

# **A Reciprocal Model to Address Quality Issues in Education**

## **Insights from a Field Intervention Study on Marathi Language Learning Problems in the Classroom\***

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### **Abstract**

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*Years of research in education indicates that the cornerstone of effective instruction in any classroom is the degree to which the classroom setting engages all learners in actively constructing knowledge. Effective language instruction takes place in classrooms in which students have frequent and consistent opportunities to read, write, listen, and talk. Further, a pedagogy that brings about learner autonomy is recommended. Indeed, pedagogy is an aspect of education affected by the teachers' skills and attitudes. Therefore, while addressing issues of quality in education as manifested by student achievement, both teacher effects and student factors need to be taken into consideration. The present paper describes insights from a field intervention program for language learning problems in Marathi. This program was implemented by regular classroom teachers, thus addressing the problems of low achievement, poor pedagogy, and lack of resources for individual intervention for learning problems. Teachers were trained for its implementation, and changes in their teaching methodology and teacher-child interactions were evaluated. The program was tested on 120 children*

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*studying in fourth grade in a Government-aided school in Pune. Based on the effectiveness of this program, a model to address quality issues in education has been suggested. This model takes into account the reciprocal relationship between student and teacher engagement in education and acknowledges that intervention for teacher effectiveness and student achievement need to go hand in hand.*

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## INTRODUCTION

The education system in India has been long fraught by quality issues. In order to tackle these, the Government's efforts have been towards bringing children to school. However, only the number of children attending school but also their level of achievement does not denote effectiveness of the elementary education system. In 2010–2011, NCERT conducted the third phase of its National Achievement Survey (NAS) (2012), which assessed the age-appropriate reading comprehension in 1,22,543 students in Class V, across the country. It was reported that the average score in most states and union territories was around 247 marks, on a scale of 0–500. Further, the average 25<sup>th</sup> percentile score was 214 out of 500 (about 41% marks), and the average 10<sup>th</sup> percentile score was 188 (amounting to about 38% marks).

These findings indicate that though a substantial proportion of the children in Grade V scored at least around 50% marks on the reading comprehension test, and large section of the sample continued to show less than optimal reading comprehension. Such low achieving students often do not get much attention in the traditional schooling

system, and they either drop-out of it or struggle through. It is clear that efforts to get children into school must be accompanied by significant improvements in the quality of schools that serve these children. In the recent past, with the introduction of programs like the District Primary Education Programme (DPEP) in 1994, and the *Sarva Shiksha Abhiyan* (SSA) in 2003, the Government's focus on elementary education has been moving towards achievement levels of children and quality issues (Kingdon, 2007).

Academic achievement is influenced by several factors, some intrinsic to the child and others which are related to extrinsic factors. Individual factors involve the child's abilities, interest, and motivation. In addition to these individual capacities, academic achievement has also been seen to be a function of family, community and school experiences. Conditions in classrooms, class size, teaching quality, methods, pedagogy, teaching materials and curriculum, extent and nature of support from home are some of these factors stemming from the child's social milieu (Konantambigi, 2000; Karanth, 2003). The interplay

between these individual and social factors shapes the child's educational experiences and performance.

The process of education entails achievement and mastery of basic learning competencies in order to move on from one stage to another. This achievement is mediated by development of language proficiency (Schleppegrell, 2004). Learning to read and write are thus keys to success in school as they are essential tools that facilitate the cognitive and communicative aspects of schooling (Schmidt, Rozendal and Greenman, 2002). Many children are unable to succeed in one or more of the academic skills of reading, arithmetic, spelling, and writing. Their condition is often labeled in several ways: dyslexia, learning disability (LD), slow-learners, attention deficit, etc. In a single classroom, children exhibit varied levels of performance as well as learning problems budding from their unique abilities and developmental experiences (Ramar, 2004). As mentioned before, learning problems in children could be due to a large gamut of intrinsic and extrinsic factors. Karande and Kulkarni (2005) identified five major categories of causes of poor school performance. These were medical problems like prenatal and perinatal birth problems, malnutrition, visual and hearing impairment, epilepsy, cerebral palsy, etc.; cognitive impairment; psychiatric disorders including conduct disorders and oppositional defiant disorder; environmental causes like neglect, poor home and

school environment, substance use, etc.; neurobehavioural disorders (Karande and Kulkarni, 2005).

Some other causes of learning problems are vision and hearing impairments, behavioural and emotional problems, disorders such as Autism, Tourette's Syndrome, etc. (Karanth, 2003; Karande & Kulkarni, 2005; Hoodin, 2011). In many cases some of these conditions co-exist, for instance, children with LD often exhibit poor social skills, emotional problems, attention problems, etc. Therefore, a clear diagnosis is vital and great caution is to be exercised while applying a label (Verma, 2008). A common thread that runs along all the learning problems is poor educational achievement, mediated through problems in pre-language skills and language learning. Children with difficulties in reading have been found to share similar needs for instruction, irrespective of the underlying causes of their problems (Mathes and Torgesen, 1998). Due to this shared feature of different learning problems, current trends in the field of education and intervention have been moving towards non-categorical classification of students for special education (Silver and Hagin, 2002). In keeping with this, it was decided to focus on supporting academic achievement of children with varied learning needs through intervention for language related learning problems.

With reference to language learning, a large body of research suggests the importance of the

linguistic structure, necessitating a language specific approach to intervention. Language, both written and spoken, involves use of many information-processing skills like visual and auditory discrimination, short-term memory, eye-hand coordination, and so forth. Such information processing skills, also called as language readiness skills, have been found to be strongest predictors of reading and writing development. Meta-analysis of 61 studies on reading skills in kindergarten children revealed that phonological skills such as phonological awareness and rapid serial naming, visuo-motor skills, visual memory and auditory memory were some strong predictors of later language development (Scarborough, 1998). Further, Dunsmuir and Blatchford (2004) found pre-reading skills to affect later writing performance, thus reiterating the importance of these information-processing skills. Phonological awareness and orthographic skills, both primarily involving visual and auditory processing, are two major abilities that underlie reading and writing and these have been demonstrated to be poor in children with LD (Leppanen, Niemi, Aunola, and Nurmi, 2004; Raja, 2006).

### **Phonology, Orthography and their Influence on Reading and Writing**

Phonological awareness is the knowledge about the structure of sound in a language, the ability to

identify sound patterns and units of one's language, of how the sounds can be combined and how they appear in different positions in a word (Cohn, 2003). It also contributes to comprehension of words (Duggrila, 2004). Orthography, on the other hand, is the visual representation of language (Joshi and Aaron, 2005). It entails rules about how to write the symbols that make up the script, thus it could include rules of punctuation, spelling, capitalisation, and so forth. While spoken language has two aspects, sound and meaning, the written system can represent sounds at two levels. Sound units of a language can at phonemic either level or at the level of syllables. This means that a written symbol can stand either for a single sound (phoneme) or for a vowel-consonant unit (syllable). Further, these phonemes or syllables can be combined to form a morpheme, which is the smallest meaningful unit of language. On the basis of this level of representation, modern writing systems are classified into three groups: (a) ideographic - in which each symbol represents a morpheme/word, for instance, Chinese; (b) syllabic- in which each graphic unit represents a syllable, for example, Japanese; (c) alphabetic- in which each symbol represents a single phoneme, as in English (Lyovin, 1997). Indian languages, which find their roots in the ancient script Brahmi, may be called semisyllabic or alphasyllabic. This is because each written symbol represents

a syllable, which can be further broken down into its constituent inherent vowel and consonant. This category includes Hindi, Marathi, Nepali, Assamese, Bengali, Gujarati, Gurmukhi, Kannada, Telugu, Tamil, and Malayalam (Karanth, 2003; Lyovin, 1997).

Research has found that with reference to reading acquisition, readers use different strategies depending on the orthographies of the writing system they use (Karanth, Mathew and Kurien, 2004). For example, an ideographic system like Chinese is easy to read once the graphemes have been mastered, but it involves a lot of memory due to the large number of symbols or characters that have to be memorised. On the other hand, though the alphabetic system lays lesser burden on memory it involves a higher level of abstraction as the individual has to get the grapheme-phoneme representation right, as in the case of English. Ho and Bryant (1997) in a comparative study with Chinese and English speaking children found that phonological and orthographic systems of a language have an impact on the rate and pattern of development of phonological awareness.

Another aspect of orthography that affects reading is its transparency or consistency, also referred to as the orthographic depth of the language. Orthography is considered highly transparent or shallow if there is one to one correspondence between spelling and sound, whereas in

opaque or deep orthographies this does not hold true Ellis (2004). For instance, despite being an alphabetic writing system, English has a relatively opaque orthography because of complex spelling features like silent letters, multiple sounds for a single alphabet and so forth.

The findings of a large-scale cross-linguistic survey of learning to read, reported by Seymour, Aro and Erskine (2003) indicated that English children take longer to reach basic competence in reading words and non-words than children reading in languages with relatively more transparent orthographies, for example, Italian, Spanish or German. On similar lines, Wimmer, Landerl and Uta (1999) found German children to be better at phonological coding for reading as compared to English speaking peers.

In the last decade, a lot of research has gone into this feature of some of the Indian languages too.

### **Reading and Writing in Indian Writing Systems**

As stated before, Indian writing systems originating from Brahmi are semi-syllabic scripts which exhibit high orthographic transparency. In fact, they are so transparent that nearly there is one symbol per syllable (Balasubrahmanyam, 2001). Unlike English, Indian languages have few words with irregular spellings, thus making reading and spelling an easier task. Chengappa, Bhat and Prakash (2004) suggest

that the neurological basis for dyslexia may be the same across languages but that its manifestation, in terms of symptoms and severity, is influenced by orthographic and other linguistic features of the specific language. Gupta and Jamal (2006) too, based on their study on Hindi and English readers, supported the claim that the transparency of the orthography affects the reading strategies employed. In their 2007 study comparing normal and dyslexic bilinguals on their Hindi and English reading skills, Gupta and Jamaal they further elaborated that in the case of Hindi, both the normal and dyslexic readers seemed to employ sublexical reading strategies and relied heavily on use of their knowledge of orthographic and phonological features of the language (Gupta and Jamal, 2007). As opposed to this, while reading English, they used a combination of sublexical and lexical strategies.

Mishra and Stainthorp (2007) studied the phonological awareness, word reading and pseudo-word reading skills of 9 year olds in English and Oriya. The results showed that phonological awareness in Oriya contributed significantly to reading. Also, cross-language transfer and facilitation of phonological awareness to word reading was found to be different across languages which they suggest may depend on the characteristics of the different orthographies of the languages being learned. With reference to

Karanth, Mathew and Kurien (2004) found that reliance on grapheme-phoneme correspondence linked to transparency of the language was a feature used not only by children learning to read but was a major strategy used by proficient adult readers. These findings were also confirmed by Nag and Snowling (2011b) in their study with 411 children between 9-12 years of age. They observed that reading development in an alphasyllabary was different from alphabetic orthographies and it essentially entailed orthographic knowledge and their links with phonology.

In contrast, there are some features of Indian languages that pose a difficulty during acquisition and use of the language. In her study on Hindi reading dyslexics, Gupta (2004) observed that despite the transparency of the Hindi script, dyslexic readers of Hindi had difficulty in developing high quality, organised phonological representations of words and display poor blending skills. Nag (2007) studied 5-10 year olds' reading development and the pace of acquisition of orthographic and phonemic awareness in Kannada, another alphasyllabary derived from Brahmi. Despite its transparency, Nag found that the akshara format of the language posed higher cognitive demands on the children. In their comparative study between children with dyslexia and those with age appropriate scholastic achievement, Shankarnarayan and Maruthy (2007)



found that in spite of the good GPC in Kannada, children with dyslexia do have problems in auditory processing. Purushothama (1990) also found similar results with Kannada. He found that children studying in Std. III committed errors in reading Kannada. These were attributed to the fact that the similar looking written features of the Kannada script sounded different for different vowels.

The above discourse brings out the fact that while dyslexia is not absent in transparent languages, the nature and severity of the condition do vary according to the language. Also, as pointed out earlier, orthography of the written system affects the strategies or psychological processes used by the individual while reading or learning to read. Therefore, while nature of the language might not be a causative factor it is definitely an intervening factor in the difficulties experienced by people with LD. This calls for a better understanding of the nature of difficulties faced by them, which are specific to the language involved. Similar comparative studies in Marathi are missing.

**Marathi:** Marathi belongs to the group of Indo-Aryan or Indo-European languages that are a part of a larger group of languages derived from Brahmi. It is the official language of Maharashtra and spoken by more than 62 million people worldwide. Derived from Sanskrit and *Prakrit*, *Maharashtri* and *Apabhramsa* are the predecessors of the modern day Marathi (Pandharipande, 1997).

The script used in Marathi is called 'Balbodh,' which is a modified version of the Devnagari script. It is an alphasyllabary or semi-syllabic writing system where each orthographic unit or 'akshara' comprises of a consonant and a neutral vowel schwa. The 'schwa' is a feature seen in languages derived from *Brahmi*. It is assumed to be inherently involved in the letter unless indicated otherwise (Patel, 2004; Lyovin, 1997). In cases where the inherent vowel sound is not to be voiced, as in all languages based on the Devnagari script, a diacritic is placed to denote the same. Additional vowel sounds are represented by placing a diacritic. There are different diacritics for each vowel, which also help differentiate the length of the vowel sound. With reference to the topography or arrangement of visual components of the orthographic units, the vowels are placed to the left, right, above or below the consonant. Thus, the vowels and consonants are not placed sequentially as independent units or letters in a word, but appear in the form of the orthographic unit—*Akshara* (Patel, 2004). Another feature of Devnagari based languages is consonant clusters in which two or more consonants are combined with a vowel (Pandharipande, 1997). Word formation in Marathi shows very coherent GPC. Words are spelt as they sound (Kalelkar, 1965, Pandharipande, 1997).

In recent times there has been substantial research on Indian languages like Kannada (Nag

and Snowling, 2011a, Nag, 2007, Karanth, Mathew and Kurien, 2004; Purushothama, 1990), Telugu (Duggirala, 2004), Hindi (Jamal and Monga, 2010, Gupta, 2004; Gupta and Jamal, 2007, 2006), Oriya (Mishra and Stainthorp, 2007). This has helped researchers understand the unique features of Indian languages and its impact on reading acquisition and development. This in turn can inform intervention for language problems in these languages. Such information on Marathi is limited.

This has specific implications on the nature of intervention done for LD. In the National Policy on Education (NPE), more than 15 years back, the Government of India expressed the need to aim at providing integrated education to children with special needs (Government of India, 1998). However, evidently, the same has not been achieved in reality. The importance of language skills to academic achievement cannot be underplayed. These language skills have been seen to be compromised in children with various learning problems; therefore, any strategy for intervention for these problems would have to include intervention for children's language learning problems. Being foundations for later language development, information processing or language readiness skills need to be strengthened during remediation. Further, as reading and writing processes are influenced by the nature of the language to be mastered, careful consideration

of these linguistic features during intervention is also imperative.

This brings us to the issue of intervention for learning problems. The following section deals with major issues and concerns regarding intervention.

### **Intervention and Remediation**

Fletcher, Foorman and Boudousquie (2002) point rightly point out, timely identification and intervention can prevent serious disabilities. As a developing nation India's strongest asset is its human resources and by ensuring that we provide help on time to as many children as possible will be able to avoid loss of this rich resource due to their learning problem. Most of the effective intervention programmes are delivered at the individual level, on a one-to-one basis. Such programmes tackle the problem with a multi-disciplinary approach, with the intervention team comprising of a physician, counsellor, psychologist, special educator, occupational therapist, etc (Selikowitz, 1998). This requires many resources, monetary as well as human, to be in place. With a child population of more than 25 crores (Census of India, 2001) and an incidence rate of about 10% we are speaking of huge numbers. Providing individualised special education to all would be a Herculean task given the resource crunch we face as a developing country.

Keeping resource costs in mind it is imperative to consider use of intervention strategies that can be



delivered within the regular classroom. Graham, Harris and Larsen (2001) provided three reasons for providing effective instruction in the classroom setting with reference to prevention and remediation of writing problems. They pointed out that effective instruction can not only facilitate optimal writing development, it can also help minimising problems faced by children due to poor instruction and more importantly, minimise the severity of writing difficulties faced by children with LD.

In this context, a less than optimal level of achievement has been observed in children, especially in essential language skills like letter or word identification and reading comprehension (Singh, Kumar and Singh, 2006; NCERT, 2008). An intervention programme that caters to the inclusive classroom, as stated before, will not only help students with LD but may also be fruitful for children who lag behind due to other reasons such as lack of support from home, poor instruction in class and other such reasons. Further, due to the commonality in the nature of academic difficulties faced by children with different types of learning problems, current trend in education has been towards providing non-categorical special education (Silver and Hagin, 2002). Thus, the regular school can be an effective mode of providing intervention to large groups of children.

In the context of the school or educational system, addressing the

role of the teacher and the quality of teaching become essential. In order to do this, the discourse on concept of teacher effectiveness has been first presented.

### **Teacher Effectiveness and Children's Academic Achievement**

Teacher effectiveness and its impact of children's academic achievement have received a lot of attention in education research and have been found to be positively related (Nye, Konstantopoulos and Hedges, 2004). For instance, Hanushek (1992) found that children with good teachers exhibited one grade level equivalent learning gain over children with bad teachers. Rivkin, Hanushek, and Kain (2005) conducted a large-scale study with about half a million children from 3000 schools in Texas. Findings revealed that the quality of instruction had a large impact on children's achievement. They further observed that academic deficits resulting from socio-economic disadvantage could be made up for through high quality instruction during primary schooling.

Over a long period researchers have found differences in teacher's abilities to bring about academic gain in children and these were often attributed to factors such as teacher's experience, level of education, salary, etc. (Hanushek, 1986). However, recent studies have been focussing on the teaching-learning process. Teacher effectiveness is considered to represent —

*“the collection of characteristics, competencies, and behaviors of teachers at all educational levels that enable students to reach desired outcomes, which may include the attainment of specific learning objectives as well as broader goals such as being able to solve problems, think critically, work collaboratively, and become effective citizens” (Hunt, 2009, pp. 1)*

Freeman (1989) put forth a model to explain effectiveness of language teachers in which effectiveness was attributed to four factors – knowledge, skill, attitude and awareness. The teacher’s knowledge aspect included the content of the subject being taught, expertise related to students’ backgrounds, learning styles, etc. and awareness of the educational context and socio-cultural dynamics. Skills were considered to be related to the teacher’s ability to teach in class, provide instructions, classroom management, etc. Attitudes included the teacher’s disposition towards the students and beliefs about the teaching-learning process. Finally, awareness was put forth as the ability to respond appropriately to situations (Freeman, 1989). On similar lines, Cooper and McIntyre (1996) who put forth that the in the process of teaching-learning three aspects related to the teachers would shape their effectiveness. Their models are included subject content knowledge, craft of teaching and teacher sensitivity and awareness of learner individual needs and differences.

More recently, Konantambigi (2009) studied classroom practices in Grade I in schools in Mumbai as a part of the study on children’s transition from home to school and factors affecting the same. Findings of the study revealed that effective teachers exhibited sensitivity to learners and had good interpersonal relationships in the classroom. Further, their skills, abilities and motivation and commitment to fulfilling their roles as teachers were a common factor observed in all effective teachers. Thus, there seems to be consensus that teacher effectiveness entails what, how and who of the teaching-learning process. This includes the content features of what is taught (subject knowledge or what), teaching strategies (how) and sensitivity to individual differences and needs of the children (who).

In view if the above discussions, the present study aimed to address the following issues:

1. Children with learning problems seldom get attention in the regular classroom. They do not receive the appropriate services of identification and remediation of their learning problems and therefore end up spending most of their learning years labelled as ‘poor/bad students’, often ignored by the class teachers. This is a flaw in the education philosophy of majority of the educators in our country, which ignores the needs of the learner.

2. For a developing country like ours, resources to set up a system for identification and intervention of learning problems that caters to all the children across classes, locations and socio-economic strata are minimal. In such a situation, equipping the regular teachers with the basic knowledge and skills required to do the same may help manage the resource-crunch. Such teachers can help identify problems early and provide appropriate support so that the manifestation of the learning problems can be minimised (Fletcher, Foorman and Boudousquie, 2002). By providing effective instruction in the classroom setting with reference to prevention and remediation of learning problems, optimal development can be facilitated through effective instruction. Further, it will help to minimise the severity of the difficulties faced by children with LD and help address the issue of problems faced by children due to poor instruction (Graham, Harris and Larsen, 2001). This defined the purpose of the present study. This study was aimed at developing a classroom intervention programme for learning problems to be implemented by the regular teachers.
3. In addition to tackling the paucity of resources, intervention within the regular classroom will also support the inclusive movement in education in India. Globally, movements such as the UN Convention on the Rights of the Child (1989), the UN Standard Rules on the Equalisation of Opportunities for Persons with Disabilities (1993) and the UNESCO Salamanca Statement (1994), The Biwako Millennium Framework (United Nations, 2003), UN Convention on the Persons with Disabilities (2006), brought focus on equal educational opportunity for all children. Similarly, in India, inclusive education was recommended in the *National Curriculum Framework* (NCERT, 2005). Despite several recent efforts, India's inclusive movement is still in its nascent stage (Singhal and Rouse, 2003). Some of the caveats in this have been poor infrastructure, lack of knowledge in teachers, traditional teaching methods that do not accommodate learners needs, etc. (Subrahmanian, 2003). In its true sense, inclusion entails providing children with special needs an environment and experiences which are same as their typically developing peers (NCERT, 2006). This study attempted to do the same by providing intervention in the classroom and capitalising on the heterogeneity of the children's abilities to bring about mutually supported learning.
4. In the school context, teachers are the most important social agents

who shape children's educational experiences and teacher effectiveness is one of the major predictors of academic achievement (Wright, Horn and Sanders, 1997). Therefore, this study also focused on teacher effectiveness and aimed at providing essential training and support to the teachers to address the same.

Thus, following were the objectives of the study.

### **OBJECTIVES**

1. To design an intervention programme in Marathi for learning problems and learning disability.
2. To train teachers in the implementation of the intervention programme for learning problems and learning disability.
3. To monitor the change in the teachers' teaching methodology and teacher-child interaction following training and participation in the implementation of the intervention programme.
4. To assess the effectiveness of the intervention programme in terms of:
  - a. improvement in students' performance
  - b. feasibility of classroom implementation

The methodology used to meet these objectives of the study has been briefly described below.

### **METHODOLOGY**

A mixed method model was used in which both qualitative and

quantitative methods were executed simultaneously. In the present study, most of the objectives were met using qualitative methods, however in terms of impact of the programme on the learning outcomes of the children; both qualitative and quantitative methods were combined. While quantitative aspects brought out the extent or magnitude of the programme's influences on reading, writing, comprehension, expression and academic achievement in children. This was denoted by an improvement in scores or reduction in number of errors. The qualitative aspects on the other hand, were used to accentuate and explain the nuances of individual differences in the process, pace and nature of change. The researcher conducted an experiment in the naturalistic setting but as in the case of children with learning problems, explained the unique nature of impact of the programme on them using case specific qualitative data.

### **SAMPLE**

The sample for children comprised of 120 Grade IV students studying in a Government aided, Marathi medium school in Chinchwad, Pune. They belonged to the two classes selected for implementation of the programme. Their two class teachers were also a part of the sample. Out of these 120 children, 23 students were identified as those with learning problems or underachieving students (children with LP, henceforth). Three out of

these were identified as having LD as they fulfilled the criteria explained in the operational definitions. Out of the remaining 20 children with LP, 12 of them had below average IQ (DIQ below 85). The remaining eight children exhibited learning problems despite having normal IQ. Due to unavailability of a matched group, it was not possible have a control

group in the present study. However, as children's learning outcomes were assessed mainly through qualitative methods, this was not essential.

### SOURCES OF DATA

This study aimed to utilise a multimethod, multi-informant approach. Table 1 describes the sources of data used in this study.

**Table 1**  
**Sources of data**

S. No.	Method of data collection	Source	To assess/measure
1	Children's scores on examinations conducted by the school	Teachers	Academic performance
2	Indian Child Intelligence Test (Marathi version; Jnana Prabodhini, 2005)	Children	IQ
3	Behavioural Checklist for Screening the Learning Disabled (BCSLD) (Swarup and Mehta, 1991)	Teachers	Behavioural characteristics of LD
4	Learning Disability Diagnostic Test for Vernacular Languages (LDDT-VL) (Panshikar, 2007)	Children identified as at risk of LD from the BCSLD	Presence of LD
5	Observation of intervention sessions	Teachers and Children	Feasibility and effectiveness of the programme for teachers and children
6	Interviews	Teachers	Feasibility and effectiveness of the programme for teachers and children
7	Scores on language skills assessment tools (pre and post test)	Children	Language skills
8	General Classroom observations using checklists	Teachers and Children	Effect of intervention on teacher behaviour, teaching methodology and teacher child interaction

### **Analysis: Assessing Effectiveness of the Programme**

Effectiveness of the programme was determined by triangulation of the data from the pre and post-test results, marks obtained by the students on school exams; teacher interviews which were transcribed and translated from Marathi to English, the reflective journal notes, notes from planning and feedback meeting with teachers and teacher-child interaction checklist. SPSS and QSR N\*Vivo were used to facilitate data management and analysis. Non-parametric tests were used where ever applicable.

### **MAJOR FINDINGS**

#### **Objective 1: To design an intervention program in Marathi for learning problems and learning disability**

The intervention programme was based on the constructivist and social constructivist models of learning. It integrated features of experiential learning, whole language approach, multisensory training and peer-assisted learning. Assuming that learning disability was essentially caused by a deficit in information processing skills, the programme sought to strengthen the same through skill training in these areas (Scarborough, 1998; Dunsmuir and Blatchford 2004). Furthermore, as language was seen as a basis for all academic achievement, training in language skills was included in

order to remediate language related problems. The programme was designed as a bank of activities and worksheets that catered to the two main areas of intervention – information processing and language skills. The intervention sessions were conducted on a daily basis within the regular schedule of the school, in separate sessions lasting for 40 to 45 minutes. They were conducted by the class teacher and observed by the researcher. In total, 78 intervention sessions could be accomplished from November 2009 to March 2010. It was ensured that except for unavoidable circumstances like holidays or exams the intervention was conducted every day. Each session comprised of one introductory activity, either informal/free talk or organic reading, followed by one or two activities selected from the collection of activities depending on the needs of the children in terms of nature of the activity (paper-pencil, individual, group), skill/s addressed (readiness or language) and difficulty level. The actual implementation of the programme and choice of activities was tailored according to the needs of the children and the level at which they were operating with reference to the skills addressed.

#### **Objective 2: To train teachers in the implementation of the intervention programme for learning problems and learning disability**

The teachers were responsible for implementation of the programme,



which included planning sessions, conducting them and modifying activities and session plans according to the progress and response of the children. To enable this, the teachers were provided training in two phases. The first phase was conducted before commencement of the intervention through ten sessions of about one hour each. Lecturing, role-playing, hand-on activities, brainstorming and discussions were some of the techniques used in these sessions. The second phase of teacher training was conducted during execution of the intervention programme. In this, issues related to teaching methodology, teacher roles, teacher-child interaction, teacher demeanour, classroom practices, disciplining and classroom management were addressed during weekly feedback meetings and discussions after the intervention sessions.

**Objective 3: To monitor the change in the teachers' teaching methodology and teacher-child interaction following training and participation in the implementation of the intervention programme**

Owing to the comprehensive training that the teachers underwent changes and improvements were observed in five areas: attitudes towards the intervention programme; skills in implementation such as planning sessions according to children's needs, providing instructions and managing individual differences; sensitisation

towards children with special needs; beliefs about teaching; teacher behaviour and classroom practices.

**Objective 4: To assess the effectiveness of the intervention programme**

The effectiveness of the intervention programme that was designed in the study was evaluated on two aspects, its impact on learning outcomes in the children and its feasibility in classroom implementation.

**Impact on Learning Outcomes**

Results were presented for four different groups: children with LD, children with low IQ, children with LP and normal IQ and children with no LP. There were individual differences in the extent and speed of improvement, however all the children showed improvement in some or the other area. All the groups exhibited an improvement in information processing skills involved in reading and writing such as phoneme awareness, grapheme-phoneme correspondence, coding and decoding skills, eye-hand co-ordination, figure ground perception, visual and auditory discrimination, visual and auditory memory, and so forth. Other than this, a reduction in number of errors committed was observed post intervention in reading and writing. Children also exhibited improved vocabulary, comprehension and oral expression. In addition to this, most of the children showed an improved performance in their

school exams. Some of the children in the three sub-groups of children with learning problems did not show improvement or reduction in the number of errors in reading and writing (spelling and grammar).

### **Other Benefits**

Owing to their participation in the intervention programme, children were observed to have become active learners and were motivated to participate in classroom proceedings and perform well. Due to use of group activities, children developed social skills such as sensitivity towards individual differences, group cohesion and a spirit of helping each other.

### **Feasibility of the Intervention Programme**

The feasibility for use in the regular classroom was evaluated by the teachers. In-depth interviews with the teachers revealed that the programme was found to be easy to implement in the regular school setting with minimal resources. The teaching aids used were reported by the teachers as easy to make and cost effective, as they were reusable and could be used for several activities. Implementation of the programme in a separate session of 35-45 minutes did not interfere with the regular curriculum.

### **Discussion: A Reciprocal Model to Address Quality Issues in Education**

The findings of the present study brought to the fore, the points

that need to be kept in mind while designing interventions for learning problems related to language. Use of a combination of multiple strategies is recommended. Further, findings and insights from the present study and other studies on Indian languages (Nag, 2011; Gupta and Jamal, 2006) should act as a guiding force to change the way LD is seen in the Indian context and intervention should be tailored to the language of instruction.

Insights from the present study also help reiterate what practitioners in the field of teacher training and effectiveness. A step towards empowering teachers to become highly effective would have to take into account their knowledge, skills, attitudes and beliefs (Freeman, 1989). A change in their belief system would ensure optimal acceptance of the new methodology (O'Connell Rust, 2010). The current trend in reform in elementary education is moving towards a constructive, learner-centered approach (NCERT, 2005). The same should be applied to teacher education and training. Teacher training programmes should be learner centered and experiential in order for the content to be meaningful for the participants. This would aid effective learning and retention and subsequently, adoption of new methods.

The present paper however, deals with one vital insight derived from this study. This study reiterated the reciprocal relationship

between teaching and learning, and emphasised on the need to address educational achievement problems by taking teaching and learning as one large unit, rather than employing a piecemeal approach.

Years of research in education and findings of the present study indicate that the cornerstone of effective instruction in any classroom is the degree to which the classroom setting engages all learners in actively constructing new knowledge. Further, effective instruction takes place in classrooms in which students have frequent and consistent opportunities to read, write, listen, and talk (Schmidt, Rosendal and Greenman, 2002). Pedagogy which brings about learner autonomy is recommended for developing language proficiency (Cotterall, 2000). Further, multifaceted instructional interventions are recommended in order to bring about maximum gains (Swanson and Hoskyn, 1998). In addition, some children may require individual inputs on the basis of the nature and severity of learning problems they experience. The contextual factors that have a great impact on learner outcomes are teacher beliefs and collaboration between students (Schmidt, Rosendal and Greenman, 2002). Therefore, while addressing issues of quality in education as manifested by student achievement, both teacher effects and student factors need to be taken into consideration. It is acknowledged that intervention for teacher effectiveness

and student achievement need to go hand in hand as demonstrated in the Reggio Emilia programme (Hewett, 2001). Based on these insights a reciprocal model for change has been suggested (Figure 3).

While infrastructure and availability of schooling are two main factors affecting quality of education, in the classroom context the iterative process of teacher influences on educational achievement through pedagogy and effect of children's achievement on teacher efficacy and pedagogic practices is acknowledged through this model. It is suggested that any intervention to address quality in education would have to cater to two areas simultaneously, teacher factors and children's factors. Under children factors, intervention that addresses individual learning needs of the children should take place through child-centered, experiential methods centered on collaboration. Classrooms where instruction and teaching occur collaboratively have the potential of capitalising on the diverse strengths of individual students and teachers (Schmidt, Rosendal and Greenman, 2002). Further, such methods should lead to learner autonomy and create active learners.

Despite several policies and recommendations from experts to create an educational system which is learner-centered, burden free and joyful, schooling in our country has not undergone the change (Konantambigi, 2013). The system, its

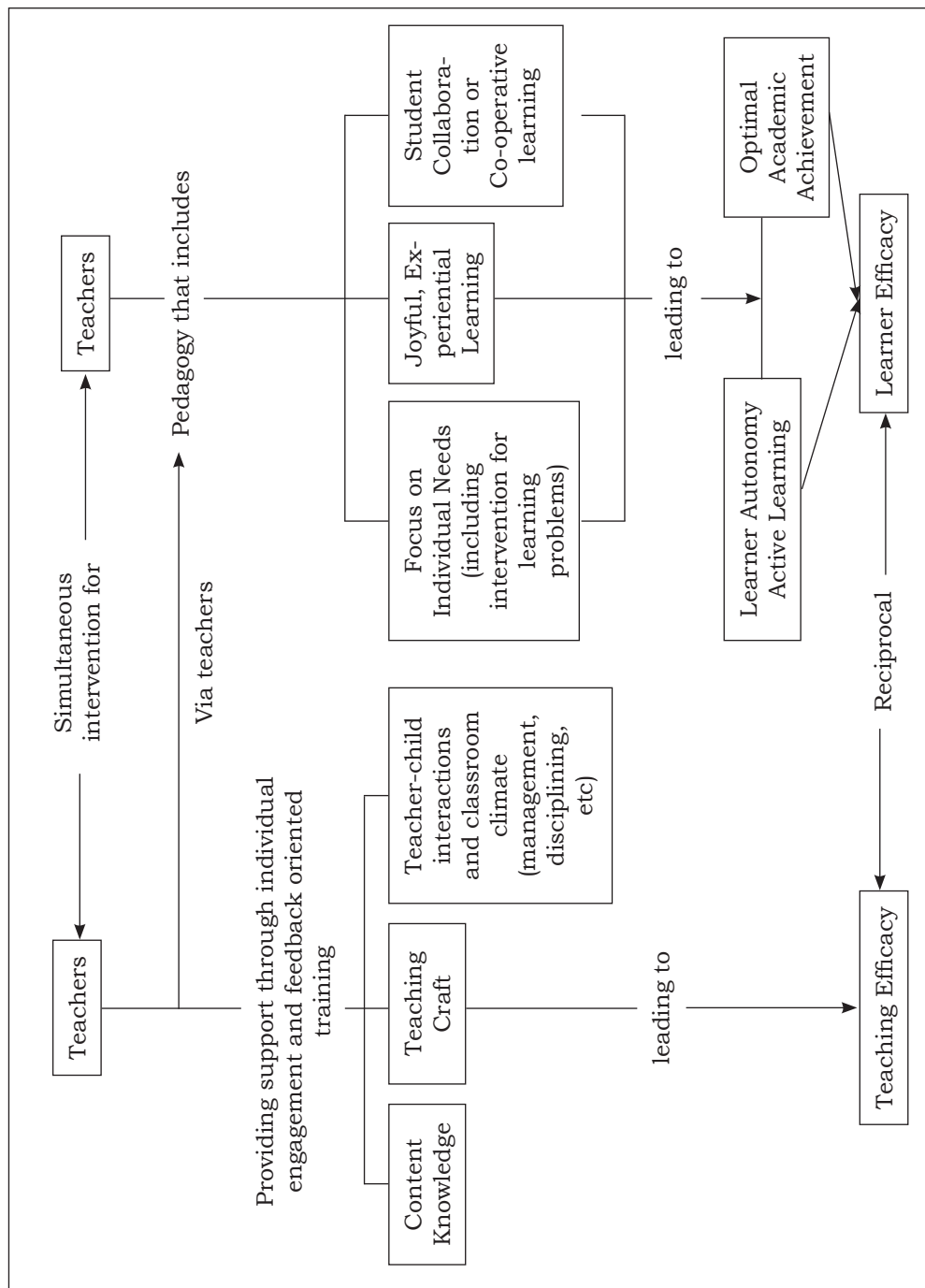


Figure: Reciprocal Model for Addressing Quality Issues in Education

pedagogy, curriculum and methods, are still mostly teacher-directed where teacher is considered as the only source of knowledge for the children. Learning is equated to memorising and time spent in activities other than highly structured academic tasks is considered wasteful and unimportant. Learner autonomy is practically absent in our educational system. As observed by Azim Premji (2007) such an education system leads to creation of learners who grow up into adults who are used to structuring, sub-ordination. Small changes in the pedagogy and beliefs about teaching-learning as accomplished in this study will help change the scenario.

The paradigm shift that needs to occur can be brought about through sustained efforts to train our existing and future teachers in a child-centered approach to teaching, one which sees the learner as individuals capable to take control of their learning with facilitation from the teacher. In the context of teacher training, it was seen that the training in the present study was effective in changing the teachers' long held beliefs about teaching learning. To an extent, this was because the training was evidence-based. It addressed individual teacher issues on a daily or weekly basis, thus they could see the practical applications of the theoretical information they received. A training module that addresses such practical issues would be successful

as it allows teacher autonomy to try new techniques in the classroom and engages with the teacher individually to tackle issues in implementation. It is therefore recommended to use this training model for intervening in three areas that affect teacher effectiveness- teacher knowledge, craft and classroom climate. As proposed in the reciprocal model, this would lead to improvement in teacher efficacy beliefs and their pedagogic practices, which in turn would impact achievement levels in students and subsequently their self-efficacy (Goddard, Hoy and Woolfolk Hoy, 2000; Tschannen-Moran and Barr, 2004), thus making the process reciprocal.

In conclusion, it is clear that educational achievement is the result of an interaction between individual and social factors. Any attempt to address lack in the same would indeed have to address both these factors holistically, rather than separately. Further, as suggested by the findings of the present study, while addressing individual factors in language learning, a multidimensional approach combining skill training as well as whole language approaches is beneficial. Similarly, group intervention was found effective for addressing general intervention needs in a classroom. In terms of teacher training, it was found that the tenets of experiential learning and learner-centered education recommended to improve school education are

as important in teacher education and teachers' performance were as well. Finally, when addressed found to support each other via a together, both students' performance reciprocal relationship.

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