A DIGITAL LITERACY COACH TO PROMOTE ORAL LANGUAGE AND EARLY LITERACY (FOR SLPS, TEACHERS AND CAREGIVERS)

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A dissertation submitted in part fulfilment for the degree of
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MANASAGANGOTHRI, MYSORE-570006

JUNE 2011

Dedicated to amma
and appa...

You mean the world
to me

CERTIFICATE

This is to certify that this dissertation entitled '**A Digital Literacy Coach To Promote Oral Language and Early Literacy (for SLPs, Teachers and Caregivers)'** is the bonafide work submitted in part fulfillment for the degree of Master of Science (Speech - Language Pathology) of the student with Register No. 09SLP020. 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.

Dr. S. R. Savithri

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June, 2011

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DECLARATION

This is to certify that the dissertation entitled **"A Digital Literacy Coach To Promote Oral Language and Early Literacy (for SLPs, Teachers and Caregivers)"** has been carried out under my supervision and guidance. It is also certified that this has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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God bless!

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CHAPTER I

INTRODUCTION

"*Literacy arouses hopes, not only in society as a whole but also in the individual who is striving for fulfilment, happiness and personal benefit by learning how to read and write. Literacy... means far more than learning how to read and write... The aim is to transmit knowledge and promote social participation.****"***

- UNESCO Institute for Education, Hamburg, Germany

Literacy has traditionally been described as the ability to read and write. It is a concept claimed and defined by a range of different theoretical fields. The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines literacy as the "ability to identify, understand, interpret, create, communicate, compute and use printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society."

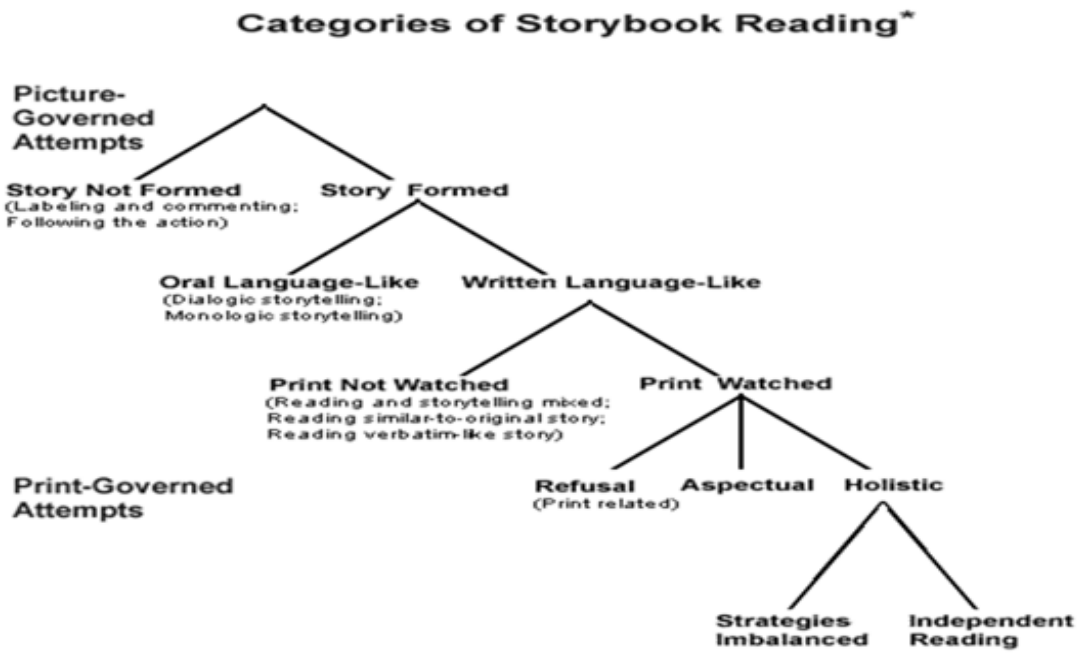
Children prepare to read long before they enter school. An infant chewing on a book, a toddler who insists that his favourite book be read to him over and over again. This is known as emergent literacy. Emergent literacy refers to "the reading and writing behaviours that precede and develop into conventional literacy", according to Sulzby (1989). In 1966, New Zealand researcher Marie Clay introduced the term *emergent literacy* to describe the behaviors seen in young children when they use books and writing materials to imitate reading and writing activities, even though the children cannot actually read and write in the conventional sense (Ramsburg, 1998).

In the three decades since Clay's introduction, an extensive body of research has expanded the understanding of emergent literacy. According to the current research, literacy development in children begins long before formal instruction in elementary school (Allington & Cunningham, 1996; Burns, Griffin, & Snow, 1999; Clay, 1991; Hall & Moats, 1999; Holdaway, 1979; Teale & Sulzby, 1986). This literacy development is nourished by social interactions with caring adults and exposure to literacy materials, such as children's storybooks (Sulzby, 1991). It is generally said that emergent literacy proceeds along a continuum, and children acquire literacy skills in a variety of ways and at different ages (Emergent Literacy Project, n.d.; McGee & Richgels, 1996; Ramsburg, 1998; Strickland & Morrow, 1988). However, Teale & Sulzby (1986) note that reading and writing skills in children develop at the same time as they are interrelated rather than being sequential. Pinnell (1996b) states that emergent literacy and conventional literacy 'are not discrete stages but a continuum of learning that varies with the complexity of each individual's development. As children move into conventional literacy, they pass through different periods of development in their efforts to become successful readers, just as they do at the emergent level. Many traditional researchers use the terms *early reader*, *transitional reader*, and *fluent reader* to describe these periods of literacy growth.

By first standard, early readers know how to use early reading strategies and can read appropriately selected text independently after a story introduction given by a teacher (Pinnell, 1996b). They begin to attend to print and apply the phonetic value of letters in order to read (Snow, Burns, & Griffin, 1998). They commonly look at beginning and ending letters in order to decode unfamiliar words (Clay, 1991; Pinnell, 1996b; Snow, Burns, & Griffin, 1998). Children in this early reading period also begin

to attend to more than one source for cues while reading. Attention is paid to meaning cues, grammatical cues, and prior knowledge on a limited basis (International Reading Association & National Association for the Education of Young Children, 1998). These children are able to recognize a small number of words on sight. In writing, children typically progress through five stages of invented spelling, ranging from writing the initial consonant sound of a word to using conventional spelling.

Sulzby (1985a) describes categories of children's storybook reading from emergent through conventional reading. She notes that children eventually move from pointing and labeling pictures in a book, to "reading" a story through the illustrations, to telling the story using book language, and finally to reading conventionally using the text of a story.



*Independent reading only.

(From "Children's Emergent Reading of Favorite Storybooks: A Developmental Study," by E. Sulzby, 1985, *Reading Research Quarterly, 20*(4), p. 464. Copyright 1985 by the International Reading Association.)

An important transition is when children's "reading" of stories changes from sounding like oral language to sounding like written language. This transition demonstrates a change in ideas from thinking of reading as spoken words to understanding that reading is recreated from written text that has special wordings (McGee & Richgels, 1996; Sulzby, 1991). A similar shift in language can be observed in children's story dictation and in the rereading of their emergent writing (Sulzby, Barnhart, & Hieshima, 1989).

Researchers (Morrow, 1990; Teale & Sulzby, 1987) indicate that shared storybook reading is an effective way of improving a child's oral language (vocabulary and narrative skills) and creating print awareness (alphabet knowledge and concepts about print). An awareness of print is developed in children when parents read-aloud storybooks. The concept of words and the idea that meaning is transferred through words is achieved when adults point to words while reading or encourage children to trace a finger under the words being read. Storybook reading is more effective if it is carried out in an interactive manner, where parents read with feelings and expressions, ask questions, and encourage children to retell stories or complete sentences for them (Whitehurst, Falco, Lonigan, Fischer, DeBaryshe, Valdez-Menchaca, & Caulfield, 1988).

Parents, caregivers, and early childhood educators play an important role in ensuring that children successfully progress in their literacy development. Efforts towards literacy are best supported by adults' interactions through reading aloud and conversation and by children's social interactions with each other (McGee & Richgels, 1996). It is imperative that caregivers and educators in all settings are

knowledgeable about emergent literacy and make a concerted effort to ensure that children experience literacy-rich environments to support their development into conventional literacy.

Reading aloud to children and providing opportunities for them to discuss the stories that they hear is of utmost importance (Burns, Griffin, & Snow, 1999). Anderson, Hiebert, Scott, and Wilkinson (1985) state, 'The single most important activity for building the knowledge required for eventual success in reading is reading aloud to children. This is especially so during the preschool years'. Reading aloud to children helps them to develop four areas that are important to formal reading instruction: oral language, cognitive skills, concepts of print, and phonemic awareness. Development of these skills provides a strong foundation to support literacy development during the early school years (Allington & Cunningham, 1996; Hall & Moats, 1999; Holdaway, 1979).

Some children, however, enter elementary school without a strong background in literacy. The children most at risk for developing reading problems are those who begin school with low language skills, less phonemic awareness and letter knowledge, and less familiarity with literacy tasks and underlying purposes (Burns, Griffin, & Snow, 1999). To help children develop emergent skills and overcome barriers to literacy, teachers may need to take special efforts in working with children individually and in offering support and encouragement to parents and caregivers for participating in their children's literacy development. According to Snow, Burns, and Griffin (1998), non-English-speaking children need adequate preparation before they are taught to read in English. The ability to speak English provides the foundation for

learning alphabetic principles, the structure of the language, and the content of the material they are reading. If children cannot speak English, they can be taught to read and write in their own language while becoming proficient in English. If that is not possible, "the initial instructional priority should be developing the children's oral proficiency in English" (Snow, Burns, & Griffin, 1998), implying that oral language development is an important prerequisite to the establishment of literacy.

Also important is print knowledge, i.e., a child's understanding of printed letters, words and how books work. These concepts include knowing how to hold a book the right way, differentiating between print and pictures, turning pages left to right, and being able to tell the front of the book from the back (Ornstein, 1998). Some examples of print knowledge skills include:

- Understanding that print and pictures are different
- Understanding that print carries meaning
- Knowing that print has a variety of functions (street and store signs, lists, letters to a friend, etc.)
- Book rules (how a book opens, turning pages, title and author on cover, etc.)
- Print components (letters, punctuation, sentences)
- Rules of print
- Naming letters

Once children have grasped these first basic concepts, they can move on to learning more complex concepts about text. Developing concepts about print in children at an early age is invaluable to their literacy development. Without a firm grasp on these concepts, children will have trouble learning to read and write

(Iantosca, 2002). In addition, children's knowledge of these concepts when they enter kindergarten is a major factor in determining their literacy level (Nichols, Rupley, & Rickleman, 2004). Developing these concepts through early literacy experiences is so important that both the National Association for the Education of Young Children and the International Reading Association state that "failing to give children literacy experiences until they are of school-age can severely limit the reading and writing levels they ultimately attain" (Rog, 2001, p. 10).

Literature available on emergent literacy in India is very limited. Prakash, Rekha, Nigam and Karanth (1993) have studied Devnagri and Kannada scripts and the ease of reading that young readers of these Indic scripts, while Khurana and Rao (2008) conducted a sample survey to evaluate the emergent literacy experiences of Kannada-speaking children studying in English-medium preschools. They reported that the children enrolled in English medium preschools had good exposure to emergent literacy experiences at home. Another study by Nag (2007) investigated early reading in Kannada, discussing the pace of acquisition of 'akshara reading' and orthography.

Promoting Early Literacy for toddlers and preschoolers aims at the following:

- Providing a rich literacy environment by reading books to children; taking the children to the library; subscribing to newspapers and magazines; and providing such materials as checks, menus, or greeting cards for play at reading and writing (Barclay, Benelli, & Curtis, 1995; NAEYC, 1997).
- Adding simple stories with a basic plot and one central character to nursery rhymes and favorite books as toddlers' language abilities allow for greater listening capacity and understanding (McMahon, 1996).

- Responding to children's requests for reading and rereading favorite stories. Also, encouraging questions and comments about print inside and outside the home such as packages at the grocery store, road signs, and menus at restaurants (Barclay, Benelli, & Curtis, 1995; NAEYC, 1997) is important.

Speech-language pathologists (SLPs) have a key role in promoting the emergent literacy skills of all children, and especially those with known or suspected literacy-related learning difficulties. The SLP may help to prevent such problems, identify children at risk for reading and writing difficulties, and provide intervention to remediate literacy-related difficulties. Prevention efforts involve working in collaboration with families, caregivers, and teachers to ensure that young children have high quality and ample opportunities to participate in emergent literacy activities both at home and in daycare and preschool environments. SLPs also help older children or those with developmental delays who have missed such opportunities. Children who have difficulty grasping emergent literacy games and activities may be referred for further assessment so that intervention can begin as early as possible to foster growth in needed areas and increase the likelihood of successful learning and academic achievement.

It is the position of the American Speech-Language-Hearing Association (ASHA) that speech-language pathologists (SLPs) play a critical and direct role in the development of literacy for children and adolescents with communication disorders, including those with severe or multiple disabilities. SLPs also make a contribution to the literacy efforts of a school district or community on behalf of other children and adolescents. These roles are implemented in collaboration with others

who have expertise in the development of written language and vary with settings and experience of those involved.

SLPs' knowledge of normal and disordered language acquisition, and their clinical experience in developing individualized programs for children and adolescents, prepares them to assume a variety of roles related to the development of reading and writing. An SLP's responsibilities include preventing written language problems by fostering language acquisition and emergent literacy, identifying children at risk for reading and writing problems, assessing reading and writing, and providing intervention and documenting outcomes for reading and writing. An SLP may also assume other roles, such as providing assistance to general education teachers, parents, and students; advocating for effective literacy practices; and advancing the knowledge base. These roles are dynamic in relation to the evolving knowledge base and have implications for research and professional education.

Literacy development begins very early in a child's life and forms the foundation for acquisition of conventional literacy. Parents, SLPs, and teachers need to ensure that young children are exposed to literacy-rich environments and receive developmentally appropriate literacy instruction. Such environments and experiences have a profound effect on children's literacy development by providing opportunities and encouragement for children to become successful readers. Emergent literacy instruction is most beneficial when it begins early in the preschool period because these difficulties are persistent and often affect children's further language and literacy learning throughout the school years. Promoting literacy development, however, is not confined to young children. Older children, particularly those with speech and

language impairments, may be functioning in the emergent literacy stage and require intervention aimed at establishing and strengthening these skills that are essential to learning to read and write.

In view of the above, in the Western countries, programs are designed for teachers to help them provide better emergent literacy experiences to children in order to establish a firm foundation for conventional reading and writing. The documented reports suggest a significant impact of such programs (Kreigler et al., 1994; Korkeamaki and Dreher, 1995 and 1996; Vaughan and Sisk, 2004). Therefore, the current study is designed to develop a 'Digital Literacy Coach' (DiLiCoach) for speech language pathologists, pre-service/in-service teachers, parents/caregivers to enhance their knowledge about emergent literacy and also provide teaching strategies that help to facilitate establishment of oral language and early literacy skills in young children that are complementary to acquisition of reading and writing skills. This study would also generate information on the existing knowledge of kindergarten teachers about emergent literacy activities and their use, and provide information on emergent literacy in the Indian context.

Need for the study: The connections between spoken and written language are well established in that spoken language provides the foundation for the development of reading and writing. Similar to the difficulty in learning to listen and speak, difficulty in learning to read and write can also involve any of the components of language—phonology, morphology, syntax, semantics, and pragmatics. Problems can occur in the production, comprehension, and awareness of language at the sound, syllable, word, sentence, and discourse levels. Individuals with reading and writing problems also

may experience difficulties in using language strategically to communicate, think, and learn. These fundamental connections necessitate that intervention for language disorders target written as well as spoken language needs.

Clearly, there is a paucity of Indian studies on emergent literacy. Documented reports on programs designed for teachers to help them provide better emergent literacy experiences for students, thereby helping the students established a firm foundation for learning conventional reading and writing, are very few. The current study involves the development of a digital literacy coach for in-service teachers, to enhance their knowledge about emergent literacy and also provide teaching strategies that favour better establishment of reading and writing skills.

Objectives:

The purpose of the study is to develop a Digital Literacy Coach and to evaluate the efficacy of the Coach in facilitating emergent literacy skills in preschool children. Hence, the study is designed with the following objectives:

i) Development of a digital literacy coach

ii) Comparison of emergent and early literacy skills of children whose teachers were trained using the DiLiCoach as against those students whose teachers did not receive any specialized training.

iii) Evaluation of impact of DiLiCoach on the print knowledge and oral language of the children.

iv) Evaluation of the impact of the program on teachers' knowledge about emergent literacy and their use of emergent literacy practices.

Implications: The literacy coach developed as a part of this study, if found effective, may find use in the clinical setting as well as the regular school setup. It may also be used with older children who have poorly established concepts of literacy, as is often seen in cases of dyslexia and other learning disabilities.

CHAPTER 2

REVIEW OF LITERATURE

Emergent literacy, a process in which the child constructs concepts about the functions of symbols and print, is based on experiences and meaningful language facilitated by interactions with adults. The concept of emergent literacy evolved during the past decade as the result of new information on how young children develop an understanding of reading and writing (Gibson, 1989; Hiebert & Fisher, 1990; Neuman & Roskos, 1993; Rex, Koenig, Wormsley, & Baker, 1994). Emergent literacy may be described as the process of learning about the environment that leads to the development of meaning and concepts, including concepts about the functions of reading and writing. Koenig (1992, p. 279) 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."

a) Emergent Literacy

Emergent literacy consists of the skills, knowledge, and attitudes that are presumed to be developmental precursors to conventional forms of reading and writing (Sulzby & Teale, 1991; Teale & Sulzby, 1986; Whitehurst & Lonigan, 1998), and thus it suggests that significant sources of individual differences in children's later reading skills are present prior to school entry. Previous research has identified a number of potentially important components of emergent literacy. Whitehurst and Lonigan (1998) recently outlined different components of emergent literacy skills and identified three factors that appear to be associated with preschool children's later word-decoding abilities: oral language, phonological processing abilities, and print

knowledge. A substantial body of research has demonstrated positive correlations and longitudinal continuity between individual differences in oral language skills and later differences in reading (e.g., Bishop & Adams, 1990; Butler, Marsh, Sheppard, & Sheppard, 1985; Pikulski & Tobin, 1989; Scarborough. 1989; Share, Jorm, MacLean, & Mathews, 1984). Whereas the connection between oral language and reading is clear for reading comprehension (e.g., Snow, Barnes, Chandler, Hernphill, & Goodman, 1991), some studies indicate that vocabulary skills also have a significant impact on decoding skills very early in the process of learning to read (e.g., Wagner et al.. 1997). Additionally, oral language appears to be related to another important skill that emerges with literacy acquisition, i.e., , phonological sensitivity. Studies of both preschool (e.g., Burgess & Lonigan, 1998; Chaney, 1992; Lonigan, Burgess, Anthony, & Barker, 1998) and early elementary school children (e.g., Bowey, 1994; Wagner, Torgesen, Laughon, Simmons, & Rashotte, 1993; Wagner et al., 1997) have demonstrated significant concurrent and longitudinal correlations between children's vocabulary skills and their phonological sensitivity.

Despite some evidence for associations between emergent literacy and later reading, there have been relatively few studies examining the relations between these multidimensional aspects of emergent literacy or between these components during the preschool period and later reading skills. As noted above, aspects of oral language appear to be related to phonological sensitivity. Another dimension that is extensively studied in the area of emergent literacy is children's letter knowledge. Bowey (1994), Stahl & Murray (1994) report that letter knowledge is associated with some aspects of phonological sensitivity as well as growth in these skills (Burgess &. Lonigan, 1998;

Wagner et al., 1994, 1997). Evidence from school-age children indicates that these three components of emergent literacy are causally related to each other and to later reading (Wagner et al., 1997). However, it is not very clear about the relationship of oral language, phonological sensitivity and letter knowledge to literacy during the preschool period particularly in children who learn language(s) other than those widely investigated such as English and Spanish *(*Culatta, Reese and Setzer, 2006) . Consequently, it is not clear whether there are interactions between these different emergent literacy skills or whether they are relatively independent of one another. Therefore, there are no convincing developmental models of preschool emergent literacy.

Children who learn to read early and also read well are exposed to print more than their peers who do not get as much reading practice. This results in consequent growth in numerous knowledge domains (Cunningham & Stanovich, 1997; Echols, West, Stanovich, & Zehr, 1996; Morrison, Smith, & Dow-Ehrensberger, 1995). In contrast, children who lag behind in their reading skills receive less practice in reading than other children do (Allington, 1984), miss opportunities to develop reading comprehension strategies (Brown, Palincsar, & Purcell, 1986), often encounter reading material that is too advanced for their skills (Allington, 1984), and may acquire negative attitudes about reading itself (Oka & Paris, 1986). Such processes may lead to what Stanovich (e.g., 1986) termed a *Matthew effect,* in which poor reading skills impede learning in other academic areas (Chall, Jacobs, & Baldwin, 1990), which increasingly depend on reading across the school years. Although the development of skilled reading occurs without significant problems for the majority of

children, an estimated one in three children experience significant difficulties in learning to read (Adams, 1990). There is strong continuity between the skills with which children enter school and their later academic performance. Those children who do experience early difficulties in learning to read are likely to continue to experience reading problems throughout the school years (Baydar, Brooks-Gunn, & Furstenberg, 1993; Felton, 1993; Stevenson & Newman, 1986; Tramontana, Hooper, & Selzer, 1988) and into adulthood (Bruck, 1988). Juel (1988) reported that the probability that children would remain poor readers at the end of the fourth grade if they were poor readers at the end of the first grade was 0.88. Children who enter school with limited reading-related skills are at high risk of qualifying for special education services. In fact, the majority of school-age children referred for special education evaluation are referred because of unsatisfactory progress in reading (Lentz, 1988).

A body of ethnographic and linguistic research has emerged over the last 20 years that paints an intriguing portrait of the ways in which children learn to read and write from the beginnings of development. One of the most prominent studies in this field was a review by Teale (1987). A summary of environmental print studies suggest that general literacy knowledge develops out of children's interactions with print. However, the nature of this significance remains unclear. In the research on acquisition of reading and writing concepts, the child is characterized as an active constructor of knowledge, not always employing adult-like thinking or strategies. Research employing storybook reading as a strategy to facilitate emergent literacy emphasizes the significance of repetitive routines such as repeated story book reading in the development of early literacy. Research on classroom applications of emergent

literacy strategies shows that insights from emergent literacy research can be successfully applied to classroom teaching practices.

Studying young children in their homes (Bissex, 1980; Heath, 1983; Scollon & Scollon, 1981; Taylor, 1982; Taylor & Dorsey-Gaines, 1988) and in school (Dyson, 1984, 1989; Purcell-Gates & Dahl, 1991), ethnographers have described how critical literacy concepts, knowledge, and skills have developed in both the contexts. The body of literature portrays young children as learning (implicitly, not necessarily explicitly) about written language within roughly three dimensions, each constraining and defining the other (Purcell-Gates, 1986, 1995). First, everything they learn about written language is constrained by what they learn through experience about its functions and the values placed on its various forms within their particular sociocultural communities (Anderson & Stokes, 1984; Clay, cited in Goodman & Goodman, 1976; Heath, 1982; Purcell-Gates, 1995; Scheiffelin & Cochran-Smith, 1984; Taylor, 1982; Taylor & Dorsey-Gaines, 1988). Within this frame, they learn that print signifies language and about the nature, characteristics, and language forms of the written language that they experience (Butler & Clay, 1979; Cox & Sulzby, 1984; Harste, Woodward, & Burke, 1984; Holdaway, 1979; Purcell-Gates, 1988, 1991, 1992; Snow & Ninio,1986; Sulzby, 1985). As young children participate in literacy events utilizing particular forms of written language, they learn the ways in which print, as a language signifier, maps onto speech (Bissex, 1980; Dyson, 1989; Ferreiro & Teberosky, 1982; Read, 1971).

Discussing early literacy in Indian languages, Sproat (1993) has summarized that there is a clear effect of script type on children's ability to handle a variety of tasks that require some degree of segmental awareness. These include such tasks as phoneme reversal (being able to change /puki/ into /piku/) or phoneme deletion (being able to change /panda/ into /pada/). Generally, learners of alphasyllabic Indic scripts are less able to handle these phoneme related tasks than learners of alphabetic scripts. Prema (2002) compared the performance of children on different types of phonological awareness tasks in three South Indian Dravidian languages and reported that the nature of script has an effect on development of phoneme related skills. Prakash (2000), compared Kannada-speaking children learning standard Kannada orthography with blind Kannada-speaking children learning an alphabetic braille and reported that that the blind children are much better at these kinds of tasks than the sighted children (who only start to catch up in fifth grade when they start learning English).

Cross-linguistic evidence indicates that phonological awareness plays a central role in learning to read in all languages. In the alphabetic languages, the letters represent phonemes and probably because of this, the phoneme has emerged as the critical unit involved in reading development (Goswami & Bryant, 1990; Rack, Hulme & Snowling, 1993; Seymour et al., 2003). In Chinese, the functional linguistic unit in processing print is the morpheme. Chinese morphemes tend to be represented by a syllable and perhaps it is this salience that has set the syllable, rather than the phoneme, as a crucial phonological unit in logographic literacy development (Hanley, 2005). In alphasyllabaries, where print is represented at the syllable level but includes

explicit phoneme markers, the unique phonology-to-orthography mapping in the early stages of literacy development favours larger sub-lexical units (Nag-Arulmani, 2003; Prakash, Rekha, Nigam & Karanth, 1993; Rickard Liow & Lee, 2004).

Findings on segmental awareness in learners of Indic scripts have often not been in consensus with each other. Prakash et al. (1993) point out, Hindi learners of Devanagari have an easier time dealing with the /d/ in /do/ as a separate segment than the /n/ in /n&/ (& = schwa); this is because in /Co/ (for some consonant C) the /o/ is written as a separate diacritic, whereas for /X&/ the /&/ is the so-called "inherent vowel" and is not written. There is also interesting cross-scriptal variation, where a symbol with identical functions in two scripts can correspond to different behaviors in learners of those scripts depending upon the graphical form of the symbol. For example the anusvara symbol is used to represent a post-vocalic nasal. In Devanagari it is written as a small dot above the right hand end of the orthographic syllable (Ex: पं). In Kannada it is a circle written inline (Ex: ಕಂ). They also report that Kannada speakers are better at treating postvocalic nasals as separate segments than literate Hindi speakers.

Khurana and Rao (2008) conducted two surveys with the purpose of understanding emergent literacy experiences of Kannada-speaking children studying in preschools with English as the medium of instruction. Two questionnaires, one on emergent literacy experiences in the classroom and one on books, were developed. 28 teachers from 10 preschools in Mysore city participated in the survey. The authors report 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. 77.56% of teachers in the sample reported that preschools provided good quality and child friendly books with appropriate text and illustrations. Demographic data reveals that 62.5% of teachers were qualified with a Bachelor's degree or more, 75% of teachers had undergone teachers' training and 66.67% of teachers had over 5 years of teaching experience. The authors however, note that the preschools included in the sample had employed well-qualified teachers who provide children with a literacy rich environment in the classroom and therefore, the results have to be viewed with caution.

Purcell-Gates and Dahl (1991) concluded that success with school-based literacy was related to personal learner stances taken by children as they transacted with their formal literacy instruction during the early school years as well as their knowledge of written language constructed from home literacy practices and brought to school as conceptual bases. These researchers followed 35 children from low-socioeconomic-status (SES) homes in three different schools for 2 years, from the beginning of their kindergarten year to the end of their first-grade year. They measured the children's knowledge of written language at the beginning of the study and at the end. During the two years, they closely observed 12 different children, randomly selected from the larger sample, as they participated in the beginning reading and writing instruction in their classrooms. They also included in their analysis the 35 children's scores on an array of emergent literacy assessments, standardized achievement tests given at the end of kindergarten and first grade, and their teachers' assessments of their progress.

Purcell-Gates (1995) conducted another study which documented the range and frequency of literacy practices in 20 low-socioeconomic-status homes over an aggregated week of observation and measured the emergent literacy knowledge held by 24 children, ages 4 to 6, in these homes. The analysis focused on the social domains mediated by print as well as the linguistic unit and complexity of discourse text read and/or written by the participants in the homes. The analysis also examined relationships between the types and frequencies of literacy events and the emergent literacy knowledge held by the children. Results revealed a description of literacy practice and literacy learning which included great variability in type and frequency of literacy events across the 20 homes. The results also suggested the following patterns of relationships between home literacy practices and emergent literacy knowledge: (a) children's understanding of the intentionality of print is related to both the frequency of literacy events in the home and to their personal focus and involvement in the literacy events, (b) children knew more about the alphabetic principle and the specific forms of written language more in homes where literate members read and wrote at more complex levels of discourse for their own entertainment and leisure, and (c) parents' intentional involvement in their children's literacy learning was higher when their children began formal literacy instruction in school.

In a study of three young learners in first grade, Dyson (1984) described how children with differing conceptions of writing interpreted the beginning writing instruction in their classroom differently and appeared more and less successful at literacy learning to their teacher. Assuming that their conceptions of writing resulted

from their experiences with literacy practices in their homes and communities before they began school, home literacy assumes a major role in the success of children in school literacy.

b) Relationship among the emergent literacy skills

Although research has identified oral language, print knowledge, and phonological sensitivity as important emergent literacy skills for the development of reading, few studies have examined the relations between these aspects of emergent literacy or between these skills during preschool and during later reading. Lonigan, Burgess and Anthony (2000) examined the joint and unique predictive significance of emergent literacy skills for both later emergent literacy skills and reading in two samples of preschoolers. Ninety-six children (mean age = 41 months) were followed from early to late preschool, and 97 children (mean age = 60 months) were followed from late preschool to kindergarten or first grade. They found significant developmental continuity of these skills, particularly for letter knowledge and phonological sensitivity from late preschool to early grade school, both of which, according to them, were the only unique predictors of decoding.

In addition to the effects of letter knowledge on phonological sensitivity, oral language had direct and indirect effects on phonological sensitivity in the late preschool period (Lonigan, Burgess and Anthony, 2000). This finding is consistent with results from a number of other studies of both preschool (e.g., Burgess & Lonigan, 1998; Chaney, 1992; Lonigan et al., 1998) and early elementary school children (e.g., Bowey, 1994; Wagner et al., 1993, 1997) that have demonstrated

significant concurrent and longitudinal correlations between children's vocabulary skills and their phonological processing skills. These results suggest that oral language development has an influence on the acquisition of this key emergent literacy skill.

Storch and Whitehurst (2002) examined code-related and oral language precursors to reading in a longitudinal study of 626 children starting from preschool till the 4th grade. Print concepts, phonological awareness, and oral language were assessed in preschool and kindergarten. Reading accuracy and reading comprehension skills were evaluated in 1st through 4th grades. Results showed that (a) the relationship between code-related precursors and oral language is strong during the preschool years; (b) there is continuity over time of both code-related and oral language abilities; (c) during early schooling, reading ability is mainly determined by the level of print knowledge and phonological awareness a child learns in kindergarten; and (d) in later school years, reading accuracy and reading comprehension appear to be independent abilities that are influenced by different sets of skills.

Another body of research is that pertaining to written language. Linguists and psycholinguists have described and detailed the ways in which written language differs from oral speech, and these findings are relevant to any study of literacy development because one learns to read and write written language, not speech written down. Written language must be shaped so that meaning is conveyed in the absence of a shared physical context between the writer and the reader (Rubin, 1978). Written language, in contrast to oral speech, employs vocabulary that can be termed *literary*

(e.g., *entrance* instead of *door*), syntax that is more integrated and complex, and only endophoric (within-text) references (Chafe & Danielewicz, 1987; Horowitz & Samuels, 1987; Perfetti et al, 1987; Rubin,1978) although varying along a continuum that reflects relative distance from writer to reader and relative degrees of involvement between writer and reader (Tannen, 1982), Further, the language of written English text is coded alphabetically, using written symbols to represent speech at the phoneme level. Developmental case studies (Branscombe & Taylor, 1996; Martens, 1996; Olson & Sulzby, 1991; Schickedanz, 1990) focusing on young children's hypotheses for writing words have largely confirmed patterns described earlier by researchers such as Clay (1975) and Sulzby (1989). A number of process-oriented studies have focused on describing sentence and text-level patterns in children's writing more fully. Aspects studied include punctuation (Martens, 1996; Martens & Goodman, 1996), genre of children's texts (Chapman, 1996; Pontecorvo & Morani, 1996), children's use of quoted speech (Sulzby, 1996), and integration of multiple sign systems (Gallas, 1994; Kress, 1997; Rowe, 1994).

Purcell-Gates and Dahl (1991) concluded that those children who entered kindergarten knowing more about print and its functions in the world were generally more successful with the formal literacy instruction they encountered in school, performed higher on achievement tests, and were judged as more advanced readers and writers by their teachers. They also found that the children who had begun school scoring low on the array of measures used to assess knowledge of written language constructed significantly more of this knowledge *during* their two years in school. In addition, they reported that learner success at beginning reading and writing in school

reflected individual transactional stances taken by the learners as well. Thus, factors other than home literacy experiences also influence literacy development.

Goodman (1986) identified the exposure to environmental print as one of the main "roots" of literacy, but more recent studies, operating with outcome-based assumptions, have been unable to find strong relationships between environmental print recognition and conventional reading ability. In one of the few existing experimental studies, for example, Stahl and Murray (1993) found that children's exposure to logos did not facilitate their word recognition ability. Further, a study by Shaffer and McNinch (1995) highlighted the variation in ability between academically at-risk preschool children and their academically advantaged peers to give meaningful responses to logographic stimuli. Moreover, to quote Purcell-Gates (1996), "children are better served by observing and experiencing the reading and writing of connected discourse decontextualized from physical (such as signs and containers) and pictorial contexts" (p.426). The author reported an average of less than one instance of actual reading and writing per hour in the 20 low-income families she studied.

c) Story-reading

While storybook reading has continued to be a major area of research over the last decade. As a consequence, questions about its efficacy for later literacy achievement have increasingly arisen. Current research on the effects of joint storybook reading upon subsequent reading achievement illustrates the current tension in the field regarding story reading that was once highly acclaimed practice.

Crain-Thoreson and Dale (1992) conducted a study in which 25 children were selected for verbal precocity at 20 months of age. These children participated in a longitudinal study investigating predictors of later language and literacy skills. Though children remained verbally precocious, there was a rather low incidence of precocious reading. Exposure to instruction in letter names and sounds was a significant predictor of children's print knowledge and phonological awareness at age 4½ years. Frequency of story reading in the home and child engagement in a story reading episode at 24 months of age were found to be significant predictors of children's language ability at age 2½ years and 4½ years and knowledge of print conventions at age 4½ years. The authors concluded that story reading with parents as well as literacy instruction contributes to the development of emergent literacy in verbally precocious children.

Pappas (1993) examined the emergent reading of narrative stories and information books by 16 kindergartners over four months and found that children were able to equally negotiate complex text structure differences (e.g., coreferentiality vs. coclassification) between narrative and information books. Additionally, looking at particular types of text format *within* genres that may have a differential effect upon children's responses to storybooks, Yaden, Smolkin, and their colleagues (Smolkin, Yaden, Brown, & Hofius, 1992; Yaden, 1993; Yaden, Smolkin, & MacGillivray, 1993) have found that certain features of alphabet books—in particular, certain types of illustrations, and print that has been made "salient" in some way (e.g., speech balloons, labels in pictures, etc.)change the nature of both children's and parents' responses toward more discussion about the graphic nature of text and conventions of

print (Greenewald & Kulig, 1995). Finally, extending earlier findings regarding the benefits to children of rereading storybooks, Elster and Walker (1992) discovered that low-income four- and five-year-old children's ability to infer cause/effect relationships and make predictions was significantly enhanced with repeated readings of predictable texts.

After conducting a quantitative meta-analysis of 31 experimental studies of storybook reading over three decades, Bus, van IJzendoorn, and Pellegrini (1995) asserted that "book reading is as strong a predictor of reading achievement as phoneme awareness" (p.17). On the other hand, Scarborough and Dobrich (1994), having reviewed many similar studies concluded that "for now we think some parents would be reassured to know that there is no clear indication that literacy development depends crucially on shared reading experiences in the preschool years" (p.295) . Nevertheless, both groups of authors reported that storybook reading between parents and preschool children accounted for 8% of the variance of subsequent reading measures. Yaden, Rowe and MacGillivray hypothesize that perhaps it is because of this existing tension that there is a growing trend in the current storybook reading literature toward outcome-based, quasi-experimental research rather than the descriptive, qualitative inquiry that has generally characterized studies reviewed in the past.

Goodman (1986) has argued that children acquire both metalanguage terms (e.g., word, letter, story, etc.) as well as conscious awareness about written language through storybook reading events. Yaden and colleagues (Yaden, 1993; Yaden et al.,

1993) have documented evidence to state that the children spontaneously talk about aspects of letters, words, and texts during storybook reading. This research indicates that metalinguistic awareness about written and spoken language emerges developmentally (cf. Roberts, 1992) from tacit awareness about texts initially focused on elements of meaning to more explicit reflections concerning the conventions of books, and aspects of letters and words themselves. In an experimental study using genre as a treatment variable, Murray, Stahl, and Ivey (1996) demonstrated that children reading alphabet books with accompanying examples of words illustrating the various sounds had significantly higher levels of phoneme awareness than children reading traditional storybooks or alphabet books without accompanying examples. Murray et al. (1996) pointed out, however, that all groups of children reading different types of alphabet books and storybooks advanced in phoneme awareness and in concepts about print and letter knowledge.

Bus and van Ijzendoorn (1995) carried out a quantitative meta-analysis of the available empirical evidence related to parent-preschooler reading and several outcome measures. The results support the hypothesis that parent-preschooler reading is related to outcome measures such as language growth, emergent literacy, and reading achievement. The overall effect size of $d = .59$ indicates that book reading explains about 8% of the variance in the outcome measures. The results support the hypothesis that book reading, in particular, affects acquisition of the written language register. The effect of parent-preschooler reading is not dependent on the socioeconomic status of the families or on several methodological differences between

the studies. However, the effect seems to become smaller as soon as children become conventional readers and are able to read on their own.

Mol, Bus and Jong (2009) carried out a meta-analysis which examined to what extent interactive storybook reading stimulates two pillars of learning to read: vocabulary and print knowledge. The authors quantitatively reviewed 31 (quasi) experiments (n = 2,049 children) in which educators were trained to encourage children to be actively involved before, during, and after joint book reading. A moderate effect size was found for oral language skills, implying that both quality of book reading in classrooms and frequency are important. Although teaching print-related skills is not part of interactive reading programs, 7% of the variance in kindergarten children's alphabetic knowledge could be attributed to the intervention. The study also shows that findings with experimenters were simply not replicable in a natural classroom setting. Further research is needed to disentangle the processes that explain the effects of interactive reading on children's print knowledge and the strategies that may help transfer intervention effects from researchers to children's own teachers.

d) Emergent literacy-based intervention programs

Emergent literacy instruction is most beneficial when it begins early in the preschool period because these difficulties are persistent and often affect children's further language and literacy learning throughout the school years. Promoting literacy development, however, is not confined to young children. Older children, particularly those with speech and language impairments, may be functioning in the emergent

literacy stage and require intervention aimed at establishing and strengthening these skills that are essential to learning to read and write. In recent years, there has been an upsurge in the creation of intervention programs that are based on emergent literacy-based approaches.

Labbo and Teale (1998) state that "no matter what the age or previous experience of the children, an emergent literacy approach is appropriate" (p. 250). For example, implementing multiple emergent literacy activities over two years, Englert et al. (1995) reported that second-year students in their project outperformed both first-year students and a control group of Project READ children on selected measures of writing, reading comprehension, and metacognitive knowledge. While not attributing students' knowledge gains to any one facet of the program, the authors stressed that the holistic nature of the learning experiences, the teachers' gradual "ownership" of the projects' principles and curriculum, and the sense that a "literate community" was established between students, teachers, and the wider community, were crucial components in making it a success.

Kriegler, Ramarumo, Van der Ryst, Van Niekerk, and Winer (1994) describe a 23-week emergent literacy program implemented in 19 nursery schools in rural South Africa, where over half of the adults in the community had received no formal schooling. Despite the fact that the intervention lasted only six months, Kriegler et al. (1994) reported that a treatment group of 21 nursery school children, though eight months younger than a control group, increased in their knowledge of book handling, word recognition, and print conventions over two control groups not participating in

the project. Similarly, in Finland, where children normally learn to read following analytic and synthetic phonics approaches, Korkeamaki and Dreher (1995, 1996) have reported the success of an emergent literacy program for kindergarten and primary grade children.

Evaluation of the efficacy of emergent literacy-based intervention programs.

Whitehurst, Epstein, Angell, Payne, Crone and Fischel (1994) evaluated the effectiveness of Head Start, an emergent literacy intervention program. Classrooms of 4-yr-olds attending Head Start were randomly assigned to an intervention condition, involving an add-on emergent literacy curriculum, or a control condition, involving the regular Head Start curriculum. Children in the intervention condition experienced interactive book reading at home and in the classroom as well as a classroom-based sound and letter awareness program. Children were pretested and posttested on standardized tests of language, writing, linguistic awareness, and print concepts. Effects of the intervention were significant across all children in the domains of writing and print concepts. Effects on language were large but only for those children whose primary caregivers had been actively involved in the at-home component of the program. One linguistic awareness subtest, involving the ability to identify the first letter and first sound of words, showed significant effects.

In another study by Wasik, Bond and Hindman (2006), a language and literacy intervention was implemented in 10 Head Start classrooms. Teachers were trained in specific book reading and conversation strategies. The focus of the intervention was to train teachers how to increase opportunities for language and vocabulary development

in young children. At the end of the year, children in the intervention classrooms performed significantly better than children in the control classrooms on the Peabody Picture Vocabulary Test-III and the Expressive One-Word Vocabulary Test (3rd ed.). In addition, teachers in the intervention classrooms used strategies that promoted language development during book reading and other classroom activities suggesting that the Head Start teachers can be trained to implement strategies that have positive effects on children's language and literacy development.

Justice, Miin-Chow, Capellini and Flanigan (2003) conducted a study evaluating the efficacy of an emergent literacy intervention program for vulnerable preschoolers. This study determined the relative efficacy of an experimental explicit emergent literacy intervention program for preschoolers experiencing multiple risk factors. Using an alternating treatment research design, children completed two 6-week waves of intervention in small groups; one wave featured the experimental explicit intervention program, whereas the other featured a comparison program. Emergent literacy assessment was conducted at pretest and at the end of each wave. Results indicated significant widespread gains in emergent literacy knowledge over the entire 12-week intervention program; growth was significantly greater during the experimental explicit intervention program compared to the comparison program. An examination of individual differences and intervention outcome showed oral language skills and literacy orientation to predict emergent literacy performance at the end of the program.

Justice, Kaderavek, Fan, Sofka and Hunt (2009) examined the impact of teacher use of a print referencing style during classroom-based storybook reading sessions conducted over an academic year. Impacts on preschoolers' early literacy development were examined, focusing specifically on the domain of print knowledge. This randomized, controlled trial examined the effects of a print referencing style on 106 preschool children attending 23 classrooms serving disadvantaged preschoolers. Following random assignment, teachers in 14 classrooms used a print referencing style during 120 large-group storybook reading sessions during a 30-week period. Teachers in 9 comparison classrooms read at the same frequency and with the same storybooks but used their normal style of reading. Children whose teachers used a print referencing style showed larger gains on 3 standardized measures of print knowledge: print concept knowledge, alphabet knowledge, and name writing, with medium-sized effects. The authors argued that this indicates that print referencing intervention can be used confidently as an approach for facilitating print knowledge in preschool-age children. They were also of the opinion that speech-language pathologists can serve an important role in supporting preschool educators as they use this evidence-based technique with pupils in their classrooms.

Lonigan, Anthony, Bloomfield, Dyer and Samwel (1999) conducted a study comparing two shared-reading interventions. The effects of two preschool-based interventions were evaluated with 95 children, aged 2-5 years, from low-income groups. Standardized tests showed that these children had language skills below average. The children were randomly assigned to one of the following three groups:

a. No treatment control

b. Typical shared-reading condition

c. Dialogic (interactive) shared-reading condition

In conditions (b) and (c), undergraduate students read out to the children in small groups. After a 6-week intervention period, the children were assessed for oral language, listening comprehension, and phonological sensitivity. It was found that both conditions produced positive results.

Justice, McGinty, Piasta and Kaderavek (2010) carried out an experimental study to determine the effectiveness of teachers' use of a print-referencing style during whole-class read-alouds with respect to accelerating 4- and 5-year-old children's print-knowledge development. It also examined 8 specific child- and setting-level moderators to determine whether these influenced the relation between teachers' use of a print-referencing style and children's print-knowledge development. In a randomized controlled trial, 59 teachers were randomly assigned to 2 conditions. Teachers in the experimental group (n = 31) integrated explicit references to specified print targets within each of 120 read-aloud sessions conducted in their classrooms over a 30-week period; comparison teachers (n = 28) read the same set of book titles along the same schedule but read using their business-as-usual reading style. Children's gains over the 30-week period on a composite measure of print knowledge were compared for a subset of children who were randomly selected from the experimental (n = 201) and comparison (n = 178) classrooms. When controlling for the print knowledge during fall period child age, and classroom quality, children who experienced a print-referencing style of reading had significantly higher print knowledge scores in the spring period than did children in the comparison classroom.

None of the child-level (age, initial literacy skills, language ability) or setting-level characteristics (program type, instructional quality, average level of classroom socioeconomic status, teachers' education level, teachers' experience) significantly moderated intervention effects. Considered in tandem with prior study findings concerning this approach to emergent literacy intervention, the authors report that print-focused read-alouds appear to constitute an evidence-based practice with net positive impacts on children's literacy development.

Linebarger, Kosanic, Greenwood and Doku (2004) evaluated the efficacy of the television program "Between The Lions". *Between the Lions* is a puppet show designed to promote reading. The target audience is children 4 to 7 years old. Among the educational techniques used by Between the Lions are the following:

- **Featured Letters and Sounds:** Every episode has a feature letter or sound, such as 'h' or 'the long ee sound'. Throughout the show, the featured letter or sound is heard and seen in a variety of words.
- **Text on Screen:** Frequently, key words or entire sentences of dialog are shown on screen as the characters talk, with the featured letter or combination highlighted.
- **Stories:** Every episode contains one or more short stories in the form of books read by the Lion family. These stories tie in thematically with the rest of the episode and also serve as another way to present words with the featured sound in context.
- **Songs:** I informative songs sum up the rules of English spelling and pronunciation in easy-to-remember ways, with lyrics like "When two vowels go

walking, the first one does the talking" or "Even the blues would be blue without an s" and many others. Often the text of the song is shown on screen.

- **Animations and skits:** A variety of animations and skits show how words are formed and how one word can be changed into another by adding or removing letters.
- **Definitions:** Whenever a long or unusual word is used in a dialog or story, a quick definition is given. Usually, it is subtly worked into the conversation, such as when one of the parents responds to a question from the children. Other times it may be provided in a humorous way, such as when Heath Thesaurus pokes his head in to define a word. Occasionally words may be defined by showing pictures or other artistic methods.
- **Repeated Vocabulary:** Various vocabulary words are introduced in each episode, ranging from simple, everyday concepts like "jump" and "read" to more complex words like "sequel", "dictionary", or "drought". After a word has been introduced, it is usually used a number of times throughout the episode.

In this efficacy study, higher word recognition and standardized reading test scores were noted for all viewers compared with nonviewers. In addition, significantly higher means and accelerated slopes for phonemic awareness and letter-sound tasks were found for viewers compared with nonviewers. Even so, improvements in literacy skills (i.e., speech to print, word building, concepts of print) varied, mostly favouring moderately at-risk to not-at-risk kindergarten children who viewed the program. Kindergarten children at great risk and first graders did not benefit as much from the program.

Emergent literacy training program for bilingual children

Culatta, Reese and Setzer (2006) studied an early literacy program in English-Spanish bilingual kindergarteners. This study determined the effectiveness of an early literacy program that embeds skills-based instruction into meaningful contexts, documented children's engagement in the instruction, and obtained insights into how language of origin (Spanish or English) influences performance in instruction in two languages. The program, Systematic and Engaging Early Literacy Instruction (SEEL), is a meaning-based approach that highlights literacy targets in hands-on and interactive activities. Researchers monitored the progress of children participating in dual-language Spanish—English classrooms and compared performance of classrooms where instruction was applied to different skills at different times (first or second 6-week block of instruction). ANCOVAs were conducted with time of assessment (Posttest 1 and Posttest 2) and class (alliteration first versus rhyme first) as independent variables, mean raw score for each of the tasks (rhyme, alliteration, blending, and word recognition) as dependent variables, and entering performance on each measure as the covariate. Assessment of children who were native speakers of both Spanish and English showed significant time effects, reflecting progress in acquiring early literacy skills. English-speaking children demonstrated significant Time × Class effects for alliteration and rhyming. The ANCOVA analysis for Spanish-speaking children's data resulted in a significant Time × Class interaction for syllable alliteration, indicating that performance gains were related to the presence of instruction. In addition, observation of children's performance demonstrated developmental progression in attaining the targeted literacy skills, revealed high levels

of engagement in instruction, and gave insights into the role played by language of instruction in the learning process.

It may be noted that a large majority of the studies concerning emergent literacy practices have been concentrated in Western countries, especially dealing with English-speaking populations. There are very few studies in India that have examined the impact of emergent literacy training on later literacy skills. The "Kannada Vachana Karya Krama" (KVK) package (Padmini, 2010-11) as a part of the educational program PRATHAM, was used to improve learning outcomes among primary school children and for building their kannada language skills. It was intended to correct the graded difficulty at four levels namely *Saralakshara*, *Gunithakshara, Sajathi Otthakshara*, *Vijathi Otthakshara*. It also dealt with issues regarding pronunciation. KVK program was being run in government schools through Pratham volunteers. With an aim to improve the reading ability of children in 60 days, this program has now been handed over to government teachers of a few selected government schools. An evaluation of the program is in progress.

Prema (2010) has conducted a project, Phonological Sensitivity Kit in Kannada (PhoST-K), which mainly deals with phonological sensitivity, one of the key elements of emergent literacy. But apart from these few studies, there is very little documented evidence of research carried out in this field in Indian languages. Very little research has focused on individual components of emergent literacy and their relationship with academic and/or language skills. Moreover, there are no documented reports on the efficacy of emergent literacy intervention programs. Hence, the body of

data available on emergent literacy in India is extremely limited. This paucity of literature calls for more research in the area of emergent literacy.

CHAPTER 3

METHOD

Emergent literacy-based practices have received very little attention in our country. There are few studies which report the efficacy of literacy coaches in the form of text and /or digital manuals that use emergent literacy-based approaches. Hence, one of the main objectives of the study was to develop a digital literacy coach and evaluate its impact on children's oral language and print knowledge. The impact of the program in terms of enhancing the knowledge bank of the teachers regarding issues pertaining to emergent literacy was also assessed.

Participants: The participants of this study are grouped as follows:

a. **Teachers**: Two groups of kindergarten teachers from two different schools participated in this study. One group, T-1, served as the experimental group while the other, T-2, was the control group. Both T-1 and T-2 consisted of nine female teachers each. All the teachers had 0-5 years of experience as kindergarten teachers. Each teacher taught at least five classes a week. Both the schools identified for this study were English medium Central Board of Secondary Education (CBSE) schools.

b. **Children:** Three groups of kindergarteners were selected for this study. The experimental group, LKG-1 consisted of eight children, aged between 4.0- 5.6 years (M= 4.11 years), with four male and four female children. All these children were students of the teachers in T-1. LKG-2 consisted of eight children too, in the age range of 4.6- 5.5 years (M= 5.1 years). The group had three male and five female participants. These children were students of teachers in T-2. The last group, UKG-1

consisted of eight UKG children from School 1, out of whom three were male and five were female. The participants were 5.4- 6.0 years old (M= 5.8 years).

Research Design: An experimental research design was used. For the teacher groups T-1 and T-2, baseline evaluation of their knowledge of emergent literacy was carried out. The experimental group T-1 received three orientation lectures aimed at enhancing their sensitivity towards issues pertaining to emergent literacy practices. At the end of the program, another assessment was carried out to evaluate whether there had been any improvement in the knowledge of the teachers about emergent literacy.

Three groups of kindergarten students were selected for the study: LKG students from School 1 (LKG-1), LKG students from School 2 (LKG-2) and UKG students from School 1 (UKG-1). LKG-1 served as the experimental group, while LKG-2 and UKG-1 were both control groups.

Baseline evaluations were carried out for all the three groups. Following this, the experimental group LKG-1 received 20 sessions of emergent literacy approach-based teaching, with special emphasis on print-referencing and story-reading. At the end of this period, LKG-1 and LKG-2 groups were evaluated again. The LKG-2 group was included to control for any improvement in emergent literacy scores that may be attributed to normal development. The UKG-1 group was included in this study so that the performance of LKG-1 could be compared against that of UKG-1, in order to gain a clearer understanding as to where the students in the experimental group stand on the continuum of early literacy with refrence to oral language and print knowledge??

Material: The tools used for the study included the following:

1. **Questionnaires:** Two parallel questionnaires were drawn from the ongoing project Phonological Sensitivity Kit in Kannada (PhoST-K, Prema, 2010). These were used to assess the knowledge of kindergarten teachers about emergent literacy. One questionnaire was used to arrive at a baseline measure, while the other was administered at the end of the program, as part of the post-test evaluation. Each questionnaire had 10 objective, one-mark questions. The maximum score was 10.

2. **Digital Literacy Coach**: A manual titled "A Digital Literacy Coach to Promote Oral Language and Early Literacy (For SLPs, Teachers and Caregivers)" and an accompanying DVD were developed as a part of this study. This Digital Literacy Coach described various activities and teaching strategies that are a part of emergent literacy-based approaches. The development of this manual and DVD has been discussed in detail in a later section of this chapter.

3. **Screening Emergent Language and Literacy (SELL):** SELL is an online screening test, developed by Prema (2005-06). The screening test measures early language, phonological awareness and print awareness of emergent literacy. SELL was used to evaluate the children's ability to 'read' signs, their awareness of print concepts and book orientation. The SELL has a maximum score of 28.

4. **Checklist for Emergent Literacy Development (CELD):** CELD (Justice, 2002) was used to assess the children's print knowledge. There are three sections in CELD, each carrying a score of 10. The total score obtainable is 30. The CELD assesses written language, environmental print awareness and book knowledge.

5. **Systematic Analysis of Language Transcripts (SALT):** SALT (Miller and Iglesias, 2006) was used to analyze samples of the children's storytelling, in order to derive language measures like mean length of utterance, number of different words, number of new words, mazes, type-token ratio and frequency of words, as well as the usage of various inflectional morphemes.

Procedure: The procedure that was used to carry out this study is discussed under the following phases:

PHASE 1:

1. Development of the Digital Literacy Coach

PHASE 2:

1. Baseline evaluation of kindergarten teachers' knowledge of emergent language issues by employing questionnaires
2. Orientation program regarding emergent literacy and its importance, for the kindergarten teachers
3. Post-test evaluation of teachers' knowledge of emergent literacy and emergent literacy practices.

PHASE 3:

1. Screening of kindergarten children for communication disorders
2. Baseline evaluation of children's print knowledge and oral language

3. Instruction using Digital Literacy Coach to LKG-1 by T-1

4. Post-test evaluation of children's print knowledge and oral language

PHASE 1: Development of the Digital Literacy Coach

A manual titled "A Digital Literacy Coach to Promote Oral Language and Early Literacy (For SLPs, Teachers and Caregivers)" was developed. This manual discussed strategies and activities to promote oral language and print knowledge. The first section of the manual dealt with print knowledge, and several activities were described to help establish concepts of print, for example, that print is an equivalent of written speech, to improve book orientation, letter identification, identification of signs, and alphabet knowledge.

Activities to improve oral language were described in the next section. These included questions, picture stories, dramatic play, and activities to teach action words and verb pairs. This manual was intended to only provide a model, and teachers were encouraged to expand on the given activities and modify them to meet their classroom demands.

A sample picture story was also developed. A 6-panel colour cartoon was developed, of which three sets were made. The first set depicted a completely wordless story, and this was used as the first level in storytelling. The second set, for the next level, incorporated only keywords with the pictures. The last set, for the third level, included running text at the bottom of the panel. A pilot study was conducted, during which the sample picture story was presented to three kindergarten students (these children were not included in either the experimental or the control groups), to check the difficulty level of the picture story.

To complement the manual, a Digital Literacy Coach was developed, demonstrating the activities and strategies described in the manual. The 23-minute video was shot using a Nikon HD Video Camera in a classroom setup with two children, both male, aged 3.6 years and 4.3 years, as students. The video was edited using Windows Movie Maker and recorded on a DVD-R.

PHASE 2:

1. To assess the teachers' baseline knowledge of oral language, print knowledge and their importance in language learning, a questionnaire was used. This questionnaire contained ten objective, multiple-choice questions. Each question carried one mark. These questionnaires were drawn from the project Phonological Sensitivity Kit in Kannada.

2. Following this baseline evaluation, T-1, the experimental group, received three separate, hour-long orientation sessions. The first of these three aimed at defining the concept of emergent literacy, oral language, and their importance. The impact of well established emergent literacy practices on academic skills was discussed with the teachers. The teachers were familiarized with the concepts of print knowledge, shared story reading and oral language.

The second session consisted of a discussion on how healthy emergent literacy practices could be incorporated in the regular school curriculum. The teachers were encouraged to provide suggestions for the same. The consequences of poor exposure to emergent literacy practices were also discussed, and the teachers were provided

with a few pointers to help them identify children who were at risk for academic failure.

During the third session, the Digital Literacy Coach developed as a part of the study was played to the group of teachers. Also, each teacher was given a copy of the manual and the sample picture story. The activities demonstrated in the Digital Literacy Coach were discussed in detail- the objective of each activity, materials required and the desired outcome. It was emphatically stated that both the manual and the Digital Literacy Coach were designed to be a model only, and that the teachers were welcome to extend or modify these activities, or use them in any other language, as long as it served the purpose intended and was suitable to the student group.

To ensure better understanding of the described activities, a live demonstration of the activities was conducted, involving a group of five LKG students. It may be noted that these five students were not a part of the experimental group LKG-1.

3. A questionnaire parallel to the one used for baseline evaluation was used to carry out a post-test evaluation at the end of the experiment. Scores out of ten were collected and tabulated.

PHASE 3:

1. Eight participants were selected on a random basis from the LKG class of School 1. This formed the experimental group LKG-1. Also, eight participants were selected from the LKG class of School 2 and the UKG class of School 1. These two

groups, LKG-2 and UKG-1, formed the two control groups. All the children were screened using the WHO Ten-Question Disability Screening Checklist (Singhi, Kumar, Malhi & Kumar, 2007) and Screening Checklist for Auditory Processing (Yathiraj and Mascarenhas, 2002). All children were found to be typically developing.

2. All the 24 children (8 in each group) were administered the CELD and SELL. The CELD assessed three domains of print knowledge: written language, environmental print awareness and book knowledge. SELL is a screening test that was used to screen the children's emergent literacy skills. Both these tests were used to procure a baseline the children's print knowledge.

To assess oral language, a story retell task was employed. A 6-panel colour picture story was presented to each child. He/ she was asked to go through the pictures and then tell the story that was depicted using the pictures. The children were encouraged to tell the story the best they could, without being provided a model. Occasionally, cues were provided. Prompts like "What happened next?", "And then?", etc were also used.

The children's storytelling samples were recorded using a Sony Voice Recorder and later transferred to an HP dv2000 laptop in an MP3 format. All samples were transcribed and analyzed using SALT. Number of different words, number of new words, Mean Length of Utterances in words and morphemes, and number of main body words were noted. These were used as a baseline measure of the children's oral

language. Hence, using CELD, SELL and story-retell, a baseline assessment of the print knowledge and oral language of all the children was completed.

3. Once baseline measures had been established for all the five subject groups, T-1, T-2, LKG-1, LKG-2 and UKG-1, the teachers in T-1 were instructed to commence using the Digital Literacy Coach and the manual provided to them. These activities were to be carried out only in the LKG class. A separate period, thrice a week, was assigned for carrying out activities to promote early literacy skills and oral language. The children in the LKG class received a total of 20 sessions of instruction using the prescribed approach, over a period of two months. To ensure that the suggested activities were actually being carried out, random visits during class hours and video recordings were done.

4. After the two-month period, a post-test evaluation LKG-1 and LKG-2 was carried out.. LKG-1 and LKG-2 were administered the same tools that were used for the baseline evaluation- CELD and SELL. A story retell sample was elicited using a 6-panel colour picture story. The recorded samples were analyzed using SALT, as was done during the baseline evaluation.

Analysis: The scores and measures from the experimental group LKG-1 on CELD, SELL and the SALT analysis were compared with the measures obtained from LKG-2. The intention of this comparison was to indirectly evaluate the efficacy of the Digital Literacy Coach. An improvement in the print knowledge and oral language of

LKG-1 as compared to those of LKG-2, who were not exposed to the Digital Literacy Coach, would indicate that the Digital Literacy Coach had been effective.

The scores of LKG-1 were also compared with the baseline scores of UKG-1. This was done to acquire a better understanding as to where the children of LKG-1 stand in the continuum of early literacy skills.

The baseline scores and post-test scores obtained from the groups T-1 and T-2 were compared and analyzed to assess whether there was any significant improvement in their performance on the questionnaire used. This in turn would reflect whether there has been any enhancement in their knowledge bank with respect to early literacy skills. Statistical analyses were then carried out.

CHAPTER IV

RESULTS AND DISCUSSION

The chief objectives of the current study were to develop a Digital Literacy Coach and evaluate its effectiveness in promoting print knowledge and oral language among LKG students. The Digital Literacy Coach was used by nine teachers (T-1) to teach children in LKG class, from which the experimental group LKG-1 was formed. Two control groups were involved in the study- LKG-2 and UKG-1. Baseline scores were obtained in November 2010 from all three groups. The program commenced soon after Winter break, i.e., in January 2011. At the end of the program, in March 2011, post-test scores were obtained from the groups LKG-1 and LKG-2. These were compared with each other and the baseline scores, to check for any statistically significant differences. Also, the post-test scores of LKG-1 were compared with the baseline scores of UKG-1, in order to check for the differences in the performance of the experimental group LKG 1 for which the training was given with UKG-1 who did not undergo training. This was done to examine the effect of training on the performance of children that would help to place them on the continuum of development. The two teacher groups T-1 and T-2 were both initially assessed for their sensitivity to issues pertaining to emergent literacy. T-1 received a brief orientation program regarding emergent literacy and related issues. At the end of the program, post-test scores were obtained from both the teacher groups and compared. The results of this study are discussed under the following sections:

1. Print knowledge:

a. SELL scores

b. CELD scores

2. Oral language:

a. Syntax

b. Semantics

3. Teachers' knowledge of emergent literacy

Print Knowledge:

Print knowledge was assessed using two tests, SELL and CELD. These tests measured the children's knowledge of terms like *word, letter, sentence, page*, etc, their awareness of environmental signs, book handling skills and orientation to text.

Scores on SELL test:

Pre-test and Post-test scores on **Screening Emergent Language and Literacy (SELL)** were compared across the groups LKG 1, LKG 2 and UKG 1 using One-Way Analysis of Variants (ANOVA). Analysis of the pre-test scores showed significant between-group differences $\{F(2,21)= 7.33, p<0.005\}$. Duncan's post-hoc test revealed that the scores of UKG-1 were significantly higher than those of LKG-1 and LKG-2.

Group (N=8)	SELL-pretest	SELL- posttest
LKG-1	26.00 (1.60)	27.38 (.74)
LKG-2	26.00 (1.07)	26.38 (.74)
UKG-1	27.88 (.35)	--

Table 1: Mean and SD of pre-test and post-test SELL scores of LKG 1, LKG 2 and UKG 1

Figure 1 shows that there are no post-test SELL scores for UKG-1, as this control group underwent only a baseline assessment, carried out at mid-term, around November 2010.

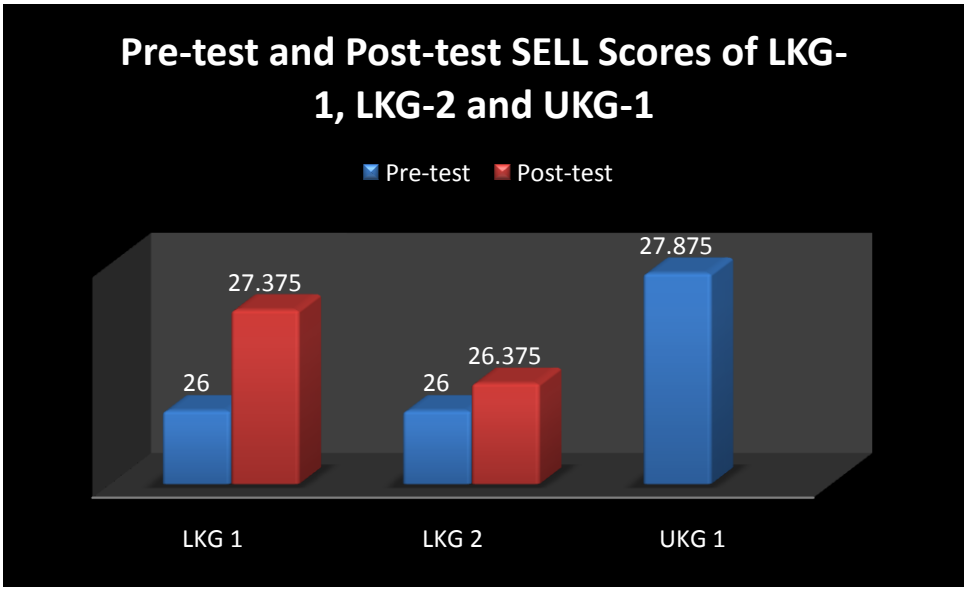


Fig. 1: Pre-test and Post-test SELL scores of LKG 1, LKG 2 and UKG 1 groups

SELL was a screening test that was used, and touched upon aspects of phonological sensitivity as well. As one may notice, the scores of both LKG groups on SELL were high to begin with 26 out of a total of 28, as indicated by the baseline scores. LKG-1 received 20 sessions of emergent literacy-based training, which included activities and strategies to enhance print knowledge. Consequent to this

training program, the scores of LKG-1 on SELL have increased from 26 to 27.38, the difference being statistically significant ($p<0.005$) . The scores of LKG-2, the control group, also increased, from 26 to 26.38, but failed to attain a statistically significant difference ($p>0.005$) . At the end of the program i.e., in March 2011, the scores of LKG-1 towards the end of term were closer to the scores of UKG-1 at mid-term i.e., in November 2010 (27.88).

Another test that was carried out to assess print knowledge was CELD. As discussed before, the CELD has three subsections: written language, environmental print awareness and book knowledge. The pre-test scores of LKG-1, LKG-2 and UKG-1 on these three subsections were compared using MANOVA. Statistical analysis of these pre-test scores showed a significant difference between the three groups in each of the three subtests. The mean pre-test scores and standard deviation of the three groups in each subsection of the CELD are tabulated below:

Subtest	**Group (N=8)**	**Pretest**	**Post-test**
		Mean (SD)	**Mean (SD)**
Written Language	LKG 1	6.75 (1.04)	8.88 (1.13)
	LKG 2	6.63 (.74)	7.38 (.52)
	UKG 1	8.88 (.83)	--
Environmental Print	LKG 1	5.25 (1.04)	7.75 (1.28)
	LKG 2	5.3 (.92)	6.25 (.71)
	UKG 1	8.13 (.64)	--

Book Knowledge	LKG 1	6.00 .76	8.25 (.71)
	LKG 2	5.63 .92	6.00 (.76)
	UKG 1	9.63 .52	--

Table 2: Mean and SD of pre-test and post-test CELD scores of LKG 1, LKG 2 and UKG 1

Post-hoc analysis using Duncan's test revealed that UKG-1 performed significantly better than the other two groups in all the subsections (for Alpha=0.05, UKG-1 belongs to Subset 2). Tables 3-5 show the mean scores for each subsection, separately. The group whose score appears in a separate subset is the group whose performance was significantly different from that of the other two.

CELD: Written Language Pre-test Scores			
Group	**N**	**Subset**	
		1	2
LKG 2	8	6.63	
LKG 1	8	6.75	
UKG 1	8		8.88

Table 3: Post-hoc test results of statistical analysis of pre-test CELD scores: Written Language

CELD: Environmental Print Awareness Pre-test Scores			
Group	**N**	**Subset**	
		1	**2**
LKG 1	8	5.25	
LKG 2	8	5.63	
UKG 1	8		8.13

Table 4: Post-hoc test results of statistical analysis of pre-test CELD scores: Environmental Print Awareness

CELD: Book Knowledge Pre-test Scores			
Group	**N**	**Subset**	
		1	**2**
LKG 2	8	5.63	
LKG 1	8	6.00	
UKG 1	8		9.63

Table 5: Post-hoc test results of statistical analysis of pre-test CELD scores: Book Knowledge

In all three sections, UKG-1 performed significantly better than LKG-1 and LKG-2, as seen in Tables 3, 4 and 5. There was no significant difference between the scores of LKG-1 and LKG-2 in any of the sections of CELD (for Alpha=0.05, LKG-1 and LKG-2 in Subset-1). Figure 2 shows the pre-test scores of LKG-1, LKG-2 and UKG-1 on the CELD

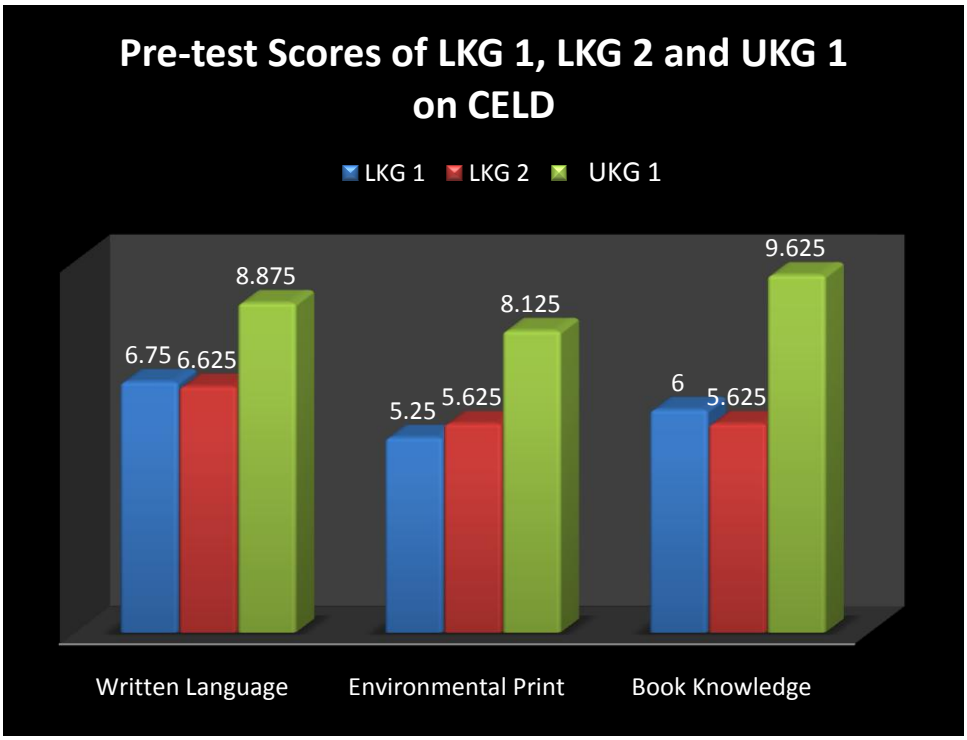


Figure 2: Pre-test CELD scores of LKG 1, LKG 2 and UKG 1 groups

The pretest scores on CELD indicate that the children in UKG-1 performed much better than their LKG counterparts. The emergent literacy training protocol was initiated by the teachers continued for two months. After the two-month period, the post-test evaluation was carried out using MANOVA. Once again, results showed a significant difference between the three groups in written language {$F(2,21)= 8.06$, $0.003<p<0.005$}, environmental print awareness {$F(2,21)= 9.25$, $0.001<p<0.005$} and book knowledge {$F(2,21)=60.01$, $0.00<p<0.005$}.

While the results of MANOVA indicated that the three groups differed significantly on CELD, a post-hoc Duncan's test was employed to check for group differences on specific subtests. Tables 7-8 show that LKG-2 (for Alpha=0.05, Subset 1) scored significantly lower than LKG-1 and UKG-1 (for Alpha=0.05, Subset 2) on written language and environmental print awareness:

CELD: Written Language Post-test Scores			
Group	**N**	**Subset**	
		1	**2**
LKG 2	8	7.38	
LKG 1	8		8.88
UKG 1	8		8.88

Table 6: Post-hoc test results of statistical analysis of post-test CELD scores: Written Language

As shown in Table 6, the scores of LKG-2 on the Written Language section of the CELD were significantly lower than the scores of LKG-1 and UKG-1. There is no difference in the performance of the experimental group LKG-1 and the control group UKG-1. These scores were obtained from LKG-1 towards the end of the LKG term, in March 2011, and the scores from UKG-1 were obtained around the middle of the UKG term, in November 2010. The findings of this test suggest a significant improvement in the performance of LKG-1 on this section of the CELD, as their performance at the end of the term equals the performance of UKG students who were approximately six months into their school term.

CELD: Environmental Print Awareness Post-test Scores			
Group	**N**	**Subset**	
		1	**2**
LKG 2	8	6.25	
LKG 1	8		7.75
UKG 1	8		8.13

Table 7: Post-hoc test results of statistical analysis of post-test CELD scores: Environmental Print Awareness

On the Environmental Print Awareness section of the CELD, as seen in Table 7, LKG-2 scored considerably less than the other two groups (for Alpha=0.05, LKG-2 in Subset 1). There was, however, no significant difference between the scores of LKG-1 and UKG-1(for Alpha=0.05, in Subset 2). This indicates that the experimental group LKG-1 shows improved performance on the print awareness tasks, which perhaps suggests an overall improvement in the print knowledge of the LKG-1 group.

CELD: Book Knowledge Post-test Scores				
Group	**N**	**Subset**		
		1	**2**	**3**
LKG 2	8	6.00		
LKG 1	8		8.25	
UKG 1	8			9.63

Table 8: Post-hoc test results of statistical analysis of post-test CELD scores: Book Knowledge

The scores of all three groups were significantly different from each other on the Book Knowledge section of the CELD. LKG-2 (for Alpha=0.05, Subset 1) remained the lowest-scoring group of the three, as reflected in Table 9. LKG-1 showed a considerable improvement in book knowledge compared to the pre-test scores, but did not perform as well as the UKG-1 group did. LKG-1 still obtained scores significantly lower (for Alpha=0.05, in Subset 2) compared to UKG-1 (for Alpha=0.05, in Subset 3).

Post-test scores of LKG-1 and LKG-2 on the CELD are shown in Figure 3:

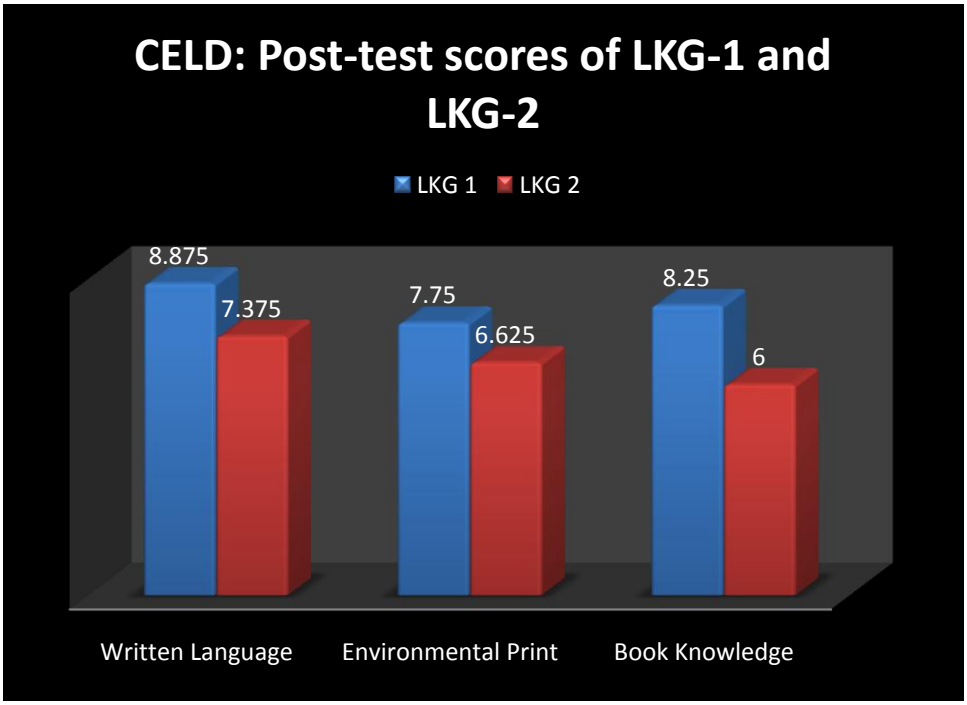


Figure 3: Post-test CELD scores of LKG 1 and LKG 2

Hence, while all three groups studied showed an increase in the mean scores on the three sections of CELD, the experimental group LKG-1 showed greater improvement on all three sections- written language (6.75 to 8.88), environmental print awareness (5.25 to 7.75) and book knowledge (6 to 8.25). A larger improvement was seen in written language, followed by environmental print awareness. Neither LKG-1 nor LKG-2 showed much improvement in book knowledge. This is probably because book knowledge activities were not stressed upon much by the teachers during classes. A summary of the above can be represented in Figure 4.

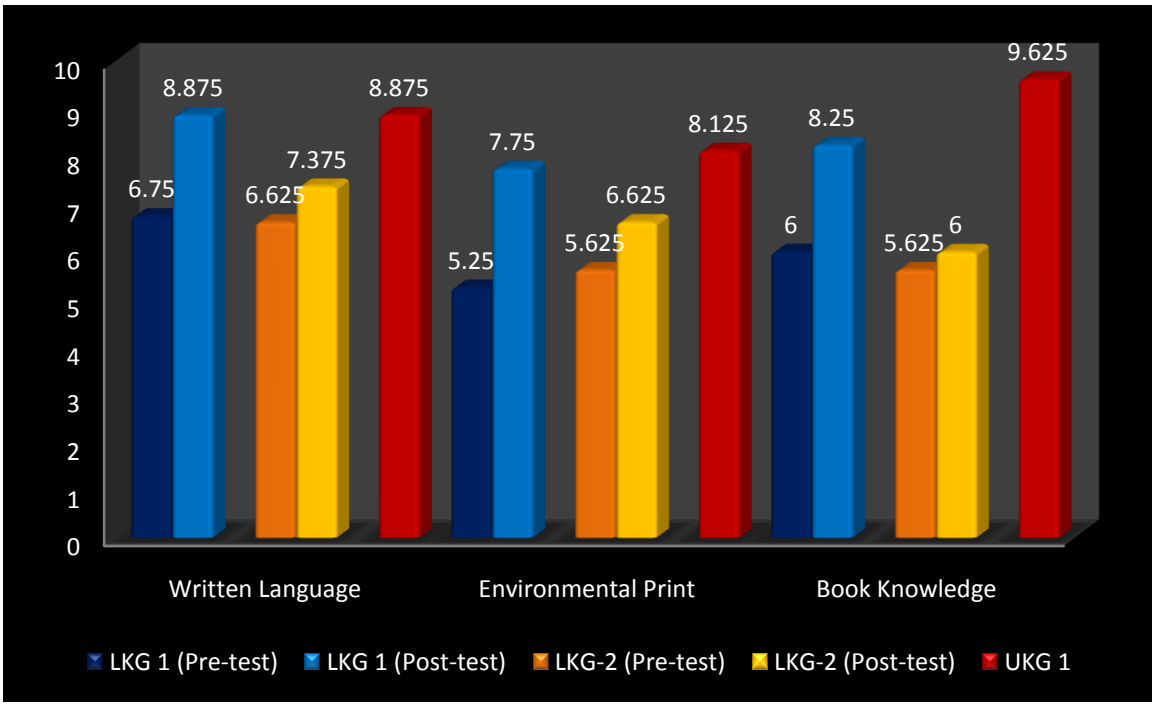


Fig. 4: Pre-test and post-test CELD scores of LKG-1, LKG-2 and UKG-1

As shown in the Figure 4, the experimental group LKG-1 showed a large improvement in their print knowledge, as measured by various sections of the CELD. Both the groups showed improvement in written language, environmental print awareness, as well as book knowledge. However, the experimental group LKG-1 attained much higher post-test scores than LKG-2. In fact, the written language scores of LKG-1 at the end of term equalled the scores of UKG-1 at mid-term (8.88). This suggests that LKG-1 had made a huge improvement consequent to the training they received using the Digital Literacy Coach. LKG-2 also showed an increase in written language scores (from 6.25 to 7.38), but this increase was not statistically significant (t= -3.oo, sig.= 0.20, for $p<0.005$).

The above results suggest that the Digital Literacy Coach developed as part of this study has a positive impact on print knowledge. This is illustrated in the marked increase in scores on the written language and environmental print awareness sections

of the CELD. LKG children who were unable to identify individual letters, words, sentences, etc were able to do so after two months of instruction using the DiLiCoach. Moreover, they performed at par with UKG students around mid-term (November 2010). Since shared story-reading was one of the most emphasized exercises according to the Digital Literacy Coach, one may also infer that shared story-reading promotes print knowledge in children.

This would be in consensus with Goodman (1986), who is of the opinion that through storybook reading, children acquire a conscious awareness about written language. Moreover, the children seemed to develop an understanding of terms like *word, sentence, page,* etc. Yaden et al., (1993) suggest that children learn to talk about letters, words, and texts during storybook reading. A similar phenomenon was observed during the course of the current study. Children who had been exposed to the prescribed storybook reading as suggested in the Digital Literacy Coach scored much higher than the control groups on the written language section, which assessed children's understanding of print concepts too.

Justice, Kaderavek, Fan, Sofka and Hunt (2009), who examined the impact of teacher use of a print referencing style during classroom-based storybook reading sessions, also reported that print referencing while reading storybooks can be used confidently as an approach for facilitating print knowledge in preschool-age children. Print-referencing was a major point of focus in the DiLiCoach as well. In the current study too, children who were instructed using story-reading and print referencing demonstrated higher scores in tests of print knowledge compared to children who were not exposed to print referencing during story-reading.

The current study also concurs with a previous study by Mol, Bus and Jong (2009), who carried out a meta-analysis to examine to what extent interactive storybook reading stimulates vocabulary and print knowledge. Though print-related skills were not the direct focus of the intervention program, 7% of the variance in kindergarten children's alphabetic knowledge was be attributed to the intervention. Similarly, in this program, even though there was no direct training regarding concepts of prints such as *word, letter, sentence*, etc, children did develop a better awareness of such print-related concepts. Hence, this provides further support for the notion that story-reading can be used effectively to increase knowledge of print-related concepts. But while these authors reported that findings with experimenters were not replicable in a natural classroom setting, the current study was carried out in a classroom setting. A separate class was assigned for story-reading, and the entire class, not just the experimental group, was subject to instruction using the DiLiCoach. This indicates that emergent literacy-based approaches, similar to those outlined in the DiLiCoach, can be carried out even in a natural classroom setting.

Bus and van Ijzendoorn (1995) suggest that shared story reading is related to outcome measures such as language growth, emergent literacy, and reading achievement. The results of their study support the hypothesis that book reading, in particular, affects acquisition of the written language register. While the present study does not provide any support that story reading is related to later reading achievement, the findings do suggest that written language may improve when children are instructed using print referencing and story-reading.

Murray et al. (1996) state that children reading different types of alphabet books and storybooks are advanced in concepts about print and letter knowledge as compared to those who did not. This further supports the notion that storybook reading promotes print knowledge, which is a strong precursor to later literacy as well as language. Alphabet books were not used as a part of the current study, but a single picture story at three levels was utilized. Children who used this material were found to perform better than the children who were not instructed using the same material, which was developed as a part of the DiLiCoach. Interestingly, the experimental group LKG-1, which had been instructed using the story provided in the DiLiCoach, developed written language skills and environmental print awareness that were not significantly different from those of the control group UKG-1. This means that LKG-1 were outperforming their peers in LKG-2 by almost a 6-month gap.

As Purcell-Gates and Dahl (1996) reported, those children who knew more about print and its functions were generally more successful with the formal literacy instruction they encountered in school, performed higher on achievement tests, and were judged as more advanced readers and writers by their teachers. One of the studies in support of this is the one by Yetta Goodman (1986), who identified the exposure to environmental print as one of the main "roots" of literacy. However, in the present study, the impact of print knowledge on later literacy was not evaluated owing to time constraints.

However, whether improved print knowledge really does translate into better literacy skills is subjected to some debate. Stahl and Murray (1993) found that children's exposure to logos did not facilitate their word recognition ability, thereby

indicating that environmental print awareness is not a predictor of literary success. Hence, there is a need for further exploration in this area, to draw firm conclusions as to whether print knowledge truly provides an important foundation for later literacy.

Oral Language:

Oral language was assessed using a storytelling task. Children were shown a six-panel wordless picture story, and were asked to tell the story the best they could. The samples were recorded, transcribed and analyzed using Systematic Analysis of Language Transcripts (SALT) (Miller and Iglesias, 2006) software, both prior to the commencement of the program and at the end of the program. The samples were analyzed for the following:

1. Total number of utterances
2. Total number of complete words
3. Syntax:

a. Mean Length of Utterance in Words

b. Mean Length of Utterance in Morphemes

4. Semantics:

a. Type-token Ratio

b. Number of Different Word Roots

c. Number of Main Body Words

5. Intelligibility
6. Mazes

MANOVA was carried out to determine whether there was any significant difference between the three groups, and the individual sections were analyzed using Duncan's post-hoc analysis. The table below summarizes the mean scores in all the parameters of SALT:

Parameters	**LKG 1 (N=8)**		**LKG-2 (N=8)**		**UKG-1 (N=8)**	
	Pre-test	**Post-test**	**Pre-test**	**Post-test**	**Pre-test**	**Post-test**
Total utterances	7.38 (2.20)	8.25 (1.67)	8.50 (1.69)	8.63 (1.51)	8.13 (1.73)	--
Complete Words	42.13 (8.97)	58.75 (9.75)	42.25 (8.33)	46.63 (8.05)	52.63 (12.61)	--
MLU in words*	5.43 (1.50)	6.94 (0.88)	4.65 (0.65)	5.28 (0.68)	6.24 (0.84)	--
MLU in morphemes*	6.31 (1.67)	7.83 (1.05)	5.13 (0.65)	5.89 (0.73)	7.08 (0.80)	--
Type-Token Ratio	0.62 (.08)	0.54 (.08)	0.57 (.067)	0.59 (0.07)	0.58 (.054)	--
No. of different word roots	23.25 (5.28)	28.63 (4.37)	22.38 (4.63)	24.25 (2.66)	27.50 (4.44)	--
No. of Main Body Words*	37.75 (8.35)	53.75 (10.60)	39.63 (7.03)	42.38 (6.05)	48.1250 (9.37)	--
Intelligibility	100.00	100.00	100.00	100.00	98.75	--

	(0.00)	(0.00)	(0.00)	(0.00)	(3.54)	
Utterances with mazes	1.75 (0.89)	2.13 (1.25)	1.00 (0.76)	1.63 (1.19)	1.63 (1.51)	--
No. of Mazes	2.00 (0.93)	2.50 (1.77)	1.38 (0.92)	2.13 (1.46)	1.75 (1.75)	--
No. of maze words	3.75 (2.31)	4.50 (4.41)	2.63 (1.85)	4.25 (3.41)	3.13 (3.44)	--
% maze words	9.38 (5.10)	7.75 (7.83)	5.75 (3.85)	8.75 (6.14)	5.13 (4.67)	--

*Parameters which showed significant difference between the groups

Table 9: Pre-test and Post-test Means and Standard Deviations of LKG-1, LKG-2 and UKG-1 on SALT subtests

a. Pre-test Scores

The results of MANOVA showed that there was a significant difference between the three groups in their baseline scores. The scores of all the three groups in each subtest were analyzed using Duncan's test.

1. **Total number of utterances:** There was no statistically significant difference (for Alpha=0.05, all groups in Subset 1) between the three groups in their total number of utterances during the story telling task (pre-test). However, if only means are to be considered, interestingly the control group LKG-2 used more utterances (8.50) in their narratives than either LKG-1 (7.38) or UKG-1 (8.13). However, the total number of utterances does not promise to be a good measure of oral language, owing to the

variability in utterance length. The total number of utterances might have been higher in LKG-2 owing to the fact that they used shorter utterances. This will be discussed in further detail while discussing mean length of utterance.

2. **Number of Complete Words:** In the number of complete words too, there was no significant difference between the three groups (for Alpha=0.05, all groups in Subset 1). If the means were to be considered, then UKG-1 (52.63) as a group produced a greater number of complete words compared to LKG-1 (42.13) or LKG-2 (42.25).

3. **Syntax:** Syntax was evaluated using mean length of utterances, in both words and morphemes. Statistical analysis of the three groups using Duncan's test revealed that the control group LKG-2 had a significantly lower MLU (for Alpha=0.05, in Subset 1) than the groups LKG-1 (Subset 1 and Subset 2) and UKG-1 (Subset 2), in the pre-test scores. As discussed in the section on total number of utterances, this may be related to the fact that children in LKG-2 group used a greater number of utterances, but of shorter length, compared to the other two groups.

4. **Semantics:** The semantics aspect of oral language was analyzed using Type-Token Ratio, number of different word roots and number of main body words. Statistical analysis of the pre-test type-token ratios showed no significant difference between the three groups (for Alpha=0.05, all groups in Subset 1). All three groups had performed similarly on this parameter. When the number of different word roots used by LKG-1, LKG-2 and UKG-1 were analyzed using Duncan's test, no significant difference was found between the groups (for Alpha=0.05, all groups in Subset 1).

Analysis of the number of main body words used by LKG-1, LKG-2 and UKG-1 showed a significant difference ($p<0.005$) among the three groups. Duncan's test revealed that LKG-1 had used significantly less main body words (37.75) compared to UKG-1 (48.13), but there was no significant difference between LKG-2 (39.62) and LKG-1, or between LKG-2 and UKG-1.

5. **Intelligibility:** Statistical analysis of the intelligibility of the three groups showed no significant differences (for Alpha=0.05, all groups in Subset 1), indicating that all groups performed at par. LKG-1 and LKG-2 had 100% intelligibility. UKG-1 had an average of 98.75% intelligibility, owing to reduced intelligibility of one of the samples in the group.

6. **Mazes:** Mazes refer to corrections, revisions and partial utterances. Duncan's test was carried out to determine whether there was any significant difference in the performance of these three groups. However, no statistically significant difference was found between LKG-1, LKG-2 and UKG-1. There were no significant difference in number of mazes, number of maze words or percentage of mazes (for Alpha=0.05, all groups in Subset 1).

b. Post-test scores

Post-test scores were obtained from LKG-1 and LKG-2 at the end of their school term, two months from the commencement of the program. Results were analyzed using MANOVA, followed by post-hoc analysis using Duncan's test. The post-test scores of LKG-1 and LKG-2 were compared to the pre-test scores of UKG-1.

The mean scores and standard deviations of LKG-1 and LKG-2 in different parameters assessed by SALT are listed in Table 9.

The results of MANOVA showed that there was a significant difference ($p<0.005$) among the three groups in the post-test scores. The scores of the three groups in each subtest were analyzed separately using Duncan's test.

1. **Total number of utterances:** There was no statistically significant difference between the three groups in their total number of utterances during in the post-test condition either (for Alpha=0.05, all groups in Subset 1). LKG-2 again used the largest number of utterances (8.63) compared to LKG-1 (8.25) and UKG-1 (8.13).

2. **Number of Complete Words:** Statistical analysis of the number of complete words used by LKG-1, LKG-2 and UKG-1 in the post-test condition showed that there was no significant difference between LKG-2 and UKG-1, or between UKG-1 and LKG-1. However, LKG-1 used significantly more complete words than LKG-2 as shown in Table 10.

SALT: Number of complete words (post-test) used by LKG-1 and LKG-2, compared to UKG-1			
Group	N	Subset	
		1	2
LKG 2	8	46.63	
UKG 1	8	52.63	52.63
LKG 1	8		58.75
Sig.		.26	.25

Table 10: Post-hoc test results of statistical analysis of post-test SALT scores: Number of Complete Words

In Table 10, scores in the same subset are not statistically different. There is a statistically significant difference between scores that fall in subset 1 and those in subset 2.

3. **Syntax:** Mean length of utterance in words and in morphemes were used to assess syntax. Statistical analysis of the three groups using Duncan's test revealed that the control group LKG-2 had a significantly lower MLU in words (5.28) and MLU in morphemes (5.89) than the groups LKG-1 (MLU in words= 6.93, MLU in morphemes= 7.83) and UKG-1 (MLU in words= 6.24, MLU in morphemes= 7.08), as in the pre-test scores. However, the mean MLU (words) and mean MLU (morphemes) had increased in both LKG-1 and LKG-2. LKG-1 showed considerable increase in MLU in words (5.43 to 6.94) and MLU in morphemes (6.31 to 7.83), as depicted in Figure 5.

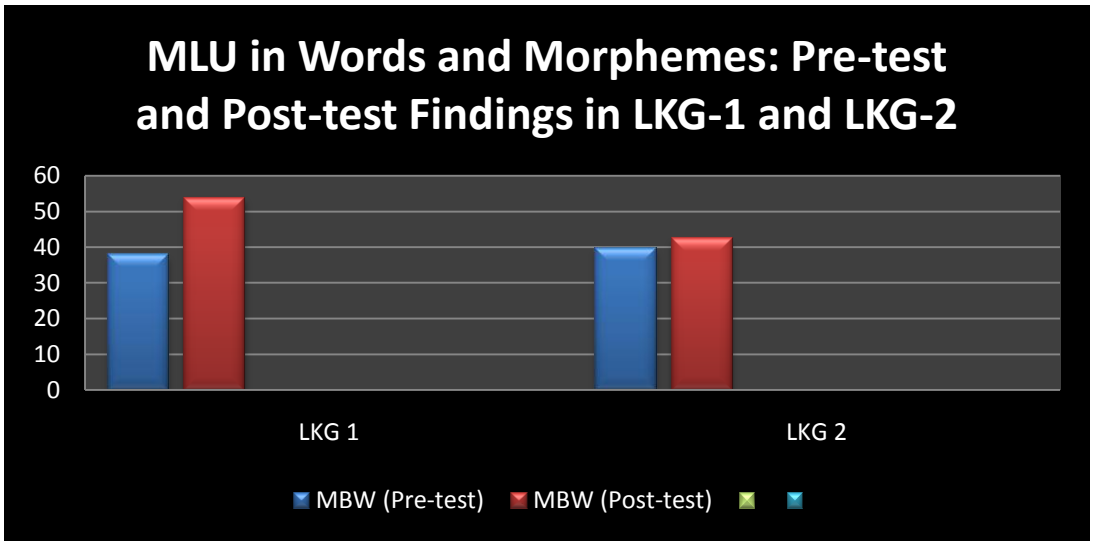


Figure 5: Pre-test and Post-test MLU(in words and morphemes) of LKG-1 and LKG-2

4. **Semantics:** Type-Token Ratio, number of different word roots and number of main body words were analyzed. There was no significant difference between the three groups in type-token ratio (for Alpha=0.05, all groups in Subset 1). However,

when the number of different word roots was analyzed using Duncan's test, a significant difference was revealed between LKG-2 and LKG-1, and between LKG-1 and UKG-1 as shown in Table 11.

SALT: Number of Different Word Roots (post-test) used by LKG-1 and LKG-2, compared to UKG-1			
Group	**N**	**Subset**	
		1	**2**
LKG 2	8	24.25	
UKG 1	8	27.50	27.50
LKG 1	8		28.62
Sig.		.11	.57

Table 11: Post-hoc test results of statistical analysis of post-test SALT scores: Number of Different Word Roots

As depicted in Table 11, LKG-1 used significantly more word roots compared to both control groups. This suggests an increase in the vocabulary of the experimental group, allowing them to use more varied words in their storytelling. Since a similar improvement is not seen in LKG-2, and since the performance of LKG-1 at end of term was even better than that of UKG-1 at midterm, this may be interpreted as an indication of the effectiveness of the DiLiCoach.

Analysis of the number of main body words used by LKG-1, LKG-2 and UKG-1 showed a significant difference between the three groups. Duncan's test

revealed that LKG-1, which had previously used the least number of main body word roots had now used significantly more main body words (53.75) compared to LKG-2 (42.375), but there was no significant difference between LKG-1 and UKG-1 (48.125). Both LKG-1 and LKG-2 showed an improvement compared to their performance in the baseline evaluation, but, as in the case of MLU, LKG-1 showed a greater increase in scores, as shown in Figure 6.

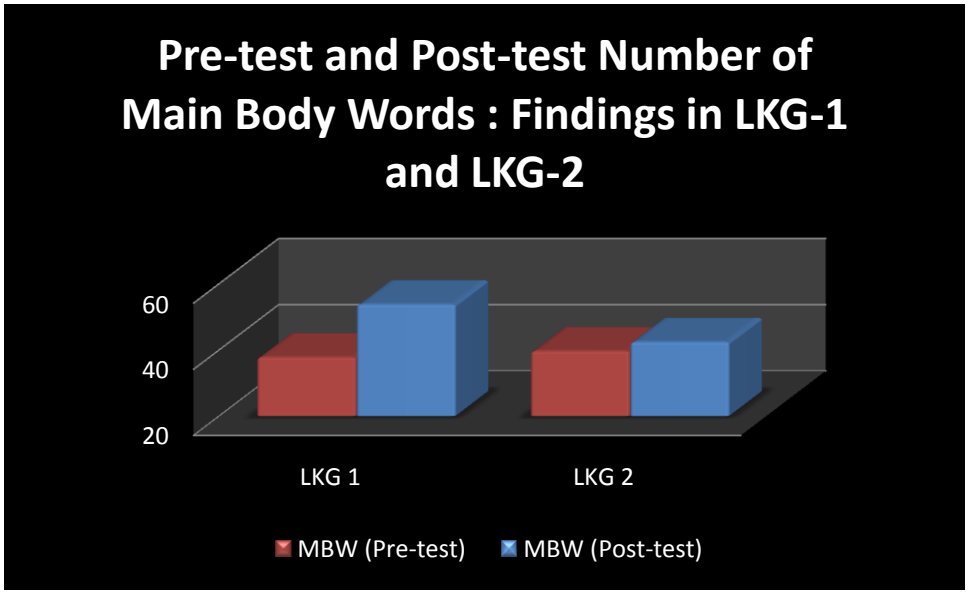


Figure 6: Pre-test and Post-test Number of Main Body Words by LKG-1 and LKG-2

5. **Intelligibility:** Statistical analysis of the intelligibility of the three groups showed no significant differences (for Alpha=0.05, all groups in Subset 1). As LKG-1 and LKG-2 both had already achieved 100% intelligibility at the time of the baseline evaluation, there was no scope for any further improvement on this parameter.

6. **Mazes:** No statistically significant difference was found between LKG-1, LKG-2 and UKG-1, either in number of mazes, number of maze words or percentage of mazes (for Alpha=0.05, all groups in Subset 1).

To summarize, the pre-test scores showed that LKG-1, LKG-2 and UKG-1 did not differ statistically from each other on most parameters. However, LKG-1 performed better than LKG-2 in terms of MLU even in the pre-test condition. On the other hand, LKG-1 differed from the other two groups in the total number of main body words, having used the least number of main body words among the three groups. In the post-test condition, LKG-1 showed a considerable increase in MLU, obtaining an MLU even higher than that of UKG-1 at mid-term. LKG-1 also used a significantly greater number of main body words and different word roots compared to LKG-2 in the post-test condition. LKG-1 also used a higher number of complete words compared to the other two groups. No significant differences were found in any of the other parameters.

To check for between-group differences, paired sample t-tests were conducted separately on LKG-1 and LKG-2. CELD scores, SELL scores and SALT values were all considered. For LKG-1, the following subtests and/or parameters showed a significant improvement:

Test:	**t**	**df**	**Sig. (2-tailed)**
CELD: Written Language	-17.00	7	.000
CELD: Environmental Print Awareness	-13.23	7	.000
CELD: Book Knowledge	-7.18	7	.000
SALT: Complete Words	-6.98	7	.000
SALT: MLU in words	-4.17	7	.004

SALT: No. of Main Body Words	-7.57	7	.000

Table 12: Parameters on which LKG-1 showed significant improvement ($p<0.005$)

Paired sample t-test was also carried out for LKG-2. However, no significant difference was found between any pretest-posttest pair ($p>0.005$). This indicates that there was no significant improvement in either the print knowledge or oral language of LKG-2, compared to LKG-1.

This provides support to the hypothesis that the use of DiLiCoach would bring about an improvement in the children's print knowledge and oral language. As evidenced by the results, there has been a significant improvement in written language, environmental print awareness, and book knowledge. The children who were instructed using the DiLiCoach also showed improved syntax (MLU) and semantics (number of different word roots and number of main body words). An increase was also seen in the total number of complete words used by the children in their narration.

The findings of this study are in concordance with the study by Isbell, Sobol, Lindauer and Lowrance (2004), in which two groups of preschool children aged 3-5 years heard the same stories. Group A was told the stories, while Group B was read the stories. Children in the story reading group were found to have increased language complexity, reflected in terms of syntax and vocabulary. In the current study too, children who were instructed using story reading (LKG-1) performed better on

measures of syntax (MLU) and vocabulary (No. of different word roots, No. of main body words).

Elster and Walker (1992) discovered that four- and five-year-old children's ability to infer cause/effect relationships and make predictions was significantly enhanced with repeated readings of predictable texts. The DiLiCoach also detailed activities to promote inferential language using story-reading. However, inferential language was not assessed as a parameter of oral language.

Mol, Bus and Jong (2009) evaluated the impact of story-reading on vocabulary. They found a moderate effect size for oral language skills, and suggested that quality of story-reading in the classroom was very important. The findings of the present study also indicate that oral language skills are benefited by story-reading. Additionally, the kind of story-reading used in the class is also a factor that influences the children's oral language. Both LKG-1 and LKG-2 had storytelling classes. However, only LKG-1 received print-referenced story-reading, rather than the traditional monologic storytelling that was used in LKG-2, and showed an increase in scores of oral language.

2. Teachers' Knowledge of Emergent Literacy

Teachers' knowledge base concerning emergent literacy practices was evaluated using two parallel questionnaires developed in PhoST-K project (Prema, 2010). The first one was used to obtain a baseline measure of their knowledge of emergent literacy. The teachers in the group T-1 then received a series of orientation

lectures and a demonstration of emergent literacy-based practices. At the end of the program, a post-test score was obtained by administering another questionnaire.

Independent t-test was used to statistically analyze scores of the teachers to check if there was any significant improvement in their performance. The Figure 7 provides a representation of the pre-test and post-test performance (mean scores out of 10) of the teacher groups T-1 and T-2:

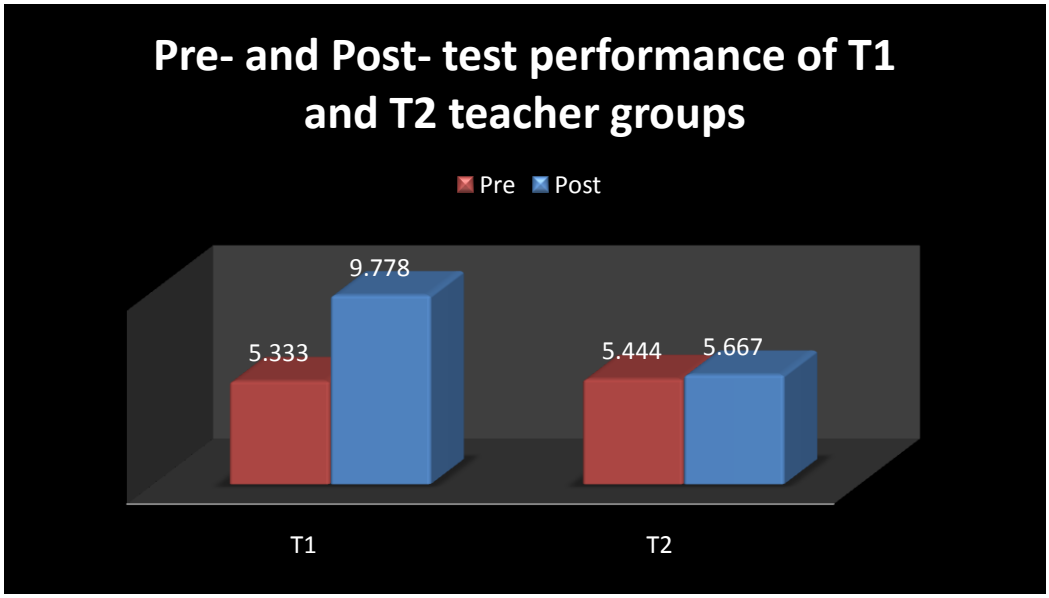


Figure 7: Pre-test and Post- test performance of T1 and T2 teacher groups

Statistical analysis showed that T-1 showed a significant difference ($0.000<p<0.005$) between pre-test and post-test scores, while there was no significant improvement in the scores of the control group T-2 ($p>0.005$). This provides support for the orientation program that was provided, which consisted of three one hour-long orientation lectures dealing with emergent literacy and healthy emergent literacy practices, use of DiLiCoach and possible modifications, and a live demonstration of the activities detailed in the DiLiCoach. In essence, the orientation program, along

with the DiLiCoach, was useful in enhancing the knowledge bank of the teachers in T-1 about emergent literacy.

Previous programs that emphasized on story-reading to promote print knowledge and oral language include Systematic and Engaging Early Literacy Instruction (SEEL), Between the Lions, Head Start, and Project READ, among others. All these programs have reported progress in acquiring early literacy skills, following exposure to instruction using the program, similar to the present study. Use of the DiLiCoach has also been followed by progress on print knowledge and oral language measures.

Lonigan, Anthony, Bloomfield, Dyer and Samwel (1999) compared two shared-reading interventions. After a 6-week intervention period, the children were assessed for oral language, listening comprehension, and phonological sensitivity. It was found that both conditions produced positive results. Whitehurst et al (1994) evaluated the effectiveness of Head Start. Children in the intervention condition experienced interactive book reading at home and in the classroom as well as a classroom-based sound and letter awareness program. Children were pretested and posttested on standardized tests of language, writing, linguistic awareness, and print concepts. Effects on language were large but only for those children whose primary caregivers had been actively involved in the at-home component of the program. The present study also reports positive effects on print knowledge (written language, environmental print awareness and book knowledge) and oral language. However, in the current study, there was no at-home component involved. A positive impact was

noticed on language measures, but language stimulation at home using story-reading was not a part of this study.

In a study by Wasik, Bond and Hindman (2006), similar to the current study, also a language and literacy intervention was implemented in 10 Head Start classrooms. Book reading and conversation strategies were used, as they were in the DiLiCoach. The focus of the intervention was to train teachers how to increase opportunities for language and vocabulary development in young children. At the end of the year, children in the intervention classrooms performed significantly better than children in the control classrooms on the Peabody Picture Vocabulary Test-III and the Expressive One-Word Vocabulary Test (3rd ed.). In the present study too, after two months of emergent literacy-based instruction focusing on print referencing and story-reading, children in the experimental group LKG-1 showed significant improvements in their print knowledge and oral language.

Justice, Miin-Chow, Capellini and Flanigan (2003) conducted a study evaluating the efficacy of an emergent literacy intervention program for vulnerable preschoolers. Emergent literacy assessment was conducted at pretest and at various points in time throughout the study. Results indicated significant improvement in emergent literacy knowledge over the entire 12-week intervention program An examination of individual differences and intervention outcome showed oral language skills and literacy orientation to predict emergent literacy performance at the end of the program. The current study also evaluated the effectiveness of DiLiCoach as a program to promote emergent literacy in preschoolers and is found to have a positive impact on oral language and print knowledge, bringing about a pronounced gain in

several emergent literacy skills. This further supports existing evidence for emergent-literacy based intervention programs for promoting literacy and language.

However, while the current study indicated a positive effect on children's print knowledge and oral language with the use of DiLiCoach, whether this improvement in print knowledge and oral language will be reflected in later literacy is yet to be investigated.

CHAPTER V

SUMMARY AND CONCLUSIONS

The aim of the current study was to develop a Digital Literacy Coach (DiLiCoach) and to evaluate the efficacy of the Coach in facilitating emergent literacy skills in preschool children. The specific objectives of the study were as follows:

i) Development of a digital literacy coach (DiLiCoach)

ii) Comparison of emergent and early literacy skills of children whose teachers were trained using the DiLiCoach as against those students whose teachers did not receive any specialized training.

iii) Evaluation of impact of DiLiCoach on the print knowledge and oral language of the children.

iv) Evaluation of the impact of the program on teachers' knowledge about emergent literacy and their use of emergent literacy practices.

The implication of this study was that if the DiLiCoach developed as a part of this study were found to be effective, it may be useful in the clinical setting as well as in the regular school setup. It may also benefit older children who have poorly established concepts of literacy, as is often seen in many cases of learning disabilities.

Another purpose of this study was that the body of data available on emergent literacy in India is extremely limited, and the current study would add to the pool of research available regarding emergent literacy-based programs in India.

The study can be divided into the following phases:

PHASE 1:

1. Development of the Digital Literacy Coach (DiLiCoach): A manual and an accompanying DVD were developed, detailing some emergent literacy-based strategies for classroom instruction. The focus was mainly on print knowledge and oral knowledge, often regarded as two of the pillars of emergent literacy. The strategies mainly included print referencing and story-reading. The DVD provided demonstration of all the activities explained in the manual.

PHASE 2

1. Baseline evaluation of kindergarten teachers' knowledge of emergent language issues by employing questionnaires which were developed as a part of the project PhoST-K (Prema, 2010).
2. Orientation program regarding emergent literacy and its importance, for the kindergarten teachers. A set of three one-hour orientation lectures were given, focusing on emergent literacy, specifically oral language and print knowledge, and activities to promote them. A live demonstration of the activities and strategies described in the DiLiCoach was also provided, to ensure better understanding.
3. Post-test evaluation of teachers' knowledge of emergent literacy and emergent literacy practices: A parallel questionnaire from PhoST-K (Prema, 2010) was used for this purpose.

PHASE 3:

1. Screening of kindergarten children for communication disorders: Children were screened using the WHO Ten-Question Disability Screening Checklist (Singhi,

Kumar, Malhi & Kumar, 2007) and Screening Checklist for Auditory Processing (Yathiraj and Mascarenhas, 2002)

2. Baseline evaluation of children's print knowledge and oral language: Print knowledge was assessed using Screening Emergent Language and Literacy (SELL) by Prema (2005-06) and Checklist for Emergent Literacy Development (CELD) by Justice (2002). Oral language was assessed using a storytelling task. Samples were recorded and then analyzed using Systematic Analysis of Language Transcripts (SALT) (Miller and Iglesias, 2006)

3. Instruction using Digital Literacy Coach to LKG-1 by T-1: The experimental group LKG-1 received 20 sessions of instructions using the DiLiCoach, from the teacher group T-1. This period of instruction lasted two months.

4. Post-test evaluation of children's print knowledge and oral language was carried out using the same tools that were used for baseline evaluation.

The scores and measures from the experimental group LKG-1 on CELD, SELL and the SALT analysis were compared with the measures obtained from LKG-2. The intention of this comparison was to indirectly evaluate impact of the Digital Literacy Coach. The scores of LKG-1 were also compared with the baseline scores of UKG-1.

The baseline scores and post-test scores obtained from the groups T-1 and T-2 were compared and analyzed to assess whether there was any significant improvement in their performance on the questionnaire used, to determine whether the orientation lectures and the DiLiCoach had any positive impact on the teachers' knowledge about emergent literacy, specifically oral language and print knowledge.

Results suggest that the DiLiCoach has a positive impact on print knowledge as well as oral language. This is supported by the large increase in scores on the written language and environmental print awareness sections of the CELD. It is notable that LKG children who were unable to identify individual letters, words, sentences, etc were able to do so after just two months of instruction using the DiLiCoach. Moreover, they performed on par with UKG students around mid-term (November 2010). This implies that LKG-1 were almost 6 months ahead of their peers in the group LKG-2. One may also infer from the findings of this study that shared story-reading promotes emergent literacy skills, particularly, print knowledge in children.

In oral language, one of the interesting points that came to light was that LKG-1, LKG-2 and UKG-1 did not differ statistically from each other on most parameters in the pre-test condition, LKG-1 performed better than LKG-2 in terms of MLU even in the pre-test condition. On the other hand, LKG-1 used the least number of main body words among the three groups. In the post-test condition, LKG-1 showed considerable increase in MLU, obtaining an MLU even higher than that of UKG-1 at mid-term (November 2010). LKG-1 also used a significantly greater number of main body words and different word roots compared to LKG-2 in the post-test condition. LKG-1 also used a higher number of complete words compared to the other two groups. No significant differences were found in any of the other parameters.

Statistical analysis of the teacher groups showed that the experimental group T-1 showed considerable improvement between pre-test and post-test scores, while there was no significant improvement in the scores of the control group T-2. This

provides support for the orientation program that was provided and the use of DiLiCoach. In essence, the orientation program, along with the DiLiCoach, was useful in enhancing the knowledge bank of the teachers in T-1 about emergent literacy.

These findings support the hypothesis that the use of DiLiCoach would bring about an improvement in the children's print knowledge and oral language. Following the use of DiLiCoach, there has been a significant improvement in written language, environmental print awareness, and book knowledge. The children who were instructed using the DiLiCoach also showed improved syntax (MLU) and semantics (number of different word roots and number of main body words). An increase was also seen in the total number of complete words used by the children in their narration. Hence, the findings of the current study indicate that the DiLiCoach has a positive impact on the print knowledge and oral language of preschool children.

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APPENDIX A

A Digital Literacy Coach to Promote Oral Language and Early Literacy (For SLPs, Teachers and Caregivers)

MANUAL

Every child has the right to read, and we believe that every child should have the opportunity to develop certain necessary precursors to reading and writing. Before formal reading begins, the child is often exposed to a variety of activities that prepare him/ her for actual reading. A set of "reading-like" behaviours precede the advent of formal reading. Many refer to this as "reading readiness". Earlier, the opinion among many reading specialists and educators was that a child must not be given any literacy-focused activities unless he/ she were 'ready'. However, the scenario has now changed, and several educators now focus on *emergent literacy,* a set of precursory skills that allow the child to have a strong foundation before commencing formal reading instruction.

Emergent literacy enables the child to develop an acute awareness of sounds, the written form of words, to recognize that print carries meaning, develop his or her vocabulary and also learn to draw inferences from what is said. Research has identified these as strong predictors of later reading and spelling achievement in children. Using emergent literacy skills, children can 'break the code' of reading and also develop better reading comprehension.

- **Print knowledge**: Print knowledge refers to the child's understanding of how print works in a book- for example, that print runs from left to right (most often), and

from top to bottom, that print carries meaning, and letters make up words. This is an essential foundation for later reading.

- **Oral language**: Oral language is vital to reading and writing, as it has been found on several occasions that children who do not develop adequate oral language skills tend to lag behind their peers in literacy too. Along with literal language, children must learn inferential language too- finding hidden meanings, learning to predict 'what comes next', reasoning and problem solving. Another important skill that is developed through oral language is vocabulary. Reading aloud to children is a highly effective method of building oral language. This is called shared story reading- wherein the educator and the child work together, in a highly interactive way, while reading a storybook.

The activities in DiLiCoach are meant to provide a model for activities that can be carried out with preschool aged children by teachers, caregivers and SLP's . The demonstrated sample activities may be expanded or modified as per the trainer and trainee's needs and preferences. DiLiCoach is in English, but a trainer may adapt it any language of choice , according to the needs of children. . Since each child is unique and has different needs, a trainer may have to go beyond DiLiCoach and design a curriculum that best suits a given child. The manual is supplemented with a video module to demonstrate activities for enhancement/facilitation of print knowledge and oral language skills.

We hope you find these activities useful!

ACTIVITIES TO ENHANCE PRINT KNOWLEDGE

The primary objective of the activities detailed below is to improve a child's knowledge about the form and the function of print. It is essential that a child recognize print as having meaning in order to develop reading.

1. Written Speech

This activity helps a child recognize that print carries meaning, and represents speech that has been written down. Indirectly, children also learn about print orientation i.e., that print runs from top to bottom and from left to right.

Materials: Paper, writing material.

Model activity 1: <The children are back in class after any activity they shared together. For example, a story they might have read or watched>

Example:

Teacher: Wasn't that a wonderful story? Amit, what was your favourite part?

Amit: I liked the cars!

Teacher: All right! Let me write it down here… <Writes down, while saying it aloud, ***Amit*** *liked the* ***cars*** on a strip of paper>

Let's read this together now… **Amit** liked the **cars**.

<The teacher traces her finger under each word as she reads it, and the children say the sentence aloud too, pretending to read>

Children may also learn to recognize the written form of their names through this activity. To expand on this, draw their attention to specific letters or patterns. This increases their knowledge about letters of the alphabet. You may use capital letters to draw attention to print.

Model activity 2: You may also ask a group of children to come up with their own story, and write down what each child says. At the end, this story can be read aloud to the class.

Example:

Teacher: Let's make our own story. I'm going to start, and then all of you can add a little bit more till we get a nice, long, story, okay? So, let me begin. Once upon a time, there lived a king.

Amit: He was very *old*!

Sindhu: He had a lot of *white hair*.

Asha: That made him very *sad*.

Tarun: So he called his *doctor*….

The story may go on in a very strange manner. It is up to you to call an end to it and finish up nicely. Once the story has ended, read out whatever you have written, and do not forget to trace your finger under the print as you read. Once again, use capital letters to highlight keywords and draw attention to print.

2. Book orientation

Most children learn quite naturally the right way to hold a book. However, if you are dealing with exceptional children, they might need a little extra help while they get familiar with books. Kindergarten children too would benefit from book orientation activities.

Material: A storybook

Model activity 1:

Teacher: Let's read a story today! Look, I have got a book for you. It has a picture of three bears on the front cover…

(Children learn the difference between the front and the back of a book)

…and the picture of a girl eating on the back cover. What do you think this story is going to be about?

Children: Bears!

Teacher: You think so? Let's find out! Sindhu, can you come here and help me open my book?

<Sindhu opens the book>

Very good! That's the way to open a book! Thank you. Now, Pooja, where do I start reading? Can you show me?

<Child may or may not be able to show the teacher>

I'm going to start reading right *here*, at the top, on this side (Pointing to the upper left corner)

Model activity 2: Have each child carry a book with them, or they may work in groups. Make them show you the front of the book, the back of the book, and the title of the book. To increase the difficulty of this task, you may have them point out in response to these questions:

- Where do I start reading?
- Where do you think the name of the person who wrote this book is?
- Can you show me a word?
- Can you show me a sentence?
- Point to a small letter.
- Point to a big letter.
- There's a picture on this *page*. Can you show me where it is?

These activities help in developing book handling-skills.

Model activity 3: Dramatic play is a great way to teach several new concepts. You can adapt it to teach children print orientation. Some pretend activities that you might find useful are:

- While playing "house", the father sits on a chair and 'reads' a newspaper. It doesn't matter if the child can't read at all. Just pretending to read is a big step in the right direction, and is to be encouraged.
- A doctor's office is a great place to enact, in order to enhance emergent literacy skills. One child may play the role of the receptionist, answering calls and

taking down messages. He/she may also have to consult the doctor's schedule to make appointments. The doctor himself might 'write out' prescriptions and the patient would have to pretend to read them. All these encourage print knowledge and book orientation.

- The child can pretend to be the teacher. He/she could pretend to read a story aloud to the rest of the class. It doesn't matter if they are wrong, or if the story makes no sense. Just pretending to read aloud, following your lead, is sufficient.

3. Identification of upper case letters [1]

These activities intend to teach the child to identify upper case letters (capital letters) in text and also provide some basic knowledge about the function of capital letters.

Material: Cards with capital letters on them, a storybook (or any printed matter)

Model activity 1:

<The teacher holds up a capital T in her hand, so all the students can see it>

Teacher: What letter is this?

Children: T!!

Teacher: That's right, this is a *big* T <emphasize 'big'>. I'm going to write a big T on the board, along with a small t. Asha, can you come show me the *big* T?

<Asha points to the upper case T>

[1] **(applies to Engish but not Indian script)[1]**

Excellent! Now let's see if we can find more big Ts in this book here…

The teacher may then ask the children to circle all the upper case Ts in the book. Alternately, the teacher may choose to write a whole lot of words on the board, and ask children to identify the upper case Ts.

Model activity 2:

Teacher: Look at all these big letters… they're always right at the beginning of the word. Can you find any word that has a big letter *inside* the word?

Children: No!

Teacher: That's right, you can't. That's because big letters come in only at the beginning of *sentences* <trace your finger along the length of a sentence to show them what it means> They show that a new sentence has started. Names such as Raju and Seema also start with big letters. Now, using the big letters to help you, can you find me a sentence (or a name)? Let me show you one…

Model activity 3: For this, you will need cards with the children's names written down on them. In this activity, children learn that names are spelt with an upper case letter at the beginning.

Teacher: All our names start with big letters too. Here, look at this… 'Amit' comes with a big A, 'Asha' also with a big A, 'Sindhu' with a big S, 'Tarun' with a big T, and so on. Do you want to try and find your name here?

4. Identifying signs and recognizing that they carry meaning

Children need to understand that signs that they see in their environment also carry meaning. Orient them to traffic signs such as STOP, DO NOT CROSS, etc. Show them pictures of these signboards if they are not available in the vicinity of the school. Also familiarize them with print on the back of their crayon boxes, on the sides of their pencils, etc. Let them recognize that print can be used to label an object.

Model activity: Make flashcards with common signs such as PUSH, PULL, OPEN, CLOSE, EXIT, TOILET, etc, which the child may encounter in the school environment itself. Give each child a card, and ask him/ her to find a matching sign in the school. This can be carried out as an after-class activity, which the children can do on their way out of school. The next day, discuss the purpose of each of these signs with the class.

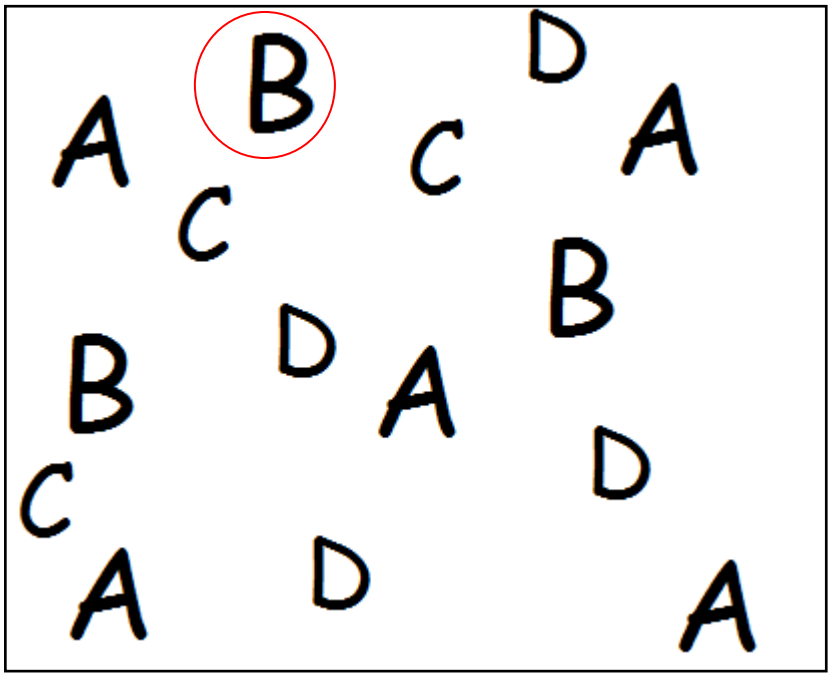
5. **Alphabet knowledge:** Once the child has learnt to hold a book the right way, and knows that print is nothing but speech written down, it is time to introduce letters of the alphabet.

Material: Flashcards of words

Model activity 1: Pick a 'letter of the day', or maybe more than one. Have a large box or a basin on a table, and distribute flashcards of words to the students. Announce the

letter you have picked, for example, P. Tell the children to go through their cards carefully, and if they have the letter of the day, they must quickly drop the card into the box on the table.

Model activity 2: Have a worksheet with a number of letters of the alphabet randomly arranged on it. Each letter must appear several times over, but the sheet need not contain all the letters of the alphabet. For example:



Ask the children to circle all the ‘letters of the day’. In the above example, B is the chosen letter.

ACTIVITIES TO DEVELOP ORAL LANGUAGE

There is very strong evidence from research that shared story reading is one of the best methods to enhance a child's oral language. In this part of the manual, we have outlined a few activities that will encourage the child to think beyond the limits of the story. This helps in the development of inferential language, and the child would learn to predict story outcomes, verify their predictions and reformulate ideas. Also, storytelling is a wonderful way to teach new words. It is a natural and efficient way to expand the child's existing vocabulary. The most important, and probably the only, material you require for these activities is a storybook. We have also provided a short story at three levels:

1. Only pictures, with no words
2. Pictures with only keywords
3. Pictures with running text

This story, like the rest of the manual, is intended only to provide a model. The trainer may use his/her own stories, or commercially available story picture cards.

Model activity 1: Questions

Material: Storybook(s)

Embed questions in the storybook reading activity. For example, if you are reading *The Thirsty Crow*, pause during the storytelling and ask, "The crow was *thirsty*. What do you think the crow needs?" or "What do *you* do when you are thirsty?" As far as possible, try to go beyond the text or the pictures in the storybook. Use the pictures in the book to get the child to think about the situation in the story.

Teacher: What is the old man doing in this picture?

Child: He is lighting a candle.

Teacher: Why do you think he is lighting a candle?

Child: Because it is dark?

Teacher: That is very likely! So if is dark, what time of the day do you think it is?

Ask a lot of *why* questions, and try to elicit answers that begin with words like *because, so that, since,* etc. It is possible that the children do not know these words. In that case, provide them with a model they can follow:

Teacher: Why is the little girl sad?

Child: Her doll broke.

Teacher: That's right, she is sad *because* her doll broke.

OR

Teacher: Why is the little girl sad? She is sad because…?

Whenever you tell a story, stop in between and ask the children what they think might happen next. You could also leave blanks for them to complete:

Teacher: He couldn't fly, because he wasn't a bird, he was a…?

Children: Tortoise!

Model activity 2: Wordless stories

Material: Wordless story pictures (example provided in Appendix)

Before you begin to tell the story to the children, show them just one picture in the story sequence. Let them try to infer what the story is about.

Teacher: Look at this picture. What do we see here?

Child: A crow!

Teacher: Very good! That is a crow right there. What else do we see?

Child: Peacock.

Teacher: That's right! We have a crow and a peacock. Can you guess what this story is about?

OR

Teacher: That's right! Crows and peacocks are both…?

Child: <Does not respond>

Teacher: Let me give you a clue. They are both b…

Child: Birds!

Teacher: Excellent! They're birds. So, can you tell me what you think this story might be about?

As you proceed with the lessons, try to gradually increase the complexity of the language you use when you interact with the children. Research suggests that children who are exposed to a rich and varied language environment often develop better speech and language skills.

We can use the story pictures at three different levels, as mentioned before.

Level 1: Wordless story

Arrange the pictures in sequence (or use the wordless story provided) and show the children this wordless story. First, let the children tell the story, inferring whatever they may from the pictures. This fosters their inferential language. Later, offer to tell the story yourself. When you tell the story, make sure you touch each corresponding picture, so that the children can easily relate what you are saying to what is in the picture. Once you are done, encourage the children to retell the story.

Level 2: Keywords only

Since the children have already heard the story once, this time you can let them arrange the pictures in the right sequence. Now, when you tell the story, point to the key word and to the corresponding picture:

Teacher: The *boy* wanted an *ice-cream* <Touches the word *boy* and then points to the picture of the boy. The same is repeated for *ice-cream*>

Once again, have a child/ group of children retell the story.

Level 3: Running text

Read the story aloud, as you would any other story. Draw the children's attention to certain characters/ objects that play a key role in the story (it is likely that these were the keywords in Level 2). Make sure you run your finger along the text, as you read aloud. Ask a child, "Would you like to read it to me now?" Encourage the child to

retell the story, pretending to read. He/ she may trace the print with a finger, just as you did. It does not matter if the children cannot really read yet; support their pretend play. Note how the children's retell is different at each level.

Model activity 3: Dramatic play

Get the children to enact a story they have just heard. Let them take up the roles of characters in the story. Help them remember their 'lines' and act out the entire story. This not only helps them understand and remember the story better, but also gets them involved in the story and makes the learning of inferential language easier.

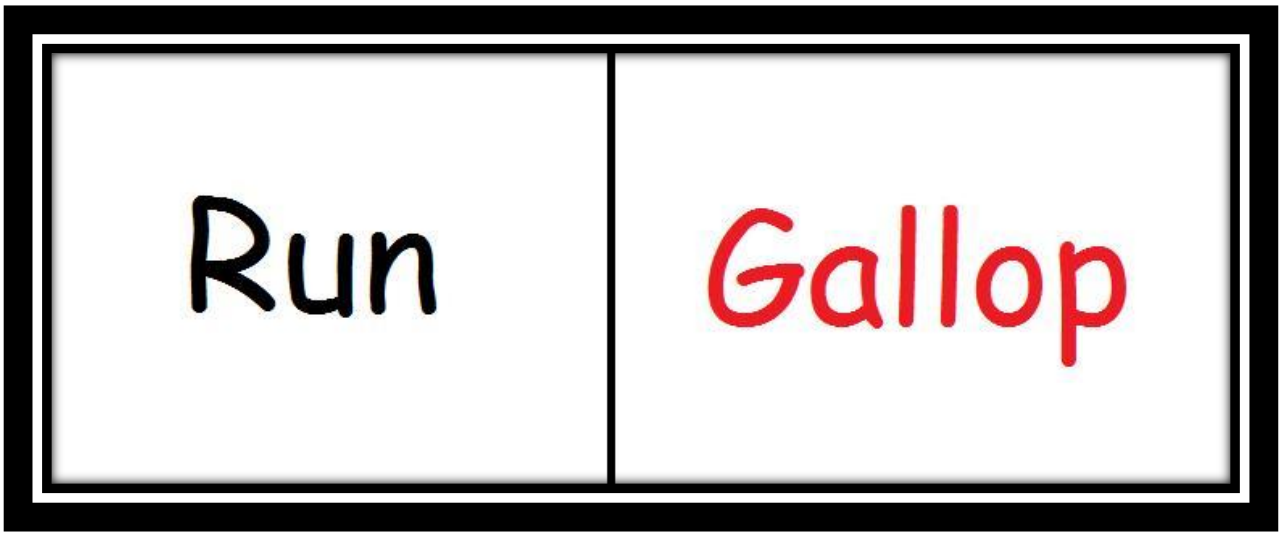
You can also teach new words using this activity, thereby expanding the child's existing vocabulary. For example:

Teacher: Oh my! You make a really good wolf! Here in the story, it says the wolf *crawled* away. How do you think the wolf moved?

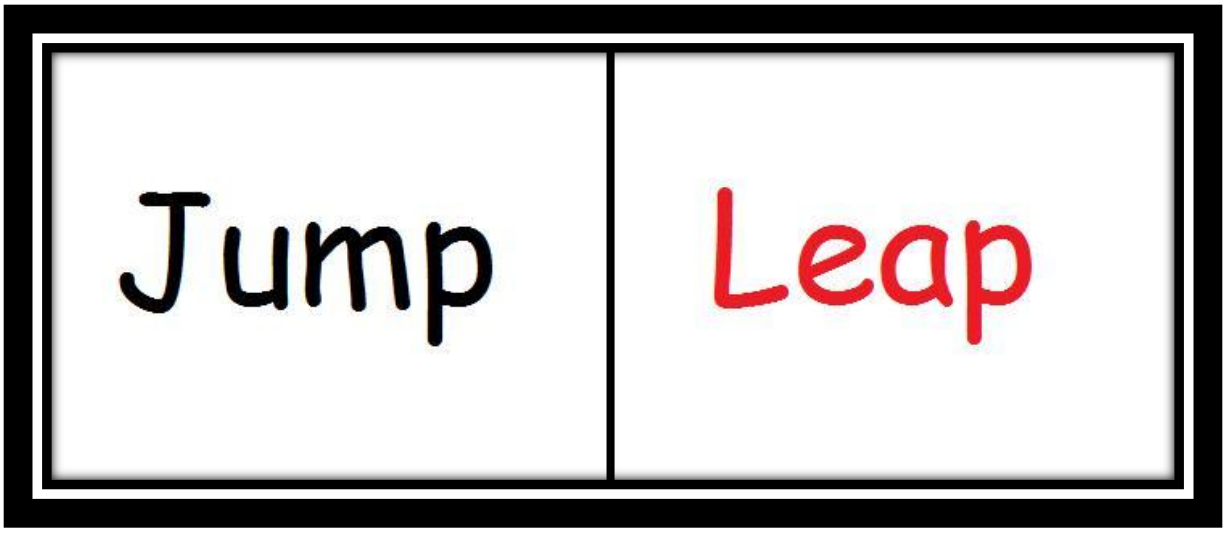
Model activity 4: Teaching new action words

Material: Flashcards of pairs of action words

This is basically a vocabulary building activity. Prepare a small set of flashcards, each one bearing a pair of similar, but not synonymous, action words. A few examples have been provided below:



1. Teacher: Look at this horse! How does a horse go? It *gallops*. Do you know what that means? It is very similar to *run*. People *run.* Horses… *gallop!*



2. The teacher can demonstrate these actions easily, thereby making the difference between the two words very clear to the students. Use small figurines of animals, and make them jump and leap. For example:

Teacher: This kangaroo is going to *jump* <makes toy kangaroo go up and down, not covering much distance horizontally>.

And this frog is going to *leap* <makes toy frog move upwards and forward, highlighting the difference from a jump>.

Would any of you like to *leap* like a frog? Tarun! Can you show me how to *jump* like a kangaroo?

Have the children act out the verbs, as they will learn and remember the new words much better.

Here's another example you can use (and also demonstrate these verbs easily, because you, the teacher, won't have to gallop or leap around the classroom!):

Ideally, introduce 2-5 new words in every story you tell the children. When you encounter a new word in the story, pause, and ask: “Hmm! We haven’t heard that word before! Do you know what it means?” Let the children try to guess the meaning of the word based on the context in which it appears. If they are unable to do so, tell them the meaning of the word, emphasize it and repeat it. Talk about the new word for a while. As far as possible, see if you can visually represent the word.

Teaching grammatical (functional) words such as *is, are, were, will,* etc is a little harder. When you read a story, stress on these words, so that the children get a feel of what word is used when. You may not have to directly work on teaching grammatical rules yet, but gently correct the child when he/ she uses the wrong functional word. All you need to do is repeat his/ her sentence, but with the right functional word.

Demonstration of the above mentioned activities may be viewed in the supplementary video enclosed with this manual. . Feel free to modify or extend these activities. Every child is unique, and has his or her own pace of learning. As a caregiver, teacher, or a SLP, you would know best what suits your students/chidren and their learning curriculum. We hope that you will find DiLiCoach useful and easy to execute, and that it helped enhance/facilitate emergent literacy skills in your young children.

RESOURCES:

Cabell, Sonia Q., Justice, Laura M., Kaderavek, Joan N., Pence-Turnbull, Khara, Breit-Smith, Allison (2009). *Emergent Literacy- Lessons for Success.* Plural Publishing, San Diego.

Justice, Laura M. (2006). *Clinical Approaches to Emergent Literacy Intervention.* Plural Publishing, San Diego.

van Kleeck, Anne (2006). *Sharing Books and Stories to Promote Language and Literacy.* Plural Publishing, San Diego.

SAMPLE STORY FOR ORAL LANGUAGE ACTIVITY

LEVEL 1:

WORDLESS STORY

SAMPLE STORY FOR ORAL LANGUAGE ACTIVITY

LEVEL 2:

PICTURES WITH KEYWORDS ONLY

SAMPLE STORY FOR ORAL LANGUAGE ACTIVITY

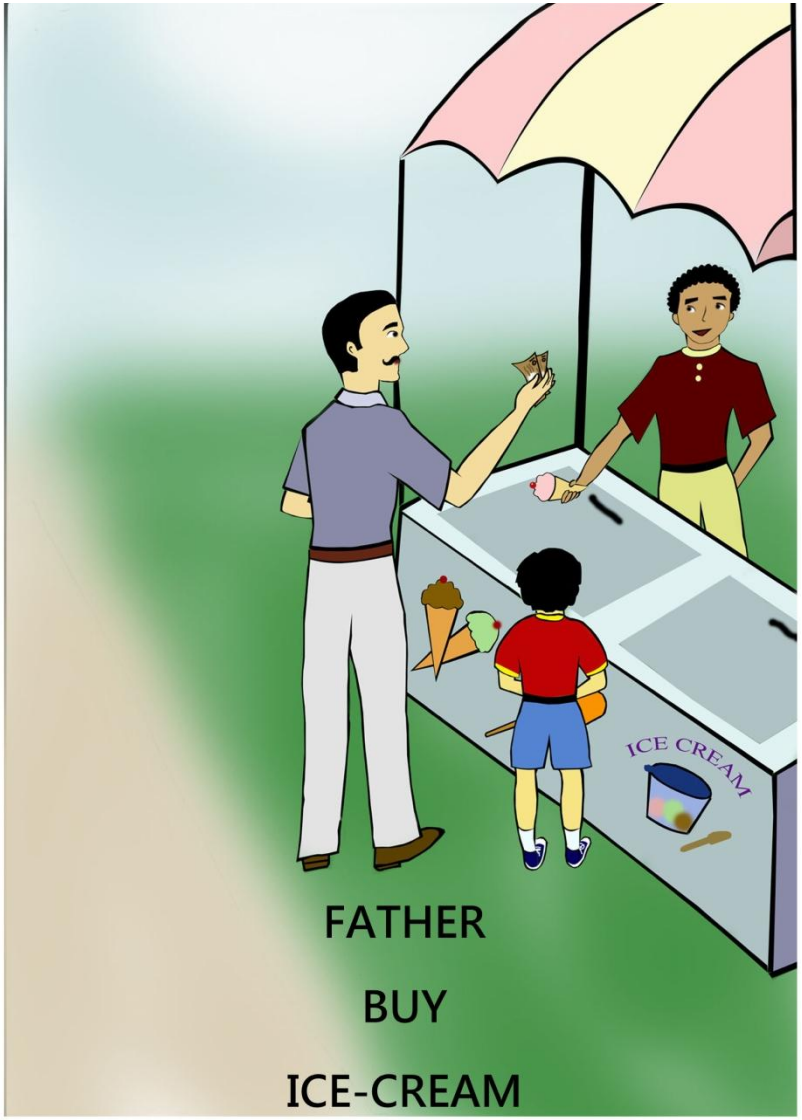
LEVEL 3:

PICTURES WITH RUNNING TEXT


ICE CREAM

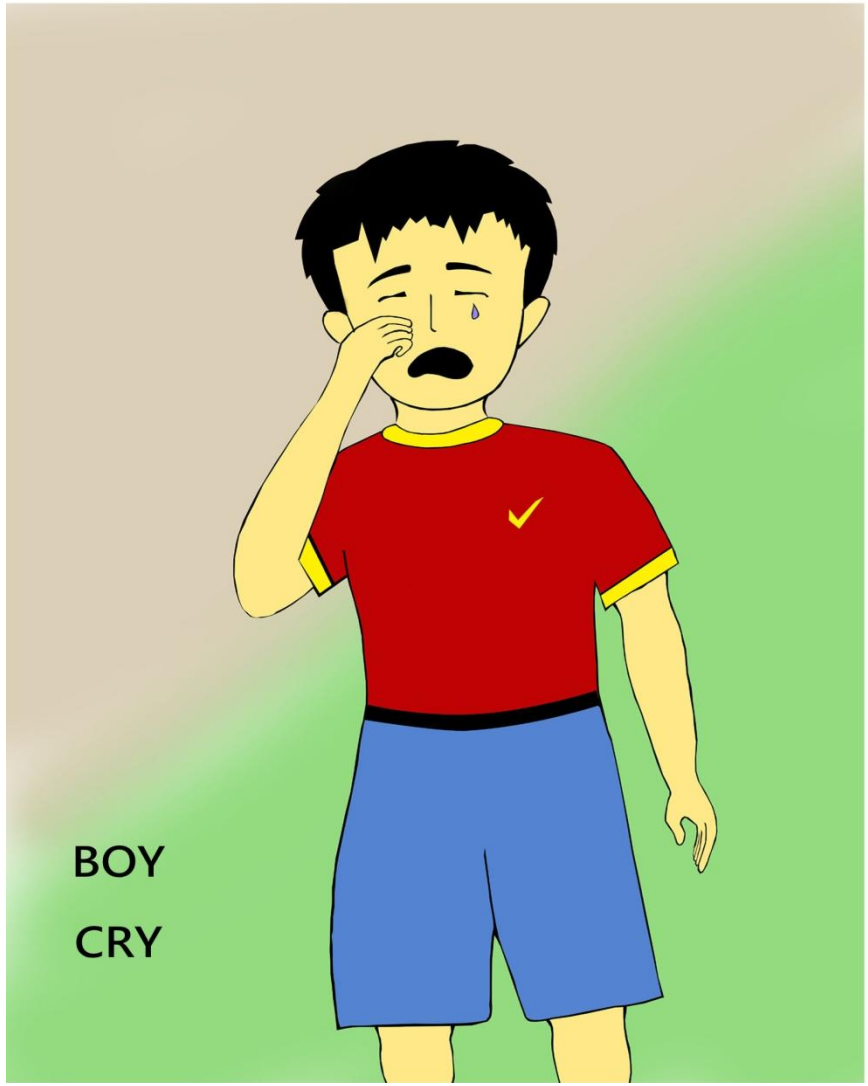

ICE CREAM

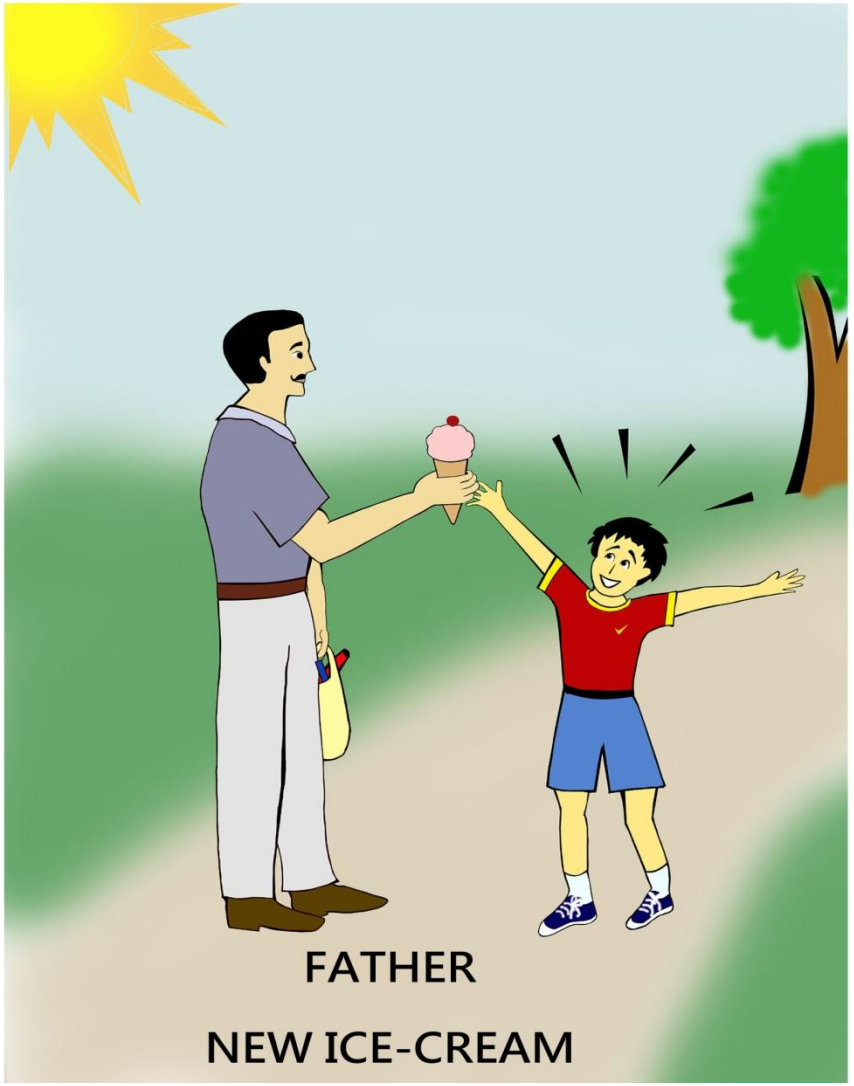

BOY
ICE-CREAM


ICE CREAM
FATHER
BUY
ICE-CREAM


BOY
EAT
ICE-CREAM


DOG
BARK
ICE-CREAM
DROP


BOY
CRY


FATHER
NEW ICE-CREAM

On a hot, sunny day, a little boy told his father, “Daddy! I want some ice-cream, please!”

His father bought him a cone of ice-cream from the vendor.


The boy was eating his ice-cream happily


Suddenly, a big dog barked at the boy.
He got scared and dropped his ice-cream cone!


The boy was very sad, and he cried.


Seeing his son so sad, his father bought him a new ice-cream.
So the boy was happy again!