and Goswami (2005) drew on a wide body of empirical evidence to support the argument that PA develops from larger to smaller units during childhood, with syllable and rhyme awareness developing prior to phoneme awareness.

***2.1.2.3. Phoneme awareness***

Wagener et. al (1994;1997) reported the results of a longitudinal study that checked the influence of letter knowledge on subsequent phonological awareness development.They found that individual differences in kindergarten and first grade letter knowledge were significantly related to measures of phonological sensitivity 1 and 2 years later

One plausible idea is that vocabulary growth drives the increase in phonemic representation of lexical entries (Metsala & Walley, 1998; Ziegler & Goswami, 2005).

Cooper, Roth, Speece & Schatschneider, C. (2002) conducted a study to identify factors that contribute to the development of phonological awareness.They investigated

the longitudinal relationships among child background factors, structural oral language, and phonological awareness in a sample of 52 children from kindergarten to second grade and a subsample of this group who were nonreaders in kindergarten. Regression analyses indicated that the background variables were unique predictors of kindergarten general oral language skill but did not predict phonological awareness skills. General oral language accounted for significant and substantial unique variance in phonological awareness each year for both the full sample and the subsample of nonreaders, controlling for reading ability. These findings suggest general oral language may contribute to the development of early reading through its significant influence on the development of phonological awareness.

***2.1.2.4. Non word repetition***

Children with reading and language difficulties are impaired in nonword repetition compared to children without such difficulties (Brady et al., 1989; Gathercole & Baddeley, 1993; Kamhi & Catts, 1986; Kamhi, Catts, & Mauer, 1990; Leonard, Schwartz, & Loeb, 1987; Manis et al., 1997), which proves that nonword repetition is a good predictor of reading difficulties, at least in some children (Edwards & Lahey, 1998; Manis et al., 1997).

Lonigan,Bugess,Anthony, and Barker (1998) checked 238 preschoolers and found that although their average performance was low. There was evidence that a number of the 2 and 3 year old children demonstrated phonological sensitivity at all levels of linguistic complexity.

### *2.1.2.5 Rapid automatized naming*

In younger children, lexical access may be measured as the rate at which an array of objects or colours can be named. Automaticity of lexical access measures are significant predictors of growth in decoding skills in school-age children (Wagner et al., 1991, 1997)

The National Early Literacy Panel (2005) has conducted a meta analysis of studies that included data concerning the predictive relation between a skills measured in preschool or kindergarten and reading outcomes for children learning to read in an alphabetic language. Results proved that measures of phonological access to lexical store, rapid automatized naming tasks have moderate relations with both decoding and comprehension.

Numerous researches have been carried out on phonological awareness skills in Indian languages. Few of them have pointed out that in normally developing children, phonological awareness is important though not a crucial factor for reading acquisition. (Patel & Soper, 1987; Prakash, 1987; Prakash, Rekha, Nigam and Karanth, 1993; Prema, 1997, Seetha, 2002). In a non-alphabetic language, syllable awareness is easier to develop and phoneme awareness was the last to develop. It might be due to the alphabetic nature of Kannada script or due to the exposure to alphabetic language in school setting (Prema, 1997). Swaroopa(2001) has done a cross sectional study on 24 children who were native speakers of Malayalam within the age range of 3-5 years. It was aimed at identifying the children with language based reading disability in their preschool years. The results revealed that rhyming and alliteration, rapid naming, language expression and listening

skills and non verbal imitation were considered as the strong variables in identifying the language based reading disability.

To summarize, phonological awareness is the ability to identify and manipulate speech sounds and it is one of the strong determinants of successful early reading. Many researchers have found out that phonological awareness skills like rhyme awareness, syllable blending, syllable segmentation, alliteration awareness, syllable deletion etc emerges at an early age and can be considered as a strong predictor of conventional literacy skills. Indian studies reported that phonological awareness skills in non-alphabetic languages occur relatively at a later age .

### *2.1.2 Print awareness*

Print knowledge describes children's early discoveries about the orthography of a language. Knowing of the alphabet at school entry is one of the best predictors of eventual reading achievement (Adams, 1990; Stevenson & Newman, 1986). Print knowledge during the preschool years may be one of the most powerful predictors of how well a child will read in early elementary school (Hammill 2004). Two important components of print knowledge highlighted by the NELP are alphabet knowledge and print-concept knowledge. Together, these two skills represent two critically important precursors to decoding and understanding written language.

In alphabet writing systems, decoding text involves the translation of units of print to units of sound, and writing involves translating units of sound into units of print. A beginning reader who cannot recognize and distinguish the individual letters of the alphabet will have difficulty learning the sounds those letters represent (Bond & Dykstra, 1967; Chall,1967; Mason,1980).

Mason,1980; Hiebert,1981; Hiebert, Cioffi, & Antonak, 1984 studied the development of and relations between several print related concepts and they have concluded that young children might acquire knowledge of various print related concepts and word reading. Children should learn to recognize the printed words accurately, rapidly and completely while learning to read (Ehri, 1980, 1992; Adama, 1990). Liberman et al.(1974, 1977), Fox and Routh (1975) claimed that the fundamental skill required for learning to read an alphabetic language is decoding eventhough the sight word and word recognition skills are essential.

The relationship between reading comprehension and the ability to recognize words is strong in the younger age. (Stanovich, Cunningham, & Freeman, 1984). Children who enter school with more print knowledge are generally more successful with school based lietarcy (Purcell-Gates,1996).Children from lower socio-economic status and children with language impairment had poor concepts about print when compared to their typically developing peers.

Lomax (1987) has conducted a study to test a five component model in 81 children who were attending a private nursery or elementary school. 20 three-year-olds, 23 four-year olds, 20 five-year-olds , and 18 six year olds participated in this study .Components include concepts about print, graphic awareness, phonemic awareness, grapheme-phoneme correspondence knowledge and word reading. According to the results of this study, every child even the youngest, showed a great deal of awareness of written language and reading. The subjects of three years old also were expert environmental print-readers, and were starting to recognize what could be read and to distinguish reading and writing from other activities. They could discriminate between letters and even between some words as well as name over one third of the alphabet

letters. However, the concepts about print are not conquered by three-year-olds. The five- and six-year-olds showed more knowledge of concepts about print than the three- and four-year-olds . Finally the authors suggests that with age , children continue to increase in their awareness and understanding of each of the five hypothesized print components.

Word and print awareness serve as key predictors of later reading achievement (Adams,1990) and compromise important elements of the foundation of emergent literacy knowledge(NELP, 2009; Stuart, 1995). Denton and colleagues (2000) reported statistics on a general sample of 22,000 children from kindergarten through fifth grade. There was a evident relation between specific skills related to reading and later word decoding skills.66% of the children at kindergarten entry could name upper and lower case letters of the alphabet; 29% recognized the beginning sounds of words: 17% recognized ending sounds; and 1% to 2% could read sight words or words in context.

Johnston, Anderson, and Holligan (1996) conducted a study in non-reading preschool children where he found that children could identify few or no letter names had difficulty on phonological processing tasks compared to children who knew an average of 8 letters. Many researchers have investigated on young children's acquisition of knowledge about written language and reading processes prior to reading knowledge (Clay, 1979a; Ferreiro & Teberosky, 1982; Harste, Burke, & Woodward, 1981; Hiebert, 1981; Hiebert, Cioffi, & Antonak, 1984; Mason, 1980; Resnick & Weaver, 1979; Sulzby, 1985). They have found that prior to school entry, most of the young children do not read in a traditional sense, but they know about written language and the processes of reading and writing. For example, studies have shown that preschoolers are learning letter

features (Lavine, 1977; Pick et al., 1978), can name some letters (Hiebert, 1981; Mason, 1980), can discriminate between some letters, words, and sounds (Hiebert, 1981), and can read words when they are presented in familiar environmental contexts (Goodall, 1984; Hiebert, 1978; Mason, 1980; Ylisto, 1967).

Letter knowledge is another salient attribute of beginning reading success that has been linked to phonological awareness and early reading (Adams, 1990; Bradley & Bryant, 1991; Ehri, 1983; Mann, 1984; Muter, 1994). Badian(1995) found that preschool letter naming was a consistently significant predictor of reading vocabulary,reading comprehension, and spelling at each grade level,but the preschool orthographic task contributed most to reading comprehension and spelling at each grade level but the preschool orthographic task contributed most to reading comprehension and spelling at higher grades.

Letter knowledge of children improves significantly between three to six years of age. (Brady, Fowler, Stone, & Winbury,1994; Lomax & Mc gee, 1987) . Investigations done by Muter & Diethem,(2001) revealed that letter knowledge is a strong predictor of reading skills both in English speaking and non-English speaking children. "Alphabet knowledge is a child's ability to identify letters of the alphabet by their name and sound" which is a powerful predictor of decoding words and reading fluency (Schatschneider et al. 2004). Letter name fluency is a measure of early reading and poor reader status (Speece, Mills, Ritchie and Hillman, 2003)

Research has revealed that children begin to first show fundamental book-handling skills during the toddler years (DeLoache et al., 2000; Galentine, 1996). Book

handling skills such as holding the book upright, turning pages and pointing to the beginning and the end of a book emerged around PKG and were fairly well developed by UKG (Sarika, 2011). According to Piasta et al. (2012), print-concept knowledge is a child's knowledge about book and print organization which is a strong predictor of child's ability to decode written words and comprehend reading passages.

Researchers have pointed out that preschoolers and young primary age students lacks awareness of certain aspects of written language which are thought to be strongly associated to reading. Young children have difficulty to distinguish boundaries of written words (Meltzer & Herse, 1969; Mickish, 1974)

To summarize, print awareness refers to the children's ability to comprehend how print is organized; skills include knowledge of the conventions of print as well as the letters of the alphabet and these skills are precursors to later reading development.

### *2.1.4 Relationship between the domains of emergent literacy*

The three domains of emergent literacy are related. Burgess and Lonigan (1998) studied 98 four year old children from middle income backgrounds and results revealed that the measures of vocabulary predicted growth in phonological awareness over a 1 year period. Lonigan, Burgess, and Anthony (2000) studied the relations between phonological awareness, letter knowledge, and oral language and decoding skills in preschool children and reported that only phonological awareness and letter knowledge contributed to the prediction of decoding skills and these skills develop in parallel and not like one after the other.

Storch and Whitehurst (2002) followed 626 children from preschool through fourth grade. They measured code-related skills (print knowledge, prnt concepts,

phonological awareness) and oral language in preschool and kindergarten, and they measured decoding skills and reading comprehension. Results showed that there was a strong connection between code-related skills and oral language during preschool; reading skill during the early elementary period was determined primarily by children's code-related skills; and reading comprehension in later elementary school was significantly influenced by children's oral language skills.

Several studies on emergent literacy reports that children's reading and writing skills in later grades can be predicted by assessing their emergent literacy skills in the preschool period. Literacy environment plays a mojor role in the developemtn of emergent literacy skills. Factors, like socio economic status, home environment, parental interaction, amount and quality of books available etc influences the development of emergent literacy skills. Khurana and Rao (2008) carried out two surveys to understand the emergent literacy experiences of Kannada speaking children studying in preschools with English as the medium of instruction. Two questionnaires were developed. One was on emergent literacy experiences in the classroom and the other one was on books. Teachers from 10 preschools participated in the survey.The results reveal that 83.32 % of teachers reported that children in their school were exposed to literacy rich experiences through activities such as storybook reading, print awareness, letter knowledge and phonological awareness and 77.56% of teachers reported that preschools provided good quality and child friendly books with appropriate text and illustrations. Authors also suggest that preschools included in the sample had employed well-qualified teachers who provide children with a literacy rich environment in the classroom and hence, the results should be viewed with caution.

### 2.1.5. Indian studies

Majority of studies focused on reading development in Indian language were carried out in elementary school children. From the literature it can be understood that very few studies are done on emergent literacy skills of Indian children. Furthermore, the assessment tools available are very less for emergent literacy. Screening Emergent Language and Literacy Skills (SELL) developed by Prema (2010) is a digitized program for screening preschool children who are native speakers of Kannada 'at risk' for emergent language and literacy skills. It comprises of sections like emergent language, phonological awareness, (rhyming, oddity, syllable and phoneme manipulation) and written language awareness.

Prema (2010) developed a Phonological Sensitivity Training Kit in Kannada (PhoST-K) for preschool children. Twelve children who were found to be 'at risk' for literacy were selected after screening using screening checklists. They were made into two groups; experimental group who received training for phonological sensitivity skills and a control group who did not receive any training. The training material comprises of discrimination of rhyming, blending, segmentation, syllable and phoneme oddity, syllable and phoneme deletion and manipulation task. After comparing the scores of pre-training and post-training on screening measures of both experimental and control groups, it was found that discrimination of rhyming pairs was easier followed by syllable tasks such as segmentation, deletion, blending and manipulation. Phonemic skills were not achieved after the training program. Results also indicates that the sequence of phonological sensitivity skills development moves from least complex spectral skills to most complex metacognitive skills .

Khurana (2011) conducted a cross-sectional study to explore the development of emergent literacy in three to six year old Kannada speaking English Language Learners studying in preschools. 95 participants from preschools within the age range of 3-6 years were considered for the study after a series of surveys. A tool for Emergent Literacy Assessment (TELA) which included three domains of emergent literacy, oral language skills, print knowledge and phonological processing was developed to study the emergent literacy skills of Kannada-speaking English Language learners. The results revealed that emergent literacy development was not discrete and it followed an 'overlapping sequence and the developmental pattern from PKG through UKG suggested that there is a gradual development in oral language skills, whereas most of the print knowledge and phonological processing skills showed a sudden spurt in development. Also it was found that oral language, print knowledge and phonological processing skills have intra and inter-correlations among each other. Very few Indian studies have been carried out to explore the developmental pattern of emergent literacy in different age groups. The dearth of literature on emergent literacy in Indian languages indicates that the concept of emergent literacy is not widely accepted or practiced by the professionals or policy makers.

# CHAPTER 3

# METHOD

The main aim of the present study was to develop a screening tool for emergent literacy in Malayalam and to study the developmental pattern of emergent literacy skills in Malayalam speaking children.

The objectives of the study were

- To study the developmental pattern of emergent literacy in children who are native speakers of Malayalam
- To develop a screening tool for emergent literacy in Malayalam language

## 3.1 Participants

Thirty children within the age range of 3-5 years were considered for the present study. Children within the age range 4-5 years were selected from the schools of Wayanad district in Kerala and children within the age range of 3-4 years were selected from Anganwadis of the same district. The participants were grouped into 2 categories: $\geq$ 3 to $\leq$ 4 years and $\geq$ 4 to $\leq$ 5 years (15 in each group).

The following criteria were used to select the subjects:

1) Children who are native speakers of Malayalam
2) Children in the age range of 3-5 years
3) Children should not have any disability as screened using WHO questionnaire.

## 3.2 Procedure

The study was carried out in 2 phases:

***3.2.1 Phase 1***: Development of the screening tool

For the assessment of emergent literacy skills, a computerized screening tool for emergent literacy skills was developed using Matlab software. This tool consists of 3 domains.

- Oral language skills
- Phonological processing
- Print awareness

The framework for this screening tool was based on Get ready to read (GRTR, Whitehurst & Lonigan, 2001) and Screening emergent language and literacy (SELL, Prema, 2006). All the stimulus items were developed in Malayalam language and linguistically and culturally appropriate stimulus items were selected. Initially a manual version of the instructions and stimulus items were developed. Written instructions were given to three Malayalam speaking females and were recorded. From these three recordings most audible as well as clear one was selected based on the suggestions given by five Speech language pathologists. Colorful pictures as well as Malayalam letters or words were used as the visual stimuli.

**Digitization**

All the pictures and audio recordings were digitized in Matlab software. Audio recorded instructions were presented along with the visual stimulus. For auditory stimuli the recorded stimuli was used as the wave file and pictures as JPG format. The screening tool was presented through Dell Inspiron of screen width 15.6. The audio stimulus was presented through speaker at 80% loudness level and visual stimulus through laptop screen kept at an appropriate distance. The examiner has to select the option which the

child points to using mouse and should click on ‘Next’ button to move on to the next stimulus item.

***3.2.1.1 Oral language skills***

This domain includes vocabulary and story comprehension. For the vocabulary sub domain, 10 colourful pictures of five different categories i.e. fruits, animals, common objects, body parts, and vehicles were included. The child has to name the pictures shown. A score of ‘0.5’ was given for each correct response and ‘0’ for incorrect response and the total score for this sub domain is 10. For the story comprehension task, “The hare and tortoise” story was narrated using pictures and six questions were asked based on this story. For each question, four pictures were given to the child and the child has to point to the correct picture. For e.g. the question “/aːraːɳu oːʈʈa malsarattil ʤajiʧaʇə/?”,the picture of dog, cat, rabbit and tortoise were shown as the options. The child has to point to the correct picture. Each correct response was given a score of ‘1’ and ‘0’ for incorrect response.

***3.2.1.2. Phonological processing***

It includes 12 stimuli items for assessing Rhyme awareness, Initial syllable identification, Final syllable identification, Alliteration awareness, Initial syllable deletion, Final syllable deletion; Syllable blending, Word segmentation, Syllable segmentation and Non word repetition. The stimuli and correct responses in phonological processing are included in table 3.1.

Table 3.1

*Stimuli items in phonological processing*

| Stimuli no. | Skill | Stimulus | Response |
|---|---|---|---|
| 1 & 2 | Rhyme awareness | *Practice trial:* Select the appropriate picture of the rhyming word for the word /ka:ɖə/ | Points to the picture of /vi:ɖə/ |
| | | *Test trial:* Select the appropriate picture of the rhyming word for the word /vala/ and /mi:ʃa/. | Points to the picture of /t̪ala/ for /vala/ and the picture of /d̪o:ʃa/ for /mi:ʃa/. |
| 3 | Initial syllable identification | *Practice trial:* Identify the initial syllable of the word /pallə/ | Either points to 'പ' or produce it |
| | | *Test trial:* Identify the initial syllable of the word /kaṇṇu/ | Either points to 'ക' or produce it |
| 4 | Final syllable identification | *Practice trial:* Identify the final syllable of the word /d̪o:ʃa/ | Points to 'ാ' or produces it |
| | | *Test trial:* Identify the final syllable of the word /a:ma/ | Points to 'മ' or produces it |
| 5 | Alliteration awareness | *Practice trial:* Find out the word beginning with the syllable /ʧ/ | Points to the picture of /ʧakka/ |
| | | *Test trial:* Find out the word beginning with the syllable /t̪/ | Points to the picture of /t̪ala/ |
| 6 | Alliteration awareness | *Practice trial:* Find out the word ending with the syllable /va/ | Points to the picture of /pa:va/ |
| | | *Test trial:* Find out the word ending with the syllable /na | Points to the picture of /pe:na/ |

| | | | |
|---|---|---|---|
| 7 | Initial syllable deletion | *Practice trial:*<br>Delete the initial syllable of the word /t̲avala// and point to the picture of the remaining word | Points to the picture of /vala/ |
| | | *Test trial:*<br>Delete the initial syllable of the word /mut̲ala/ and point to the picture of the remaining word | Points to the picture of /t̲ala/ |
| 8 | Final syllable deletion | *Practice trial:*<br>Delete the final syllable of the word /paṭṭika/ and point to the picture of the remaining word | Points to the picture of /paṭṭi/ |
| | | *Test trial:*<br>Delete the final syllable of the word /kaḍala/ and point to the picture of the remaining word | Points to the picture of /kaḍa/ |
| 9 | Syllable blending | *Practice trial:*<br>Blend all the three syllables /ka/, /ḍu/ and /va/ and find the correct picture for the word | Points to the picture of /kaḍuva/ |
| | | *Test trial:*<br>Blend all the three syllables /t̲a/, /ma/ and /ra/ and find the correct picture for the word | Points to the picture of /t̲a:mara/ |
| 10 | Word segmentation | *Practice trial:*<br>Segment the compound word /t̲alamuḍi/ and identify the number of segmented words | Points to ‘2’ or says ‘2’ |
| | | *Test trial:*<br>Segment the compound word /koɻ̲imuṭṭa/ and identify the number of segmented words | Points to ‘2’ or says ‘2’ |
| 11 | Syllable segmentation | *Practice trial:*<br>Segment the word /t̲avala/ into syllables and identify the number of segmented syllables | Points to ‘3’ or produces ‘3’ |

| | | | |
|---|---|---|---|
| | | *Test trial:*<br>Segment the word /parava/ into syllables and identify the number of segmented syllables | Points to '3' or produces '3' |
| 12 | Nonword Repetition | *Repeat the non word heard* | |
| 13 | Rapid automatized naming-objects(RANO)<br><br>Set 1<br>Set 2 | Colourful pictures of objects of different categories were included and the child was instructed to name these pictures as fast as possible. The time taken for naming these five items were measured. | |

**Note:** One practice trial was provided for each of the stimuli items just before the test trial. Four options were provided to the child to select the correct answer wherever required. A score of '1' was given for each correct response and '0' for incorrect response from stimuli no.1 to stimuli no.12. For stimuli no.13 (RANO), a score of '2' was given if the child could name all the pictures shown within 3-5 seconds, a score of '1'if he/she could name in 6-8 seconds and a score of '0' if named in more than 8 seconds.

### *3.2.1.3 Print awareness*

Print awareness consists of 10 stimuli items which assesses Letter matching skills, awareness of writing tools, Book handling skills, Letter discrimination skills, Word recognition skills, Letter knowledge, Word boundary, Awareness of handwriting, Awareness of direction, Word matching. Table 3.2 depicts the stimuli and response for items in print awareness.

Table 3.2

*Stimuli items and responses in print awareness*

| Stimuli no. | Skill | Stimulus | Response |
|---|---|---|---|
| 1 | Letter matching | *Practice trial:*<br>Find the correct option in which two letters are the same | Points to 'ക ക ' |
| | | *Test trial:*<br>Find the correct option | Points to 'ഞ ഞ' |

| | | | |
|---|---|---|---|
| | | in which two letters are the same. | |
| 2 | Awareness of writing tools | Identify the object which is used for writing | Points to the picture of 'pencil' |
| 3 | Book handling skills | Find the correct one which shows the back of the book | Points to the picture of back of the book |
| 4 | Letter discrimination | *Practice trial:*<br>Identify the picture that has letters in it | Points to 'റ വ' |
| | | *Test trial:*<br>Identify the picture that has letters in it | Points to 'മ ക' |
| 5 | Word recognition | *Practice trial:*<br>Identify the picture that has a word in it | Points to the word 'മിന്നാമിന്നി' |
| | | *Test trial:*<br>Identify the picture that has a word in it | Points to the word "കളിക്കുടുക്ക" |
| 6 | Letter knowledge | *Practice trial:*<br>Identify the letter 'അ' | Points to the letter 'അ' |
| | | *Test trial:*<br>Identify the letter 'ഇ' | Points to the letter 'ഇ' |
| 7 | Word boundary | *Practice trial:*<br>Count the number of words in the sentence shown.<br>"കുട്ടി കളിച്ചു" | Points to the option '2' |
| | | *Test trial:*<br>Count the number of words in the sentence shown.<br>"പൂച്ച പാൽ 8കുടിച്ചു" | Points to the option '3' |
| 8 | Awareness of handwriting | Find the word which is written the best | Points to the neatly written word |

| | | | |
|---|---|---|---|
| 9 | Awareness of direction | Find the word which is correctly written in terms of left to right progression | Points to the word which is correctly written in terms of left to right progression |
| 10 | Word matching | *Practice trial:* Identify the option in which the two words are the same | Points to 'പന പന ' |
| | | *Test trial:* Identify the option in which the two words are the same | Points to 'ത൦ ത൦' |

**Note:** 4 options were given for each question. For each correct response,a score of '1'was given and a score of '0' for incorrect response

**Content validity**

Content validity was carried out by giving the developed digitized screening tool for rating to 3 preschool teachers and 3 Speech language pathologists. They were asked to critically evaluate about the appropriateness, clarity and understandability of the instructions, pictures and scoring pattern. Modifications were incorporated based on the suggestions given by SLPs and teachers. They suggested that repeated instructions should be given to elicit the correct response and also to provide necessary reinforcements. As the tool was digital version the first suggestion was not incorporated.

**Pilot study**

Pilot study was conducted on 6 children, 3 in each age group. Instructions, pictures and scoring were found to be appropriate after conducting the pilot study.

***3.2.2 Phase 2:*** Administration of the developed screening tool

The developed computerized screening tool was administered on 30 children (15 in each group) in the age range of 3-5yrs who have passed the inclusion criteria. Testing was carried out in quiet rooms in schools or home environments. Informed consent was

taken from the parent. Teacher/parent accompanied the child during the testing procedure .They were explained about the whole testing procedure and duration of administration of the test. Before administering the test, rapport with the child was developed. The duration of the test was approximately 45 to 60 minutes. Adequate rest period was given to the child in between the testing and suitable incentives were given to all the participants after the administration of tool.

**3.3 Scoring and analysis**

Response of each child were marked in the score sheets and scoring was done as mentioned in the method. Total scores as well as scores for the three sub domains were calculated by adding the individual scores in the respective domains for each child. As the items in each sub domain was not equal the raw scores obtained were converted to percentage scores and was analyzed using Statistical Package for the Social Sciences (SPSS) version 20.0.

# CHAPTER 4

## RESULTS AND DISCUSSION

The aim of this study was to investigate the developmental pattern of emergent literacy in Malayalam speaking children within the age range of three to five years. Thirty participants were considered for the study and they were grouped into 2 categories: $\geq 3$ to $\leq 4$ years and $\geq 4$ to $\leq 5$ years (15 in each group).

The objectives of the study were

- To study the developmental pattern of emergent literacy in children who are native speakers of Malayalam
- To develop a screening tool for emergent literacy in Malayalam language

Following statistical procedures were carried out.

Descriptive statistics was carried out to obtain mean, median standard deviation and frequency distribution. Shapiro Wilk's test for normality was administered to check whether the data is following normal distribution or not. The data for the total scores were following normal distribution whereas across the domains and across the age groups the data was not normally distributed. So independent t test was done for total scores of three domains across the age groups and Man Whitney U test was done for comparison across age groups & domains and Wilcoxon signed rank test was done for pair wise comparison. Results are explained under the following sections:

1. Comparison of emergent literacy skills across age groups
2. Comparison of each sub domain across age groups
3. Comparison across domains within age groups

4. Reliability
5. Descriptive analysis of individual stimulus (Item analysis)

### 4.1 Comparison of total scores across the age groups

For the comparison emergent literacy skills across age groups the total scores were calculated for all stimuli and the mean value for 3-4 age group was 17.6 and for 4-5 age group, mean score was 26.27 with a standard deviation of 4.564 and 4.096 respectively as shown in Table 4.1

Table 4.1

*Mean and standard deviation of scores of 3-4 and 4-5 years age groups*

| Groups | N | Mean | SD | Std.Error Mean |
|---|---|---|---|---|
| 3-4 | 15 | 17.60 | 4.56 | 1.17 |
| 4-5 | 15 | 26.27 | 4.09 | 1.06 |

(N = No. of participants; SD = Standard deviation)

Independent sample t test was conducted for the comparison of total scores across the age groups and the results revealed $t(28) = 0.000$, $p<0.01$, which indicates that there was a significant difference across the age groups. In another way, children in 4-5yrs age group were performing better than 3-4yrs.

### 4.2 Comparison of scores of each domain across the age groups

Comparison of each sub domain i.e. oral language skills, phonological processing and print knowledge was done across the two age groups. Mean and standard deviation of these three domains for the two age groups are given in the table 4.2

Table *4.2.*

*Mean and SD scores of each domain in 3-4 and 4-5 years age group*

| Domains | 3-4 age group | | 4-5 age group | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| OLS | 11.47 | 1.51 | 13.07 | 1.53 |
| PP | 2.00 | 1.46 | 4.80 | 2.57 |
| PA | 4.13 | 2.56 | 8.40 | 0.99 |

*(Note: OLS = Oral language skills, PP = Phonological processing, PA = Print awareness)*

As shown in table 4.2.1 and figure 4.2.1, Oral Language Skills scores are greater in 4-5 year age group (Mean = 13.07, SD= 1.53) compared to 3-4 year age group (Mean = 11.47, SD= 1.51). Scores obtained in phonological processing (Mean = 4.80, SD= 2.57) and print awareness (Mean = 8.40, SD= 0.99) in 4- 5 year age group are also found to be greater than the scores obtained in phonological processing (Mean = 2.00, SD= 1.46) and print awareness (Mean = 4.13, SD = 2.56) for 3-4yrs respectively.

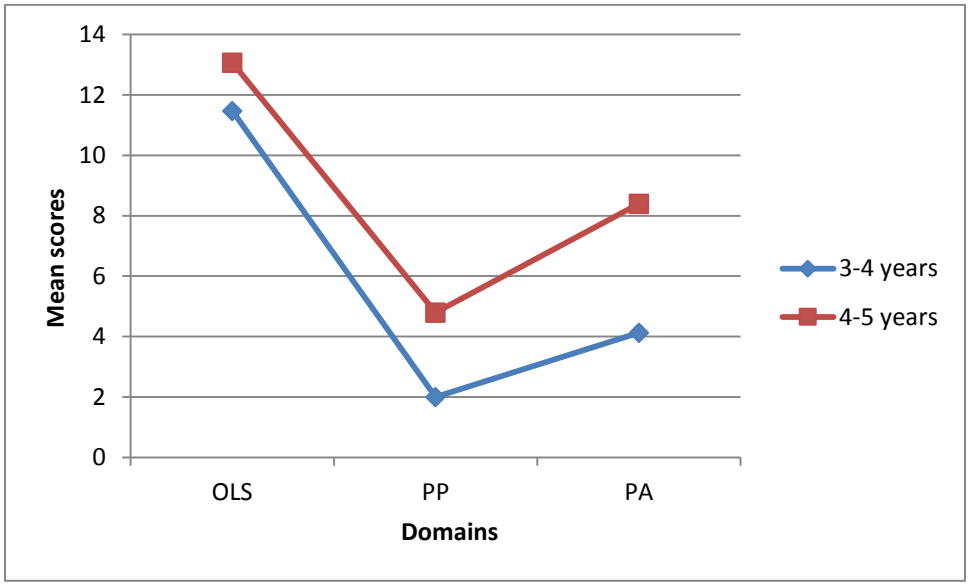


*Figure* 4.1 Mean scores of each domain (OLS, PP and PA) in 3-4 and 4-5 year groups

For scores of each domain across the age group, data was not normally distributed. Hence, Mann Whitney U test was administered. Results are as shown in Table 4.3.

Table *4.3 Comparison of scores of each domain across 3-4 and 4-5 years age groups*

| Domains | \|Z\| value | p value |
|---|---|---|
| OLS | 2.63 | 0.008 |
| PP | 3.21 | 0.001 |
| PA | 4.25 | 0.000 |

|Z| score for OLS, PP and PA were 2.6(p = 0.008), 3.21(p = 0.001) & 4.25 (p=0 .000) respectively. Comparing the scores of each domain across 3-4 and 4-5 years age groups, the results reveals that there was significant difference in all the three domains across age groups.

**4.3 Comparison of scores across domains in each age group**

To compare the scores across the three domain within each age group, Friedman's test was carried out . For 3-4 years age group, results showed that $\chi^2$ (2) = 25.661, p< 0.01 which indicates significant difference across the sub domains. Wilcoxon signed rank test was employed to do the pair wise comparison. As depicted in table 4.4 ,in 3-4 years age group, comparison of oral language skills and phonological processing (OLS – PP) shows significant difference (|Z| = 3.41,p =0.001). Comparison of phonological processing and print awareness, shows significant difference ( |Z| = 3.23, p = 0.001). Significant difference was also found across oral language skills and print awareness skills in this age group (|Z| = 3.23, p = 0.001). Overall across all domains significant difference was found within this age group.

Table 4.4

*Pair wise comparison of domains in 3-4 years age group*

| Pairs | \|Z\| value | p value |
|---|---|---|
| OLS Vs PP | 3.41 | 0.001 |
| PP Vs PA | 3.23 | 0.001 |
| OLS Vs PA | 3.23 | 0.001 |

In 4-5 years age group, results revealed $\chi^2$ (2) = 20.780, p< 0.01 which indicate that there is significant difference across domains. Therefore Wilcoxon signed rank test was carried out to find out which domains are significantly different. Table 4.5 shows that in 4-5 years age group, significant difference was found across OLS-PP (|Z| = 3.41, p =0.001) and PP-PA(|Z| =3.35, p = 0.001). Whereas, comparison of oral language skills and print awareness, was found to be not statistically significant (|Z| = 1.10, p = 0.270). For the 4-5 year age group phonological processing skills (PP) was significantly poor compared to oral language skills and print awareness.

Table 4.5

*Pair wise comparison of domains in 4-5 years age group*

| Pairs | \|Z\| value | p value |
|---|---|---|
| OLS Vs PP | 3.41 | 0.001 |
| PP Vs PA | 3.35 | 0.001 |
| OLS Vs PA | 1.10 | 0.270 |

**4.4 Test retest reliability**

Test- retest reliability was done on 10% of the total sample and the data were analyzed using Croncbach's alpha, and the reliability was found to be 0.72 which indicates that the data is reliable.

**4.5 Descriptive analysis (Item analysis)**

Percentage of children giving correct responses to each item was done to find out the difficulty of each item across the age groups. In phonological processing, for stimlus no. 3 (initial syllable deletion), 27% of children in 3-4 yr group was giving correct response whereas in 4-5 yr age group 67% were able to do. For final syllable deletion and alliteration awareness 7% & 40% children in 3-4 year and 40% & 74% of children in 4-5 years were giving correct responses respectively.

In print awareness, for stimulus no.1 (letter matching), 53% of children in 3-4 age group and all children of 4-5 years age group responded correctly and for stimulus no.3(book handling skills), 27% of 3-4 years group children and 60% of 4-5 years age group responded correctly. For stimuls no.5 (word recognition) and stimulus no.6 (letter knowledge),all children of 4-5 years age groups answered correctly but only 60% and 20% of children respectively in 3-4 years made it correct. For stimulus no.4 (letter discrimination) and stimulus no.10 (word matching), 53% & 33% children in 3-4 year and 93% & 87% of children in 4-5 years were giving correct responses respectively. For few skills like syllable awareness tasks, letter knowledge, book handling skills and word recognition skills a sudden improvement was observed.

To summarize the results, a developmental trend of emergent literacy was observed in 3-5 years of children. Children within the age range of 4-5 years showed better performance than 3-4 years children across all the three domains. As there was no significant difference between oral language skills and print awareness in children of 4-5 years, they performed almost equally in these two domains but showed relatively poorer

performance in phonological processing. Children of 3-4 years could perform well in oral language skills better than phonological processing and print awareness.

**Discussion**

The present study was aimed at exploring the developmental pattern of emergent literacy in Malayalam speaking children within the age range of 3 to 5 years. They were divided into two groups: 3-4 and 4-5 years age groups.

Results of the present study revealed that there is a developmental pattern observed for oral language skills, phonological processing and print awareness across the age groups. Overall development of oral language skills and print awareness is quicker compared to phonological processing skills in both the age groups. There is significant difference in total scores across the two age groups and also significant difference is present in scores of each domain across the age group .This finding is in consensus with the research findings of Anthony et al., 2007; Carrol et al., 2003; Dickinson et al., 2003; Gunn et al., 1995; Lonigan et al., 2000; Molfese et al., 2006; NELP, 2009; Nelson , 1996; Tomasello, 2000 reporting that there is a developmental continuity of oral language skills, print awareness and phonological processing from three to six years.

On comparing the scores across the three domains: oral language skills, phonological processing and print awareness, it is clearly evident that the performance of children in oral language skills was better followed by print awareness and then phonological processing in both the age groups. Children of both the age groups procured relatively less scores in phonological processing.

### 4.4 Oral language skills across age groups

Better performance in oral language skills was observed in both the age groups. However, children of 4-5 age group obtained greater scores compared to 3-4 age group. There is a significant difference found in scores of oral language skills across both the age groups. Oral language skills included vocabulary and story comprehension tasks. Children of both the age groups were able to name all the items in vocabulary whereas children of 3-4 age group found difficulty in story comprehension task compared to 4-5 age group. Many researchers have pointed out the importance of assessing vocabulary in preschool children (Biemiller, 1999; Cunningham & Stanovich, 1997; Tabors, Paez, & Lopez, 2002; Tabors, Porche, & Ross, 2003; Tabors,Snow, & Dickinson, 2001; Storch & Whitehurst, 2002). There was no much difference in performance of children in vocabulary task between the 3-4 and 4-5 years age groups. The lack of difference in vocabulary task across age groups may be due to the simple lexical items that children in 3-4yrs would have already achieved. NELP ( 2008) states that expressive vocabulary skills are weak predictors whereas definitional vocabulary can better predict the literacy skills Performance of children in 4-5 years age group was better compared to 4-5 years age group. A developmental progression was observed in listening comprehension from 3-6yrs but children in 4-6 scored higher that 3-4year children (Shanbal & Goswami, 2010).

### 4.5 Phonological processing across the age groups

Phonological processing tasks were found to be difficult for the children in both the age groups (3-4 and 4-5 years). Phonological processing included rhyme awareness, syllable awareness, alliteration awareness, word segmentation, non word repetition and

rapid automatized naming. They procured very less scores in this domain compared to other two. Eventhough few children showed excellent performance in oral language skills and print awareness, they performed poorly in phonological processing. The scores of phonological processing were relatively greater in 4-5 year age group compared to 3-4 years age group and there was a significant difference too. There is a developmental trend from 3-4 years to 4-5 years. Children within the age range of 3-4 years had difficulty in repeating the trisyllabic word whereas 4-5 age group performed better in the non word repetition task. It might be due to the lack of articulatory proficiency or phonological memory in 3-4 years age group children.

Several studies (Anthony et al., 2005; Carrol et al., 2003; Lonigan, 2006; Storch & Whitehurst, 2002) have also reported that phonological awareness skills show a developmental trend in the preschool years. Maclan et al. (1987) claimed that rhyming and alliteration emerges by 3 years of age which will be continued upto their school years. In contrast, results of the present study show that the performance was poor in rhyming and alliteration tasks. These results are in agreement with the study done by Naslund and Schneider et al (1991) where the authors have pointed out that in languages where regular structure can be decoded using relatively lower levels of phonological skills than needed in English, then the factor of phonological awareness should not be considered as an important precursor of children's reading. In consensus with this finding, poor performance in phonological processing skills in the current study may be attributed to the alphasyllabic nature of Malayalam language, wherein the aksharas are used to orthographically reperesent the sound units, which are syllables. Hence, in Malayalam Speaking children phonological awareness will develop at a later stage

compared to English speaking children and the phonological awareness skills are not that necessary as compared to alphabetic language. (Seetha, 2002). Study done by Tiwari et al. (2010-11) reported that rhyme recognition and syllable deletion skills reached maturation only by grade IV and the rhyme recognition skills begins to develop only by grade III (7-8 years) in Malayalam speaking children. Nag (2007) reported that development of phonological awareness in Kannada which is a semi-syllabic language emerge slower compared to alphabetic languages where it could be owed to the influence of the orthographic domain, wherein syllable awareness gets importance for orthographic representation in Kannada language. So, from the findings of the current study it can be assumed that phonological processing skills in preschool children are in the very early emerging stage and this lag may be due to the orthographic complexity of Malayalam language which places more cognitive demands on alpanbetic and phonologic mapping.

**4.6 Print awareness across the age groups**

Children in the age group of 4-5 who are attending primary schools or nursery could perform better in print awareness tasks compared to 3-4 years age group. Reading instruction had undoubtedly occurred for the kindergarten who were in a traditional school setting. Learning in schools are more directed to reading related activities which helped the children to match letters and words, discriminate letters, recognize words and to identify the directionality of words.

Children in the age group of 4-5 years found it easy to match the letters and discriminate the letters as they are more exposed to letters and words in their school. But most of the children in the age group of 3-4 years could not match the letters as well as

discriminate the letters. This might be due to their lack of exposure to reading and writing related activities in Anganwadi or nursery or their home environment. However, few children in the age group of 3-4 years found it easy to do letter matching and letter discrimination because of their home environment where the parents of children are more focussed on teaching letters and words to the child.

Children of both the age groups were very confident in identifying the tool which is used for writing. It is because either they are always using the writing tool or they have observed their caregivers or others writing. Most of the children in both the age groups did not have the book handling skills. In this study, children were asked to identify the back of the book wherein both the age groups failed in the task. It might be due to the lack of awareness of handling of book at this younger age. It is in consonance with the finding that book handling skills such as holding the book upright, turning pages and pointing to the beginning and the end of a book emerged around PKG and were fairly well developed by UKG (Sarika, 2011).

Distinguishing the word boundaries was a very difficult task for the children of both the age groups. Only one child out of 30 children could correctly distinguish the word boundaries. Children within the age range of 3-5 years are not aware of that sentences are formed from several words. These findings are in accordance with the research evidences that young children have difficulty distinguishing boundaries of written words (Meltzer & Herse, 1969; Mickish, 1974).

Children in the age group of 4-5 years found it easy to identify the neatly written word and the left to right progression of word whereas the children the age group of 3-4

years could not understand the concept of handwriting and directionality of writing. Most children begins to write and will be aware of handwriting after their school entry. Hence this task was found difficult for the children of 3-4 years age group. So the better performance of children 4-5years in these tasks can be attributed to the school training. Performance of children of age group 4-5 years was better in this word matching task where they have to match the two words. After school entry, when the teaching is more focused on reading and writing activities, children would be able to understand about words. But most of the children in the age group of 3-4 years could not perform this task correctly. These findings shed lights on to the fact that literacy rich activities or experiences are not provided in the home environment.

**4.7 Comparison across domains in each group**

In 3-4 age group, there was a significant difference across all the three domains (oral language skills Vs phonological processing, phonological processing Vs print awareness, oral language skills Vs print awareness). But in 4-5 age group, there was significant difference in oral language skills Vs phonological processing and phonological processing Vs print awareness whereas oral language skills Vs print awareness showed no significant difference. Performances of most of the children in all the three domains were distinct. Some children who were good at oral language skills performed poorly in phonological processing and print awareness especially in the 3-4 years age group. Enhanced performance of oral language skills might be due to the home environment i.e. parental interaction or stimulation. This is supported by the findings that oral language skills are facilitated more by home environment than the school environment (Christian, Morrison, Frazier & Masepti, 2000; Hart & Risely, 1995). For

few skills like syllable awareness tasks, letter knowledge, book handling skills and word recognition skills a sudden improvement was observed. This improvement may be due to the training children are receiving in preschool.

Most of the children in the 4-5 age group performed really well in oral language skills and print awareness but poor performance was observed in overall phonological processing domain. But few children who have acquired basic reading and writing skills was good at syllable and alliteration awareness tasks. Basic reading and writing skills include reading and writing few letters in Malayalam. Numerous studies done in Malayalam language suggest that phonological awareness takes long time to develop (Tiwari et al., 2011) or is not an essential skills for literacy development (Seetha & Prema, 2002).

In conclusion, a developmental trend of emergent literacy in 3-5 years children was observed. Children within the age range of 4-5 years showed better performance than 3-4 years children in all the three domains. Children of 4-5 years were good at especially oral language skills and print awareness but showed relatively poorer performance in phonological processing and children of 3-4 years could perform well in oral language skills better than phonological processing and print awareness. Oral language skills, print awareness and phonological processing skills develop simultaneously and not like one after the other. Developments across sub domains were very distinct reflecting the influence of home environment, school training, and nature of language in each. Results also reveals that phonological awareness is still in the very early stage of emergence compared to oral language and print awareness in children between 3-5 years.

# CHAPTER 5

## SUMMARY AND CONCLUSIONS

Emergent literacy describes the concepts, skills and knowledge that young children have about reading and writing prior to beginning their formal literacy instruction in elementary school (Whitehurst & Lonigan, 1998). It includes three domains namely oral language skills, phonological processing and print awareness.The objectives of the present study includes the following:

- To study the developmental pattern of emergent literacy in children who are native speakers of Malayalam
- To develop a screening tool for emergent literacy in Malayalam language

Thirty participants within the age range of 3-5years were considered for the study. Children within the age range 4-5 years were selected from the schools of Wayanad district in Kerala and children within the age range of 3-4 years were selected from Anganwadis of the same district. The participants were grouped into 2 categories: $\geq$ 3 to $\leq$ 4 years and $\geq$ 4 to $\leq$ 5 years (15 in each group).

The study was conducted in two phases:

**Phase 1**: Development of the screening tool

For the assessment of emergent literacy skills, a computerized screening tool for emergent literacy skills was developed using Matlab software. This tool consists of 3 domains: oral language skills, phonological processing and print awareness. The framework for the tool was based on Get ready to read (GRTR, Whitehurst & Lonigan, 2001) and Screening emergent language and literacy (SELL, Prema, 2006).

Content validity was carried out by giving the developed screening tool for rating to 3 preschool teachers and 3 Speech language pathologists. Pilot study was conducted on 6 children,3 in each age group Modifications were incorporated based on the suggestions given by SLPs and teachers and also pilot study

**Phase 2:** Administration of the developed screening tool

The developed computerized screening tool was administered in 30 children (15 in each group) who have passed the inclusion criteria.

To summarize the results, a developmental pattern of emergent literacy was observed in 3-5 years of children. Children within the age range of 4-5 years showed better performance than 3-4 years children in all the three domains. Children of 4-5 years were good at especially oral language skills and print awareness but showed relatively poorer performance in phonological processing and children of 3-4 years could perform well in oral language skills better than phonological processing and print awareness. During 3 to 5 years of age, children have good expressive vocabulary and story comprehension because of the intensive stimulation given in the home environment. There is a transition seen in print awareness from 3-4 years age group to 4-5 years age group. It might be due to the adequate reading instructions provided in the school. In the age group of 4-5 years, there was no significant difference seen in oral language skills and print awareness. Results also reveals that phonological awareness is still in the very early stage of emergence compared to oral language and print awareness in children between 3-5 years.

## 5.1 Clinical implications

- The developed screening tool can be used by teachers and SLPs to screen for emergent literacy in Malayalam
- This tool can also be used to identify Malayalam speaking children "at risk" for Learning disability and based on that, focused instruction can be provided

## 5.2 Limitations of the study

- Administration of this tool on large sample would have helped in the better generalization of the results.
- Inclusion of children in the age range of 5-6 yrs would have given more insight into the developmental trend of emergent literacy skills in Malayalam speaking children.
- Variables like medium of instruction, literacy environments etc would have influenced the development of emergent literacy skills. So a controlled study of these variable would have provided an accurate results.

## 5.3 Future directions

- Standardization of the developed tool can be done
- Validation of this tool can be done by administering it on at risk children
- Comparison of monolingual and bilingual children on these measures can be done.

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## APPENDIX I

## MANUAL

### 1)ORAL LANGUAGE SKILLS

i)Vocabulary

താഴെ തന്നിരിക്കുന്ന ചിത്രങ്ങളുടെ പേര് പറയുക










**STORY COMPREHENSION**

1

2


3

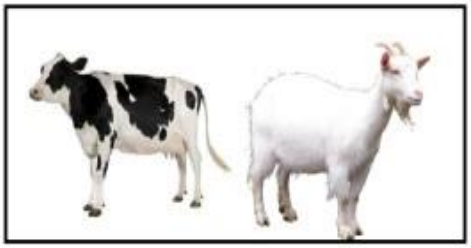

4

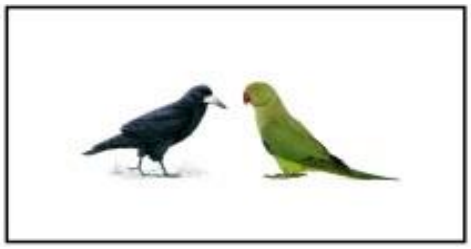
5

6

ii)Story comprehension

1. ഈ കഥയിൽ പറഞ്ഞിരിക്കുന്ന മൃഗങ്ങൾ ഏതൊക്കെയാണ്?



2. ആരാണ് വേഗത്തിൽ ഓടിപ്പോയത്?




3. ആരാണ് പതുക്കെ നടന്നത് ?




4. ആരാണ് ഉറങ്ങിപ്പോയത്?

5. മുയൽ എവിടെയാണ് ഉറങ്ങിയത് ?

6. ആരാണ് ഓട്ടമത്സരത്തിൽ ജയിച്ചത്?

**II) PHONOLOGICAL PROCESSING**

1. *Practice trial*: ഞാൻ കുറച്ചു ചിത്രങ്ങൾ കാണിക്കാം. അതിൽ 'കാട്' എന്ന വാക്ക് പോലെ വരുന്നത് ഏതാണ് എന്ന് പറയുക.

   കാക്ക, കൈ, വീട്, പൂച്ച

   ഇതിൽ ഏതാണ് 'കാട്' എന്ന വാക്ക് പോലെ വരുന്നത് ?



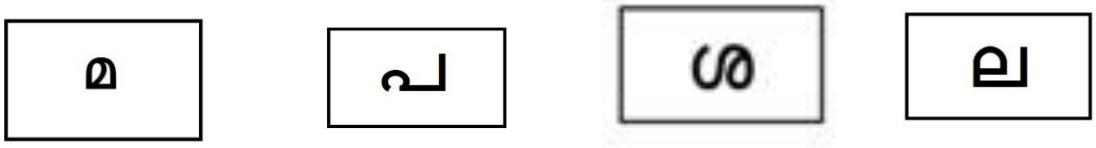

*Test trial:* അതുപോലെ ഇനി വേറെ കുറച്ച് ചിത്രങ്ങൾ കാണിക്കാം. അതിൽ ഏതാണ് "വല" എന്ന വാക്കുപോലെ വരുന്നത് എന്ന് കണ്ടുപിടിക്കുക.



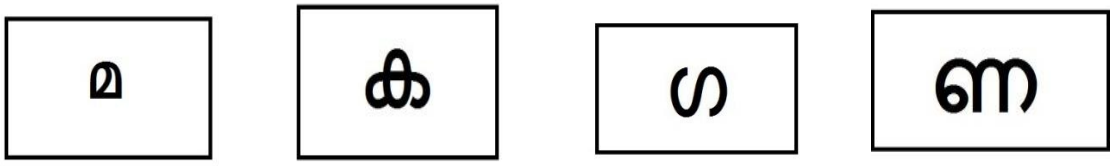

2. താഴെ തന്നിരിക്കുന്ന ചിത്രങ്ങളിൽ “മീശ” എന്ന വാക്കുപോലെ വരുന്നത് ഏതാണെന്നു കണ്ടുപിടിക്കുക




3. *Practice trial*: ഞാൻ ഒരു വാക്ക് പറയാം. അതിൻറെ ആദ്യത്തെ ശബ്ദം ഏതാണെന്നു കണ്ടുപിടിക്കുക. ഉദാഹരണത്തിന് ‘പല്ല്’ എന്ന വാക്കിൻറെ ആദ്യത്തെ ശബ്ദം ഏതാണ്? മ, പ, ശ, ല
‘പല്ല്’ എന്ന വാക്കിൻറെ ആദ്യത്തെ ശബ്ദം 'പ'.

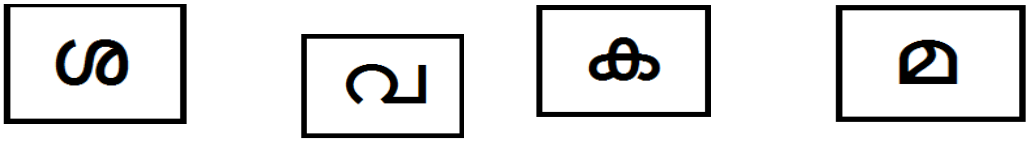



*Test trial:* അതുപോലെ ശ്രദ്ധിച്ചു കേട്ട ശേഷം ഞാൻ പറയാൻ പോകുന്ന വാക്കിന്റെ ആദ്യത്തെ ശബ്ദം ഏതാണെന്നു കണ്ടുപിടിക്കുക. “കണ്ണ്”

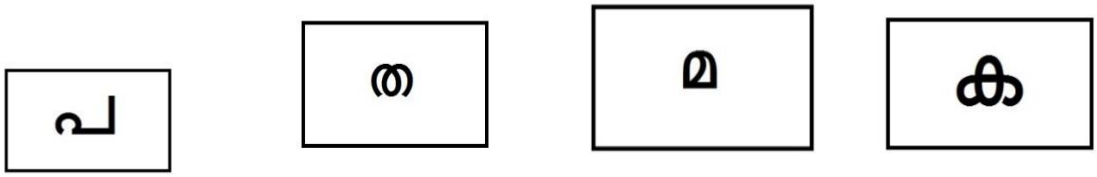


**4.** *Practice trial:* ഞാൻ ഒരു വാക്ക് പറയാം. ആ വാക്കിൻറെ അവസാനത്തെ ശബ്ദം ഏതാണെന്നു പറയുക. ഉദാഹരണത്തിന് 'ദോശ.' ശ, വ, ത, മ

'ദോശ' എന്ന വാക്കിൻറെ അവസാനത്തെ ശബ്ദം 'ശ' ആണ്.




*Test trial:* അതുപോലെ 'ആമ' എന്ന വാക്കിന്റെ അവസാന ശബ്ദം ഏതാണെന്നു കണ്ടുപിടിക്കുക.

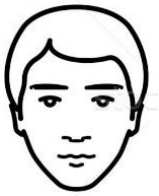



**5.** *Practice trial:* താഴെ തന്നിരിക്കുന്ന ചിത്രങ്ങളിൽ 'ച' വെച്ച് തുടങ്ങുന്ന വാക്ക് ഏതാണെന്നു പറയുക. വട, ഇല, തത്ത, ചക്ക

'ച' വെച്ച് തുടങ്ങുന്നത് ചക്ക

*Test trial:* അതുപോലെ ഇനി കാണിക്കുന്ന ചിത്രങ്ങളിൽ 'ത' വെച്ച് തുടങ്ങുന്ന വാക്ക് ഏതാണെന്ന് കണ്ടുപിടിക്കുക

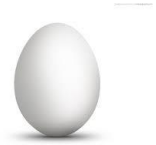


**7.** *Practice trial:* താഴെ തന്നിരിക്കുന്ന ചിത്രങ്ങളിൽ 'വ' വെച്ച് അവസാനിക്കുന്ന വാക്ക് ഏതാണെന്നു പറയുക.

മുട്ട, പാവ, റോസാ, മീൻ

അപ്പോൾ ഏതാണ് 'വ' എന്ന ശബ്ദത്തിൽ അവസാനിക്കുന്നത്? 'പാവ'



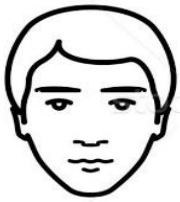

*Test trial:* അതുപോലെ 'ന' എന്ന ശബ്ദത്തിൽ അവസാനിക്കുന്ന വാക്ക് ഏതാണെന്ന് പറയുക




**8.** *Practice trial:* ഇപ്പോൾ നാല് ചിത്രങ്ങൾ കാണിക്കാം. അതിലെ ആദ്യത്തെ ശബ്ദം മാറ്റിയാൽ വേറൊരു വാക്ക് കിട്ടും. ഉദാഹരണത്തിന് 'തവള'. ഇതിൽ 'ത' എന്ന ശബ്ദം മാറ്റിയാൽ ഏത് വാക്കാണ് കിട്ടുക?

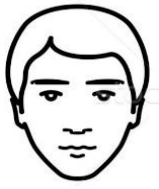



***Test trial:*** ഇതുപോലെ 'മുതല' എന്ന വാക്കിൽ നിന്നും 'മു' എന്ന ശബ്ദം മാറ്റിയാൽ കിട്ടുന്ന വാക്ക് ഏതാണ്?



**9.** *Practice trial:* ഞാൻ ഒരു വാക്ക് പറയാം. അതിൻറെ അവസാന ശബ്ദം മാറ്റിയാൽ വേറൊരു വാക്ക് കിട്ടും. ഉദാഹരണത്തിന് 'പട്ടിക' എന്ന വാക്കിൽ നിന്നും 'ക' മാറ്റിയാൽ ഏത് വാക്കാണ് കിട്ടുക? 'പട്ടിക' എന്ന വാക്കിൽ നിന്നും 'ക' മാറ്റിയാൽ 'പട്ടി'.

**10.** *Test trial:* അതുപോലെ 'കടല' എന്ന വാക്കിൽ നിന്നും 'ല' മാറ്റിയാൽ ഏത് വാക്ക് ആയിരിക്കും കിട്ടുക



**10.** *Practice trial:* ഇനി ഞാൻ കുറച്ചു ശബ്ദങ്ങൾ പറയാം. അവ കൂട്ടി ചേർത്താൽ ഏത് വാക്കാണ് കിട്ടുക എന്ന് പറയുക. 'ക', 'ടു', 'വ'. ഈ മൂന്ന് വാക്കുകൾ ചേർത്താൽ കിട്ടുന്ന വാക്ക് ഏതായിരിക്കും? 'കടുവ'





*Test trial:* അതുപോലെ 'താ', 'മ', 'ര' എന്നീ ശബ്ദങ്ങൾ ചേർത്താൽ കിട്ടുന്ന വാക്ക് പറയുക




**11.** *Practice trial:* ഇനി ഒരു വാക്ക് പറയാം. ആ വാക്കിനെ എത്ര വാക്കുകളായി തിരിക്കാം എന്ന് പറയണം. ഉദാഹരണത്തിന്, 'തലമുടി' എന്ന വാക്കിനെ എത്ര വാക്കുകളായി തിരിക്കാം? 'തല' 'മുടി' രണ്ടു വാക്ക്

**3** **1**

**4** **2**

*Test trial:* അതുപോലെ 'കോഴിമുട്ട' എന്ന വാക്കിനെ എത്ര വാക്കുകളായി തിരിക്കാം എന്ന് പറയുക

**1** **2**

**3** **4**

**12.** *Practice trial:* ഇപ്പോൾ ഒരു വാക്ക് പറയാം. ഈ വാക്കിൽ എത്ര ശബ്ദങ്ങൾ ഉണ്ടെന്നു പറയണം. ഉദാഹരണത്തിന്, തവള. തവള എന്ന വാക്കിൽ എത്ര ശബ്ദങ്ങൾ ഉണ്ട്. 'ത' 'വ' 'ള' മൂന്ന് വാക്കുകൾ

**3** **4**

**2** **1**

*Test trial*: അതുപോലെ 'പറവ' എന്ന വാക്കിൽ എത്ര ശബ്ദങ്ങൾ ഉണ്ടെന്ന് പറയുക

**1** **2**

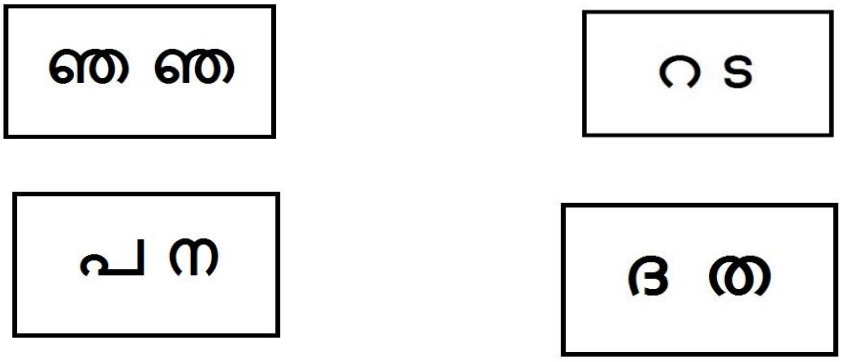
**3** **4**

**Rapid naming**

**3) PRINT AWARENESS**

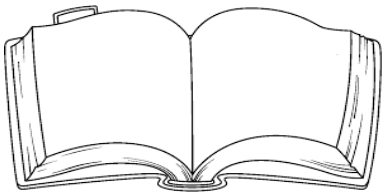
1. *Practice trial:* താഴെ കുറച്ച് വാക്കുകൾ കൊടുത്തിട്ടുണ്ട്. ഇതിൽ ഏതു വാക്കുകളാണ് ഒരുപോലെയുള്ളതെന്നു തൊട്ടുകാണിക്കണം. ഉദാഹരണത്തിന്, ഈ വാക്കുകൾ നോക്കു, ഇതിൽ ഏതു വാക്കുകളാണ് ഒരുപോലെയുള്ളത്? ഒന്നാമത്തേത്.

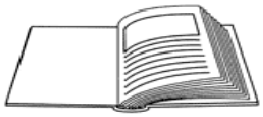

*Test trial:* ഇതുപോലെ വേറെ കുറച്ച് അക്ഷരങ്ങൾ കാണിക്കാം. അതിൽ ഏതൊക്കെ അക്ഷരങ്ങളാണ് ഒരുപോലെയുള്ളത് എന്ന് തൊട്ടുകാണിക്കുക



2. താഴെ കൊടുത്തിരിക്കുന്ന ചിത്രങ്ങളിൽ എഴുതുവാൻ ഉപയോഗിക്കുന്ന ഒരു വസ്തു ഏതാണ്?


3. താഴെ തന്നിരിക്കുന്നവയിൽ പുസ്തകത്തിന്റെ പുറകുഭാഗം ഏതാണ്?



4. *Practice trial*: താഴെ തന്നിട്ടുള്ളവയിൽ അക്ഷരങ്ങൾ ഏതാണെന്നു കണ്ടുപിടിക്കുക. മൂന്നാമത്തേത്

123

#%&

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Test trial: അതുപോലെ ഇവിടെ കൊടുത്തിട്ടുള്ളവയിൽ അക്ഷരങ്ങൾ ഏതാണെന്ന് കണ്ടുപിടിക്കുക

*)@

937

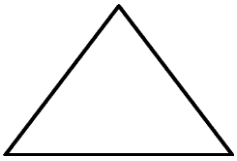
മ ക

5. *Practice trial:* താഴെ തന്നിട്ടുള്ളവയിൽ വാക്ക് ഏതാണ്? രണ്ടാമത്തേത്

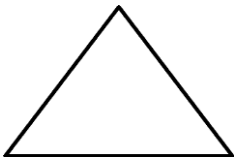
#%&

മിന്നാമിന്നി

674



*Test trial:* അതുപോലെ ഇവിടെ കൊടുത്തിട്ടുള്ളവയിൽ വാക്ക് ഏതാണെന്ന് കണ്ടുപിടിക്കുക



**846**

6. *Practice trial:* താഴെ തന്നിരിക്കുന്ന അക്ഷരങ്ങളിൽ 'അ' എന്നുള്ള അക്ഷരം കണ്ടുപിടിക്കുക ? മൂന്നാമത്തേതാണു 'അ'

ച

മ

അ

ശ

*Test trial:* അതുപോലെ താഴെ തന്നിരിക്കുന്ന അക്ഷരങ്ങളിൽ 'ഇ' ഏതാണെന്ന് കണ്ടുപിടിക്കു

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7. *Practice trial:* താഴെ തന്നിരിക്കുന്ന വാക്യത്തിൽ എത്ര വാക്കുകൾ ഉണ്ടെന്നു എണ്ണി നോക്കി പറയണം
ഉദാഹരണത്തിന് ഇതിൽ എത്ര വാക്കുകൾ ഉണ്ട്? ഒന്ന് രണ്ട് മുന്ന് നാല് - രണ്ട് വാക്കുകൾ

**കുട്ടി കളിച്ചു**

1 2

3 4

*Test trial*: അതുപോലെ ഇനി ഞാൻ കാണിക്കുന്ന വാക്യത്തിൽ എത്ര വാക്കുകൾ ഉണ്ടെന്ന് എണ്ണിനോക്കിപറയുക

**പൂച്ച പാൽ കുടിച്ചു**

**1** **2**

**3** **4**

8. ഇനി നാല് വാക്കുകൾ കാണിക്കാം. ഇതിൽ ഏത് വാക്കാണ് ഏറ്റവും നന്നായി എഴുതിയിരിക്കുന്നത് എന്ന് പറയണം

9. ഏതാണ് ശരിയായ രീതിയിൽ എഴുതിയിരിക്കുന്നത് എന്ന് തൊട്ടുകാണിക്കുക.

10. Practice trial: താഴെ കുറച്ചു വാക്കുകൾ കൊടുത്തിട്ടുണ്ട് ഇതിൽ ഏതു വാക്കുകളാണ് ഒരുപോലെയുള്ളതു എന്ന് തൊട്ടുകാണിക്കണം ഉദാഹരണത്തിന് ഈ വാക്കുകൾ നോക്കു ഇതിൽ ഏതു വാക്കുകളാണ് ഒരുപോലെയുള്ളത് ? ഒന്നാമത്തേത്

| | |
|---|---|
| പന പന | പന ഇല |
| പന കര | പന മേശ |

*Test trial:* ഇനി വേറെ കുറച്ച് വാക്കുകൾ കാണിക്കാം. അതിൽ ഏതൊക്കെ വാക്കുകളാണ് ഒരുപോലെ ഉള്ളതെന്ന് കണ്ടുപിടിക്കുക

| | |
|---|---|
| തറ പറ | തറ തറ |
| തറ തല | തറ കട |

**APPENDIX II**
**SCORE SHEET**

Name: Age/G:

| **1)ORAL LANGUAGE SKILLS** | | | | | |
|---|---|---|---|---|---|
| **a)Vocabulary** | | | **b)Story** | | |
| Sl.no | Words | Score | Sl. No. | Response | Score |
| 1 | /maːŋa/ | | 1. | | |
| 2 | /paɻam/ | | 2. | | |
| 3 | /puːʧa/ | | 3. | | |
| 4 | /paʃu/ | | 4. | | |
| 5 | /kaɳŋə/ | | 5. | | |
| 6 | /ʧevi/ | | 6. | | |
| 7 | /kasera/ | | | | |
| 8 | /ʧeruppə/ | | | | |
| 9 | /bassə/ | | | | |
| 10 | /kaːrə/ | | | | |

| **2)PHONOLOGICAL PROCESSING** | | | **3)PRINT AWARNESS** | | |
|---|---|---|---|---|---|
| Sl. No | Task | Score | Sl no. | Task | Score |
| 1. | Rhyme awareness | | 1. | Letter matching | |
| 2. | Rhyme awareness | | 2. | Awareness of writing tools | |
| 3. | Initial syllable identification | | 3. | Book handling skills | |
| 4. | Final syllable identification | | 4. | Letter discrimination | |
| 5. | Alliteration awareness | | 5. | Word recognition | |
| 6. | Word identification -ending sound | | 6. | Letter knowledge | |
| 7. | Initial syllable deletion | | 7. | Word boundary | |
| 8. | Final syllable deletion | | 8. | Awareness of handwriting | |
| 9. | Syllable blending | | 9. | Awareness of direction | |
| 10. | Word segmentation | | 10. | Word matching | |
| 11. | Syllable segmentation | | | | |
| 12. | Non word repetition | | | | |
| 13. | RAN-1 | | | | |
| 14. | RAN-2 | | | | |

| **DOMAINS** | **SCORE** | **TOTAL SCORE** |
|---|---|---|
| Oral language skills | | |
| Phonological Processing | | |
| Print awareness | | |