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एन सी ई आर टी  
NCERT

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्  
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NCERT encourages original and critical thinking in education. JIE provides a forum for teachers, teacher educators, educational administrators and researchers through presentation of novel ideas, critical appraisals of contemporary educational problems and views and experiences on improved educational practices. Its aim include thought-provoking articles, challenging discussions, analysis challenges of educational issues, book reviews and other related features.

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## **EDITOR'S NOTE**

The best of the curriculum, textbooks and resources are of little significance for children's education without a teacher. Teachers should create a conducive environment so that children can explore and create knowledge. A teacher needs to be prepared in relation to the needs and demands arising in the school context, to engage with question of school knowledge, the learner and the learning process. NCT-2005, NCTE (2009) and Justice Verma Commission (2012) however, pointed out a gap in school education and teacher education. Taking note of this, the NCTE has brought out a Regulation to restructure the existing education programmes.

The present issue of JIE mainly focuses on issues and concerns related to teacher education and teachers' performance in the context of emerging school scenario. Kavita Ghosh, in her article elaborates on relevance of 'reflection' in teacher education whereas, Sonika Chauhan reflects on the notion of 'critical reflection' as a source of pedagogical knowledge in school experience programme of pre-service teacher education.

It is very important to create an enabling environment in the classroom for all students, especially those who are at risk of marginalisation. A field based study conducted by R.K Sharma and Asha K.V.D. Kamath reveals that our classroom are still teacher centric and a large majority of the students hesitate to participate in teaching learning processes due to various reasons. Manoranjan Pradhan in his research paper presents views of teachers regarding poor performance of elementary school children in rural and tribal areas of Odisha.

Aditi Banerjee stresses on becoming more sensitive towards students and giving them space and opportunities to explore and nurture their potentialities.

There is a sense of fear and failure regarding mathematics among many children in our schools. Poonam Pant and Vyomesh Pant illustrates how teachers can facilitate learning mathematics by all children. Tarun Kumar Tyagi found a positive relationship between mathematical creativity and mathematical problem solving performance. The study lays emphasis on re-orienting rural teachers for nurturing mathematical creativity of students.

Malli Gandhi discusses some of the pedagogical concerns related to History. He envisions a constructivist setting to teach History instead of textbook centric teaching. Nandini Narayan in her research paper describes a field intervention programme designed by her to address language learning problems in Marathi. She concludes that the performance of the students is in relation to the performance of the teacher, making it reciprocal in nature.

The study conducted by Kamala Kanta Tripathy addresses the problem of drop-out children. The issue includes review of two textbooks recently published by NCERT on Yoga education. The review was done by R. Meganathan.

I conclude by a famous quote “if a child can’t learn the way we teach, may be we should teach the way they learn” –Ignacio Estrado.

*Academic Editor*

# Towards more Reflective Teacher Education

## Mediations and Barriers

KAVITA GHOSH\*

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### Abstract

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*The multifarious benefits of making 'Reflection' a core guiding factor in teacher education are well articulated in recent literature. It is not only desirable but almost essential to create reflective prospective teachers who can deal with the complexities of the field of education. Various pertinent perspectives have come to fore in last few decades that attempt to understand the phenomenon of 'reflection' and attempts have also been made to understand the relevance of 'reflection' particularly in the context of teacher education. It becomes important that teacher education programmes make informed choices on the basis of these theoretical perspectives and at the same time give careful considerations to the research findings that talk of reflection in teacher education. It is only then we can stay assured that efforts have been made to make teacher education a reflective practice rather than a mere skill and knowledge delivering endeavour.*

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### INTRODUCTION

The ability to reflect is one of the desired skills in almost every profession. To talk of teaching in particular, it is a highly skilled profession and requires the teachers to perform a variety of tasks in order to work effectively. Bhogayata (2000)

asserts that “Reflective practice is required because the teachers of the future should be reflective decision makers in terms of thoughtful persons intrinsically motivated to analyse a situation, set goals, plan and monitor action, evaluate results and reflect on their own professional thinking” (p.117).

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Socrates is credited as being the first educator to prize reflective ability (Braun and Crumpler, 2004, p.59). However, it is not easy to employ reflective thought to a situation or an event. According to Pollard (2002), "One can think reflectively only when one is willing to endure suspense and to undergo the trouble of searching.... To be genuinely thoughtful, we must be willing to sustain and protract that state of doubt which is the stimulus to thorough inquiry" (p.4). Dewey (1933) also proposed that the entire process of reflection is directed towards finding the solution of any perplexing situation.

This paper attempts to present the prominent theoretical views on 'reflection' and 'reflective practice' in the context of teacher education. It further elaborates on the need of making 'reflection' an important guiding factor in teacher education drawing on the findings of various research studies. It makes suggestions in the form of different mediations that should be included in teacher education if the objective is to produce reflective prospective teachers. Subsequently, it briefly talks about different factors that act as barrier to reflection.

To begin with, the term 'reflection' or 'reflective practice' carries different explanations and orientations and therefore there is a lack of any consensus on the same. Larrivee (2008) elaborates that "this expansive range of meanings makes it difficult to decipher research findings and

has led to attempts to define differing types of reflection. Reference to numerous levels, stages, dimensions, or types of reflection are indicative that reflection is generally viewed as an incremental process" (p.342).

However, a number of classical writings have emerged in the field of 'reflection' and appear frequently in research studies conducted in the field of reflection. These perspectives have shaped the concept of 'reflection' in the past and continue to impact the research work carried in the field of 'reflection' in the context of teacher education.

This section of the paper is further subdivided into two sub-sections.

The first sub section deals with generic theoretical perspective on reflection.

The second sub section presents a comprehensive theoretical/conceptual framework for reflection in pre-service teacher education.

## **GENERIC THEORETICAL PERSPECTIVES ON REFLECTIVE THINKING**

The writings on 'reflection' define this concept in two major ways; the first one see reflection more as a cyclical process while the second one tries to describe reflection in terms of hierarchies.

### **1. Reflection as a Cyclical Process**

John Dewey (1933) and Berlak and Berlak (1981) were few of the proponents of the cyclical concept of reflection. They viewed the process



of reflection as an essentially cyclic one. The famous American educationist John Dewey took the concept of reflection from philosophy and introduced it in psychology and pedagogy, way back in 1933.

The need for reflection arises when a person confronts a difficulty and finds himself/herself in a state of doubt, perplexity or hesitation. Without this felt mental difficulty there is no starting point for engaging in the process of reflection. Once the problematic situation is witnessed, next is to discover the facts that will serve the purpose of solving the problem. These are based on reasoning rather than abrupt thoughts and views. The person involved may derive the possible solutions either on the basis of some similar past experiences or would look for other facts suggesting the possible solutions. At the next stage of evaluation consists of a review of the implementation process and the consequence of the solution. Solutions are accepted or rejected. If the solution proves successful, the instance may be stored for subsequent situations or may become routine. However, if the solution is not successful, the problem may be reframed and the process may be repeated (Dewey, 1933). So for Dewey, reflection was essentially a cyclical process.

Dewey believed that inquiry is the life blood of every science and is constantly engaged in every art, craft and profession (Brubacher, Case and Reagan, 1994). He

differentiated reflective action from 'routinised action'. Pollard (2008) mentioned, "According to Dewey, routine action is guided by factors such as tradition, habit and authority and by institutional definitions and expectations. By implication it is relatively static and is thus unresponsive to changing priorities and circumstances. Reflective action, on the other hand, involves a willingness to engage in constant self-appraisal and development. Among other things it implies flexibility, rigorous analysis and social awareness" (p. 14).

Dewey (1933) asserts that reflective thinking has a purpose. He further adds, "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends constitute reflective thought" (p.9).

Dewey put forth the importance of three distinct attitude traits namely wholeheartedness, open mindedness and intellectual responsibility. He asserted that these traits are central to the ability to carry out any meaningful task of reflection.

Thus, reflection as a cyclical process is essentially a process of realizing and framing the problem, creating possible sets of solution or hypothesizing, testing the possible solution and eventually rejecting or accepting a solution for the problem. In this light, it very much resembles the scientific method as proposed by John Dewey as well (Dewey, 1933).

Berlak and Berlak (1981) on the other hand studied three schools in detail and focused on the countless dilemmas that teachers face in their day-to-day working. They tried to see the relation that exists between the micro world of the school with the macro world of factors, beliefs and influences in society. Dilemmas represent an increasingly interaction of internal and external sources. In order to resolve these dilemmas a need arise for the teachers to use professional judgment and reflection.

It is important on the part of the teachers to have professional expertise in the form of reflective ability and competence to develop evidence based practice. On the basis of their research work done in three schools they listed down major dilemmas faced by the teachers. A few of the dilemmas given by them are; 'Organising the children on an individual basis vs. organising the children as a class', aiming for quality in school work vs. aiming for quantity in school work', allocating teacher time, attention and resources equally among all the children vs. paying attention to the special needs of particular children' and so on (Pollard, 2002, 2008).

So, the basic purpose of inquiry, for teachers and non-teachers is to enable them to engage in reflective action. Engaging in this process requires that each of the participants render as problematic what they have been taking for granted about what is happening in the classroom....

Using the dilemma language to structure critical inquiry involves an examination, from the widest possible range of perspectives, or present pattern of resolution, alternative possibilities, and the consequences of present and alternative patterns, the origins of present patterns and of proposals for alternatives (Pollard, 2002).

So it can be ascertained that what Berlak and Berlak (1981) proposed in terms of reflective practice was a cyclical reflective process.

## **2. Reflection as a Hierarchical Process**

According to Van Manen (1971) there are three different levels of reflection namely technical rationality, practical action, and critical reflection. Each stage is higher from the one that precedes it; thus critical reflection is the most complex and evolved level of reflection.

At technical rationality level the task of reflection entails a simple recapitulation and explanation of events and theoretical connections remain at a superficial level, if at all are made. At the second level i.e. practical reflection, the person engaging in the task of reflection basically attempts to understand the assumptions that underlie specific classroom practices, curricula etc. The third level of critical reflection involves the questioning of moral, ethical, and other types of normative criteria related directly and indirectly to the classroom.

The concept of reflective teaching was propounded by Schon (1983). It was Schon (1983) who defined reflection in terms of its different types. Schon wrote extensively on the concept of reflection and many fields other than education draw from the theoretical insight given by him on the concept of reflection. Schon introduced the concepts of 'reflection in action' and 'reflection on action'. Schon (1983) described reflection in action as the process of criticising one's initial understanding of a phenomenon, constructing a new description of it, and testing the new description by an on-the-spot experiment. When the practitioner has left the playing field and mentally reconstructs that playing field to analyse actions and events, reflection on action takes place (Giovannelli, 2003, p. 293).

Schon, while giving the concept of reflection in action also talked about 'knowing in action' and explained how one is related to the other. Knowing in action is related to the phenomenon that while doing something we are also working as agents through whom the action is done. So, we are already in possession of the skills, knowledge and judgments that help us to execute that action. 'Knowing in action' is our ability which is tacitly woven in the action itself. It is internalised knowledge of the way we do something.

Moving one step ahead of this knowing is the step of being able to reflect on this knowing. When doing a task intuitively (through the way of

knowing in action) sometimes it leads to 'surprises, pleasing and promising or unwanted, we may respond by reflection in action (Pollard, 2002).' It is thinking about something when we are still on the task of doing it. The practitioner of different profession take number of decisions while still in the process of act and decide on many aspects. It is then that the 'reflection in action' is taking place.

When the teacher recalls analyses and reflects on the processes of a class and tries to evolve a better plan or analyse the happenings of the class, the teacher is said to be involved into the process of reflection on action. So reflection in action is more quick, simultaneous and executable than 'reflection on action'.

Schon (1983, 1987, 1989) actually criticised the dominant technical rationality and proposed that an element of artistry can be brought in education with the use of reflection in action and reflection for action. (Tabachnick and Zeichner, 1991)

Tabachnick and Zeichner (1991) though value the pioneer work of Dewey (1933) and Schon (1983) in the field of reflective practice but eventually makes the point that even these proposed views about reflection are somewhat problematic. They raise the question on the ambiguity of what teachers should reflect on, kinds of criteria which are important in the process of reflection and upto what degree should the criticism of an organisation done by the workers in the same should be accepted.

They make a critique of Schon's concept of 'reflection in action' stating that it may sound good but it is not really clear what reflection in action looks like. It is something that rests in abstraction and doesn't get recognised as teacher behaviour. They mentioned that just thinking about teaching may not be same as reflecting on teaching.

They made an important contribution when they said that "Instead of focusing on whether the teacher is reflective or not, the focus should be on the nature and purpose of teachers' reflection. What are teacher being reflective about and why?"

They instigate the concept of reflective teaching as a social activity. Reflection is not merely social in its content, that is, in a concern to interpret the behaviour and social interaction of students, teachers, community members, or to anticipate future social behaviour. Reflection is itself a form of social interaction, it is carried as through a dialogue of words or action with other participants in the teaching learning context or else it is a symbolic dialogue in which the teacher anticipate and invents the reactions of students, colleagues and other, using this symbolic dialogue as critique of proposed interpretations and places for future actions (Tabachnick and Zeichner, 1991, p.16).

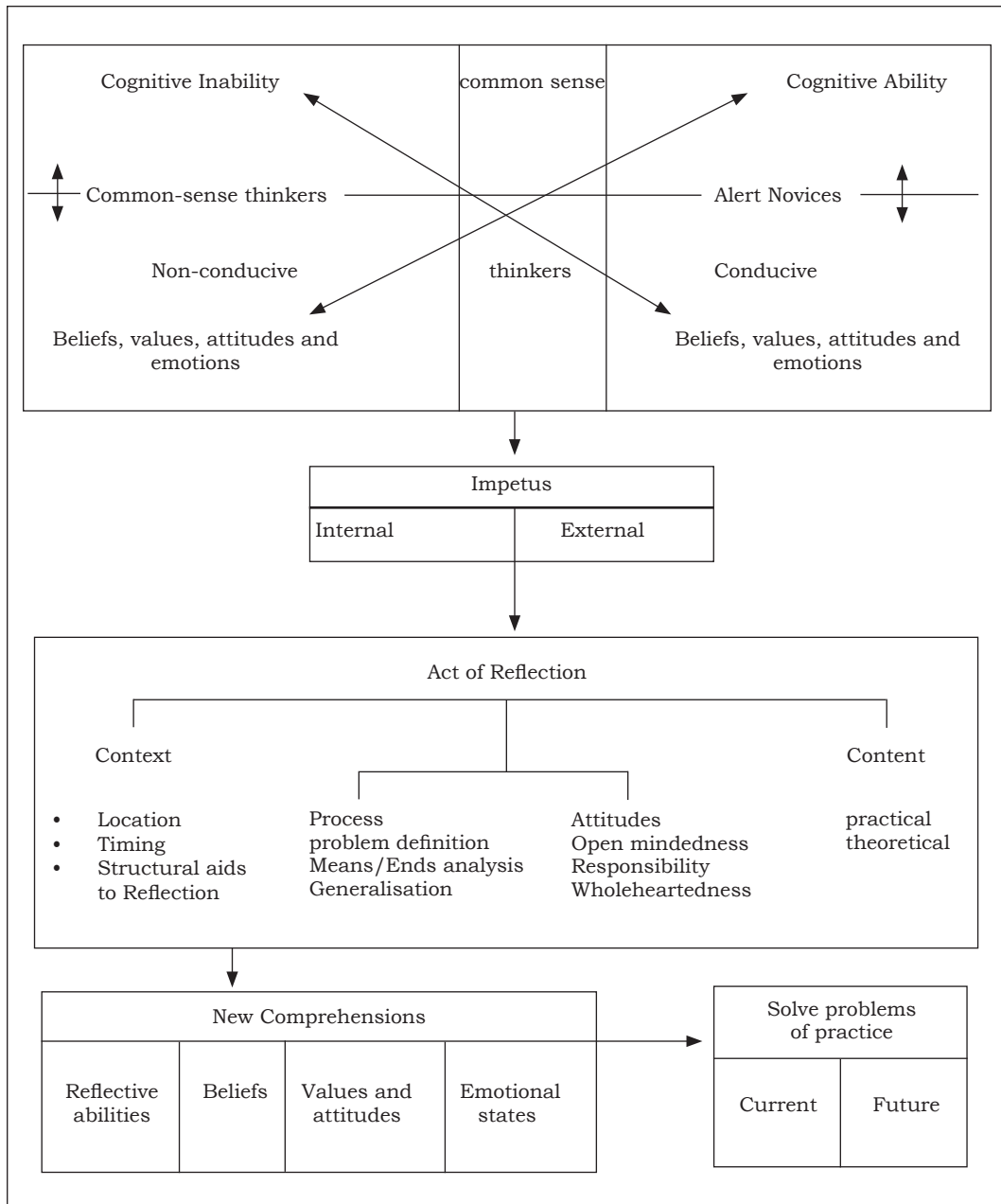
Zeichner and Liston (1990) proposed four different types of reflective practices which were derived after making a careful study

of analysis of reform in twentieth century US teacher education (Pollard, 2002).

1. an academic version lays emphasis on the subject matter, its delivery and subsequent effective student learning.
2. a social efficiency version stresses the thoughtful selection and application of appropriate teaching strategies that have proven to be effective according to the researches.
3. a developmentalist version that makes learners its sole focus point giving way to students' inclinations, interest, abilities and patterns of developmental growth.
4. a social reconstructionist version rests on the premise that all educational decision and actions are rooted in political and cultural ethos. It looks at education in general and school as institutions in particular to address the issues in society; e.g. gender equity, equal access to resources, social justice and so on.

### **A Renewed Conceptual Framework for Reflection in Pre-service Teacher Education**

After having explored the generic definitions and conceptions of 'reflection' in the previous section, this sub section describes the extensive framework of LaBosky (1993) and adds a new dimension on understanding 'reflection' in pre-service teacher education.



Adopted from LaBosky (1993, p. 28)

LaBoskey, as an Assistant director of the Stanford Teacher Education Programme (1993) got involved in an extensive exercise of reviewing literature and studies done on reflection in an effort to design and implement a reflective teacher education programme and also wanted to evaluate the result of those efforts. Following his finding that there was no single comprehensive definition or framework for reflection, he explicated a 'new' framework on reflection and thus gave a new, comprehensive and robust definition of reflection in pre-service teacher education. His own studies done in the field of reflection (using spontaneous reflectivity, case investigation, questionnaires, interviews of student-teachers and supervisors, journals, free writing reaction to various educational experiences, course papers and projects) in pre-service teacher education gave him insight to develop the framework.

This framework is important as it places the concept of 'reflection' specifically in pre-service teacher education and it put forth some very significant aspects related to 'reflection in pre-service teacher education' which are distinct from the other works available on reflection. There is a more specific portrayal of the terms 'common sense thinkers' and 'Alert novices'; thus taking into consideration that even before coming to teacher education programmes individuals differ in their abilities to reflect. It asserts that cognitive ability

of analysis, synthesis and evaluation; and beliefs, values, emotions and attitudes both are important for engaging in reflective practices. Throughout the framework, the focus is on the individual instances rather than the act of reflection in general owing to the internal abilities and the propensities of the teacher that they bring with them while joining a Teacher Education Programme (TEP). The framework also marks a difference between internal impetus; i.e. internal motivation to reflect and external impetus; i.e. externally imposed tasks asking to reflect in TEP. There is a more direct incorporation and treatment of the context, process and content of the reflection. Timing, location and structural aids for promoting reflection such as research like tasks, seminar discussions, artifacts and partners or observers have been emphasised. Practical and theoretical both content are required for increasing reflective ability in teachers. Attitudes of open mindedness, responsibility and wholeheartedness are considered vital and are thus given a central space in reflective thinking in this framework. Process to reflection which was previously thought as occurring in a sequential order (first problem identification, then means/end analysis and finally generalisation) was revised. The new insight is that though all steps are indicative of reflective thinking, but all may not be used in each act of reflection. Under the area of



'content', each act of reflection might well include practical/theoretical, social/political and moral/ethical arguments. Pre-service teachers need to be encouraged to reflect on as many domains as possible both in practical and theoretical areas of the curriculum. Finally the framework explains the potential outcomes of reflective thinking differently. New comprehensions indicate that the common-sense thinkers have progressed and there is a change in the dimensions that originally distinguished them from alert novices. New comprehension is an improved ability to carry out an act of reflection.

Thus, it can be deduced that this framework presented a holistic understanding of reflection in teacher education and added many new dimensions.

### **REFLECTIVE ABILITY AND PRE-SERVICE TEACHERS**

The concept of 'reflection' has been into the light for past many decades. There have been discourses about reflection. Moreover, efforts have been made to introduce and integrate reflection into the practice of teacher education. The increased number of publications in the form of research papers, textbooks, and journals in the field of reflective practice are an indicator of the growing relevance of this field. Pollard (2008) elaborates on many positive aspects of reflective teaching. Reflective teaching ensures high quality teaching and subsequent

good student learning. Personally it is fulfilling for the teachers. Evidence informed reflection makes an important contribution throughout professional life and is important at all levels of teaching career. Reflective practices which are very much desirable for teachers emerge from the use of reflection. "The term reflective practice refers to the on the job performance resulting from using a reflective process for daily decision making and problem solving" (Larrivee, 2008, p. 341-342).

Dimova and Lougrahn, (2009) writes how "During the 1950s the push for practitioners to be more reflective grew and was taken up in many of the professions, especially teaching, as the theoretical aspects of reflective thinking began to take hold through teacher preparation (Borrowman, 1956)" (p.207). However, Kaasila and Lauriala (2012) assert that the much talked about concept of reflection has still not been able to find adequate place in TEP. Once the theoretical concept of reflection begins to get applied in the practical ways, the breadth and depth of teachers' reflection can be better understood.

Cavanagh and Prescott (2010) assert that the "pre-service teachers often either do not reflect on their practice (Alger, 2006; Shoffner, 2008) or do so in a superficial way (Bean and Stevens, 2002; Collier, 1999). Instead, they focus mainly on the technical skills of teaching (Le Cornu and Ewing, 2008) and

practical concerns, such as planning and classroom management (Moore, 2003; Nyaumwe, 2004)” (p.148). However, the aim should be that both prospective and practicing teachers should continually progress through the levels of reflective thinking in order to ultimately intertwine the component of reflection with their day to day practices. Reflection ultimately rests on the premise of careful consideration of one’s own thoughts, assumptions, teaching choices and actions (Larrivee, 2008).

Just like any other skill, reflection is also learnt and it can flourish with active efforts made on the part of the practitioner. Larrivee (2008) shared that “without carefully constructed guidance, prospective and novice, as well as more experienced teachers seem unable to engage in pedagogical and critical reflection to enhance their practice.” (p.345)

A good number of research studies conducted in the field of reflection in pre-service teacher education in last three decades describe the inclusion of certain components in teacher education curriculum that promote reflective thinking in student-teachers.

### **(i) Mediations to Promote Reflective Ability in Pre-service Teachers**

Wideen et al. (1998, cited in Walkington, 2005) quotes “The combination of intuitive and reflective practice assists pre-service teachers to make decisions confidently rather

than reverting to some long held belief (or fall back position) when challenged with a difficult situation” (p. 62).

Kaasila and Lauriala (2012) bring their focus to reflection in terms of its breadth and depth. Reflection in itself is not sufficient if the pre-service teachers are not trained to reflect about a broader area of concerns and actions. Reflection should be based on personal, cognitive and moral aspects of teaching (breadth of reflection).

Van Manen’s (1977) stages of reflection namely; technical, practical and critical are good indicators of depth of reflection. “If the goal is to deepen and broaden pre-service teachers’ reflections, the reflection processes should focus not only on the lessons but also on wider and multiple contexts” (Kaasila and Lauriala, 2012, p. 86). Elaborating on the same they put forth the findings that the research reading context seemed to deepen reflection. However, experiences such as autobiographical writings seemed to enhance the breadth of reflection.

Pre-service teachers view the peer and collaborative feedback as both uplifting and helpful. Peer feedback was appreciated as valuable for professional learning in relation to the core skill being rehearsed, and in its value as a means of preparing them for entry into the teaching profession (Auhl, Hastings and Daniel, 2013). Britzman (1986 cited in Kaasila and Lauriala, 2012) talks about the importance of collective reflection and action in teacher education and



also stresses that such practices of collective and collaborative efforts is not prevalent in teacher education programmes.

Practices such as social memoir writing (Braun and Crumpler, 2004), personal biographies in the form of dialogue journal writing (Bean, Herrick, Zulich, 1992), aided and prompted reflection (Griffin, 1997) can develop reflective skills in student-teachers and in particular the practice of reflective journal writing can promote autonomy and decision-making skill (Genc, 2010) and self-efficacy (Tan, 2013) in prospective teachers. In the literature special emphasis is laid on the way reflection is enacted as a part of the discursive contexts that student-teachers find themselves in. So reflection is viewed as a strongly rooted phenomenon in the social context (Ovens and Tinning, 2009; Lee, 2005). However, at the same time efforts should be made on the part of teacher educators to include different forms of writing tasks to promote reflection in prospective teachers and to lessen the extensive writing works demanded from pre-service teachers in the name of reflective assignments. (Pedro, 2005)

The importance of dedicating sufficient time, reflecting on practice, empowering decision-making and learning through research in action is strongly recognised as means to promote a positive and personally meaningful teacher identity. Mentoring, rather than supervision,

by the experienced teacher promotes a collegial relationship that fosters each individual pre-service teacher to develop his/her own identity as a professional teacher (Alkington, 2010, p. 63).

Programmes preparing teachers for teaching at different levels of education should be organised in such a manner so as to optimise the development of reflective ability in teachers. One research study conducted on relationship between Reflective Disposition toward Teaching and Effective Teaching concluded that reflective disposition is related to effective teaching especially in the domains of instructional behaviour, classroom organisation, and teacher expectations. An important implication of this study is support for the inclusion of activities and experiences in teacher preparation programs that foster future teachers' abilities to reflect on, analyse, and critique their work (Giovannelli, 2003).

Reflection has gained much impetus in TEP and student-teachers value reflection (Alger, 2006) and exhibit willingness and excitement to continue with reflective practices further (Griffin, 1997).

## **(ii) Barriers to Reflection**

A thorough understanding of different barriers to reflection can pave way for better reflective experiences. Kaasila and Lauriala (2012) explains that these barriers could be previous negative experiences,

lack of motivation, lack of time, the expectations of others and the self, and fear of failure. Clarke (2011) carried out a research study to better understand the ways to achieve the goal of enhanced reflective skills on the part of the student-teachers especially in large group teaching contexts. It is realised that it becomes specially challenging to impart such skills to the prospective when dealing with large group of student-teachers. Clarke (2011) however made use of 'reflective verbalisation' as a strategy for promoting reflection in pre-service teachers. A sketchy teacher education curriculum, ineffective teacher educators, short duration of teacher education programmes, interfering institutional ethos also stand as barriers to bring the culture of reflection in teacher education.

### **CONCLUSION**

Reflective ability is a developable attribute and a TEP must be in cognizance with the reflective model of teacher education. Research studies done in the field of teacher education have proposed different mediations that can promote reflective ability in prospective teachers. To include or highlight the reflective component in TEP are no more considered as good additions but the field of 'reflection' has emerged as the core value that a TEP

should thrive upon if its objective is to create effective practitioners.

There is corpus of literature on 'reflection'; beginning from generic theoretical explanations to efforts to condense (LaBoskey, 1993 and Larrivee, 2008) the concept of 'reflection' specially in pre-service teacher education programmes is indicative of the complex phenomenon of 'reflection'. Owing to the complexity and at the same time the desirability of interweaving 'reflection' in teacher education, it becomes immensely important that teacher education curriculum give clear guidelines on how to include reflective practices in teacher education.

A pre-service teacher education programme is a very important professional qualification that prospective teachers undergo. Recent formative changes in the field of education like RTE, CCE, and professional code of ethics make demands on the part of the teachers to become reflective practitioners. The TEP are entrusted with the task of creating effective and reflective prospective teachers and the plausible way to do so is to make 'reflection' the guiding force in a TEP.

There is a growing need especially in Indian context to draw from the intensive work done in the field of 'reflection' and to use it to inform the teacher education practices.

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# Role of Critical Reflection in Practicum of Pre-service Teacher Education

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## Abstract

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*This paper is an attempt to enhance the perspective of reflection in the discourse of teacher education. The study tries to look at the notion of critical reflection as a possible source of pedagogical knowledge in the pre-service teacher education programme. Through this paper an attempt has been made to understand how student teachers' critical awareness of themselves and their beliefs lead to the development of personal and professional knowledge. The data for the study was obtained from the teaching experiences of student teachers of the Bachelor of Education (B.Ed) programme. The participants were six student teachers doing their practice teaching in a central school of Delhi. It was observed that student teachers come to teacher education program with a set of beliefs and preconceptions about teaching-learning process as well as of learners based on their own experiences as student. It was also found that through dialogue and guided practice student teachers can examine their and others' pedagogical practice as critical. The findings of the study could help in making the school experience programme more comprehensive and meaningful for the student teachers.*

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## INTRODUCTION

Recent researches in teacher education contend that in order for teachers to be transformative in practice, it is crucial that they reflect

on their experiences of teaching (Cochran, Smith and Fries 2008). This process of reflection and continuous critical examination of one's own teaching practice needs

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to be an integral part of pre-service teacher education programme. The *National Curriculum Framework for Teacher Education* (NCFTE) 2010 has recognised the need of reflective practice as the central aim of teacher education. However, the current teacher education programmes seem woefully inadequate especially with respect to the contemporary social realities taken note of by the *National Curriculum Framework* (NCF) 2005, NCFTE 2010 and Right to Education (RTE) 2009. There is now a need to re-conceptualise how teacher professional knowledge takes into its fold the socio political and cultural discourses. In the Indian context, this becomes even more crucial as ours is a diverse society with varied culture and ethnicity. It seems that teachers are not prepared to grapple with situations of inequality and injustice. Consequently, development of a critical consciousness and thinking through the process of reflection can help in development of teacher as an agent of social change.

The majority of teacher education programme curricula focus on subject content rather than on socio economic and cultural realities of everyday life. A dominance of technocratic rationality can be seen as manifested in the training of prospective teachers. Majority of teacher education programme focuses on building 'techniques' of student teachers on how to control student discipline, teach a given subject effectively, and organise a day's activities as

efficiently as possible. The dominant understanding of teacher education in India till now stresses on the subject matter or content that a teacher needs to know before entering the classroom. However, the conscious neglect of inherent complexities of the pedagogical process remains absent from the student teachers educational process. The emphasis of teacher education programs need to be on educating future teachers as scholars who can develop solutions to immediate school problems, critique policies and substitute the discourse of management and efficiency through critical reflection. The practicum of teacher education programme can provide a crucial space where student teachers can build a critical outlook on various educational policies and on developing skills that will further help them in understanding socio-political-historical realities of the society. Viewed in such light, teachers can develop as professionals with their own agency and capacity to learn from experience.

For Giroux (2010), pedagogy has to be meaningful in order to be critical and transformative. This mean that personal experience can become a crucial and meaningful pedagogical resource that gives students the opportunity to relate their own narratives, social relations and histories to the theories learnt while furthering their understanding of the limits often imposed by such conditions. Developing this idea, Freire (1998, pp. 78) asserted the

importance of redefining teachers as cultural workers who are capable of “reclaiming, without romanticising, popular culture as a complex terrain of pedagogical struggle”. Thus as a cultural worker, a teacher questions commonsensical understandings, interrogates dominant beliefs and representations of social life. This perspective further helps in developing the idea of “reflection as a social process”, and not a purely individual one as our thoughts stem from a “socially constructed world of meanings” (Kemmis, 1985, pp. 145). Seen in this light, reflection is not only an isolated entity rather it needs to be viewed in social, cultural and historical contexts.

Keeping the above mentioned factors in consideration, this paper explores how the School Experience Programme (SEP) in pre-service teacher education of one year duration provides opportunities to student teachers to see themselves as an agent of change. To view oneself as an agent of change requires a student teacher to critically challenge his/her own self, knowledge, beliefs and attitudes (Ladson-Billings, 2007). This means development of a critical consciousness through which student teachers can examine their beliefs and critically reflect on their pedagogical experiences. Through this paper an attempt has been made to understand the process through which student teachers’ critical awareness of themselves and their beliefs lead to the development

of personal and professional knowledge. Scholars all over the world acknowledge that learning to teach is not an easy task that simply requires implementing the given content. Rather it is a complex process that involves continuous interaction among the educational context, personal ideologies and socio-political knowledge. Knowing about teaching and knowing how to teach are two different things. The former are learnt by student teachers in the foundational courses whereas the latter is understood only through an active engagement with pedagogy. As a matter of fact, knowledge of teaching is acquired and developed by the personal experience of teaching which in turn develops the personal pedagogical competence of a student teacher (Munby et al., 2001). Thus, critical reflection can become a source of pedagogical knowledge that can aid in widening the professional knowledge base of student teachers (Husu et al., 2008).

### **CRITICAL REFLECTION**

The term ‘reflective practice’ carries multiple meanings ranging from reflexivity to self awareness and critical thinking. Critical reflection has been defined differently keeping in mind its complex and varied subjective aspects. Scholars differ in their approach in determining what constitute critical reflection keeping in mind the diverse interpretation the term has. However, all of them agree that critical reflection has a



positive impact on the teaching-learning process. Researches in the area reveal reflection as a completely beneficial practice for teachers that promotes critical understanding and development of professional practice (Husu et al., 2008; Mayes, 2001; Ghaye 2000; Swain, 1998). Dewey had been the foremost theorist in bringing and developing the idea of reflective practice as a specialised form of thinking. According to Dewey (1933), reflection is a dialectical interaction between the self and the world and is complex intellectual and emotional endeavor. According to Rodgers, (Husu et al., 2008 pp. 38), “Dewey gives us the means to look at reflection and reflective practice in a more precise way. This is done with the aid of the following four criteria: Reflection is a meaning-making process that moves a learner from one experience to the next with a deeper understanding of the relationships with, and connections to, other (people’s) experiences and ideas; reflection is a systematic and disciplined way of thinking. It is comprised of the following phases: spontaneous interpretation of an experience; identifying the problem(s) and question(s) that arise out of the experience; generating possible explanations for the problem(s) posed; developing and testing the explanations, and efforts to sort out, or live with, the problem(s) posed; Reflection needs to happen in interaction with other people. This is crucial because expressing one’s ideas

or thoughts to others with sufficient clarity for them to understand, reveals both the strengths and weaknesses in one’s thinking. Reflection requires attitudes that value one’s own personal and intellectual growth as well as that of others. Awareness of our attitudes and emotions is an integral part of appropriate reflective practice.”

This would mean that teacher reflection as a process would encompass all the cultural and personal experiences of an individual. Critical reflection can thus be broadly explained as the “study of self including one’s culture, histories, worldview, and lived experiences that impact one’s personal knowledge and professional practice” (Sharma et al. 2011, pp. 11). It also suggests that critical reflection brings awareness about oneself by challenging existing knowledge and given assumptions or frames of references that include beliefs, assumptions, values, and cultural norms of thinking and acting (Banks and Banks, 2009). Subsequently, through critical reflection, student teachers can question how schooling experiences perpetuates the existing inequalities of the society. They need to consider that education is not a neutral but a political undertaking (Freire, 1970) and how it is determined by the larger socio political, cultural and economic realities. To put it simply it would mean that a student teacher has to questioning one’s own interpretation of ‘facts’ and ‘realities’ and become self



critical in his/her thinking. Reynolds (1998) lists four characteristics that distinguish critical reflection from 'reflection'. Firstly, critical reflection is concerned with questioning assumptions and facts; it has a social rather than individual focus; stress is paid on analysing the power structure; and lastly its ultimate goal is emancipation.

### **THEORETICAL BACKGROUND**

Dan Lortie, in 'Schoolteacher: A sociological study' (1975), coined the term 'the apprenticeship of observation'. In his view, most of the student teachers' pedagogy is quite similar to their own teachers. He further builds that those beliefs teachers hold about teaching originate from their own personal experience as students. This could largely be responsible for many of the preconceptions that pre-service student teachers hold about teaching. Research on teacher beliefs showed that it operates on different levels ranging from personal to professional. Lortie contends that in this way, student teachers imbibe only a partial view of a teacher's job and 'sees the teacher front stage (actions) like an audience viewing a play' (pp. 65). However, he adds that, while students can only view the 'frontstage' behaviours such as monitoring, correcting, and lecturing, they do not see the 'backstage' behaviours which forms a crucial part of a teacher's job.

In his seminal work, Schön (1983) develops the notion of reflection in the educational contexts. He argued that the ability of reflecting on one's own action forms an important component of professional practice. He describes two types of reflection: reflection-in-action and reflection-on-action. Together reflect in action (while doing something or during the event) and on action (after you have done it or after the event) helps teachers in the development of professional and personal knowledge. As argued above, Schön too contends that teacher preparation programme places undue importance to "technical rationality" where in content or discipline knowledge and methods are given preference. The knowledge teachers' gain through reflecting on their practice is often overlooked. His 'epistemology of practice' focuses on making pre service teacher education curriculum reflective especially the practicum aspect. This means designing school experience programme under the guidance of expert practitioners (teacher educators) who would assist student teachers to reflect on their pedagogical experiences.

In the contemporary times, the idea of reflection has been broadened to incorporate socio-cultural contexts. Scholars articulate that a teacher's perspective about learning, society and schooling is largely determined by his/her subjective experiences. Critical theorists such as Paulo

Freire sees education as a political and ideological undertaking and every dimension of educational practice as not neutral and objective. For Freire (1998) pedagogy needs to be seen as a deeply civic, political and moral practice. Therefore he urges teachers to critically reflect on their practice to achieve the goal of liberation from oppressive conditions.

### **CONTEXT AND DATA COLLECTION**

The School Experience Programme (SEP) is an important aspect of the B.Ed programme. The programme is spread over 40 days where the student teachers are expected to gain hands on experience in teaching. The SEP provides a crucial and transitional time for student teachers to question, discover, analyse, reflect and critique many educational issues by immersing themselves in the role of a teacher for a sustained duration. The SEP provides opportunities to the student teachers to live and acquire real teaching experience by engaging in developing planning, organising and assessing the pedagogical process. It also helps in development of professional competencies by serving an important step toward bridging the gap of theory and practice, the formation of teacher identity and the development of social and cultural consciousness. The SEP is supervised by experts from the University who guide student teachers in planning and provide feedback to their teaching.

The study undertaken is qualitative and participative in nature. In critical educational research, the purpose is to change as well as understand situations (Cohen et al. 2000). Therefore, this study used an action research approach with the researcher as the participant. The researcher participated in the study as a supervisor where she worked with the participants in order to make a difference in the professional knowledge base of the student teachers. The data for the study was obtained from the teaching experiences of student teachers of the Bachelor of Education (B.Ed) programme. The participants were six student teachers doing their practice teaching in a central school of Delhi. All of them were post graduates and were around 23-25 years of age. To maintain anonymity of the study and protect the identity of the participants, they were given codes such as S1, S2 and so on instead of their names.

The study was conducted throughout the SEP that is from student teachers first teaching day to their last in the school. The data was collected through participant observation, open ended interviews and document analysis of various documents such as reflective journals, lesson plans and peer observation notebooks. The data was analysed using the qualitative approach, where careful and selective reading of student teachers writings were done to comprehend the areas

of reflection. Constant comparison method (Bogdan and Biklen, 1982) was used through which the accumulated data was systematically searched and arranged to increase its understanding. The stimulated interviews were transcribed and the areas of reflection were further discussed with the participants. To assist student teachers in the task of reflection, probing questions were asked individually as well as during group discussions. These questions encouraged student teachers to probe deeply into their teaching, feelings, action and thoughts.

## **FINDINGS**

### **Nature of Reflection**

The task of reflection is a challenging process as it is not easy to learn how to extract meaning from one's own experience. Critically analysing one's own thought process does not come naturally. It requires a lot of assistance with the help of planned and organised dialogue then only true potential of reflection as a tool of fostering change in teacher's professional work can be noticed. In order to interpret and understand this process of knowing, it was found during the course of this study that it was very difficult to separate 'reflection-in-action' from 'reflection-on-action' as proposed by Schon. Reflection was seen as an ongoing process: before, during, and after teaching action, revolving around the teacher's reflecting self. It became a tool that helped

student teachers in the continuous construction of knowledge. As student teachers used both 'kinds' of reflection simultaneously, it was seen that initially reflection started from Schon's 'reflection on action' gradually incorporating the other one. Student teachers used to reflect on their teaching experience after they 'taught' the lesson gradually they started reflecting while teaching. This did not mean that prior to this study; student teachers were in an 'unreflective' state. It only intended that undergoing through the process of interpretation and reflection student teachers became conscious of their reflexive abilities. These unexamined experiences and actions generally lose their potential for future professional development of student teachers. The process of reflection helped them to tap all the incidents related to teaching, reflect on them and incorporate desired changes. Student teachers gradually started modifying their lesson plan depending upon the situation while teaching. However, the use of 'reflection in action' was observed during the last few days of SEP and not every student teacher went through the same process. It depended a lot on the student teacher own willingness to examine his/ her own practice and develop professionally.

### **ANALYSING CRITICAL INCIDENTS**

Certain "critical incidents" that invoke student teachers' emotion or any other that appealed to the student teachers\*

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\* 'Student teachers' is a form used for students of pre-service teacher education programme.

were brought forward for discussion. Such incidents were interpreted as critical for the analysis (Tripp, 1993). Usually such commonplace and ordinary events happened in the classrooms were usually not taken up by the student teachers as crucial factor that can affect their thinking and action. Only few incidents were taken up as critical as it was not realistically possible to reflect on each and every event happening in the classroom. It was assumed that each incident has the capacity to bring out meaningful aspect of reflection. Even the focus of the study was on learning the process of reflection in terms of degree rather than stressing on absolutes and every situation was regarded as having the potential of bringing transformation.

On the basis of the study it can be said that student teachers reflection was a way of relating to the world and a basis for understanding and responding to their experiences. Reflection as a process needs to be learned gradually rather than expecting it to master it suddenly. It was observed that there were levels through which the process of critical reflection moves gradually. Initially the student teachers started recognising and appreciating difference and diversity from varied perspective such as gender, class, culture, religion, disability, age as existing in the personal and professional front. They were asked to comment and describe their own actions/pedagogy during teaching. With a lot of introspection,

they identified the reasons for their behavior and the possible alternatives to deal with such incidents in future. Alongside they started questioning how these factors impact learning and teaching processes. At the next level, they started challenging their beliefs and assumptions about themselves, students and teaching. In the reflective journals, a lot of questioning and indecisiveness about themselves and teaching process was seen. The questioning moved from why we do something rather than how. Importantly it involved learning from this process and initiating change when and where required.

The process was captured through an incident where instead of labeling a learner as “destructive and not interested in studies”, a student teacher (S3) wanted to find out the reasons behind the disturbed behavior of that particular learner. The reasons were identified, discussed after deliberation with the supervisor. In an excerpt from the reflective journal, it can be seen how nurturing and facilitating outlook adopted by the student teacher enabled personal transformation in both student teacher and the learner.

S3: “Tarun is very notorious and irritating student. He disturbs the whole class. Not even his regular teachers or his classmates talk to him properly. Even I found his behaviour very casual. But after discussing his case with my supervisor, I decided to speak to him. Talking to him made me realise that he knows a

lot about his studies and is quite 'bright'. After that day, my relation with him has changed. Now I give him responsibility and opportunity to answer in the class. He always wishes me in the school and behaves nicely during class. What touched me was an incident where after the school I was standing outside to find a rickshaw to go back to my home. The moment he saw me standing, he jumped out of his rickshaw and told rickshaw driver to drop me".

### **REFLECTIVE JOURNALS**

The nature of writings in reflective journals changed; from being a mere descriptive account of what all happened in the classroom to actual reflective experiences. Comments from the supervisor and peers helped student teachers to critically view their own pedagogy. They started probing their own beliefs and this reflection was guided through further questioning. One student teacher (S4) acknowledged that "I was a bit judgmental (about learners) but now my thinking has changed a lot". Another one remarked (S3) "I do not have set notions about myself as a teacher. I think I explain well but I need to work on planning a bit, need to be more confident, get more organised. Because a teacher has to do a lot. Seriously a lot!".

By the end of SEP, most of the journal write-ups had more questions and reflections rather than description of the classroom activity. The writing style changed from descriptive to

analytical grounded in pedagogical and theoretical experience. Reflective journals saw frequent uses of phrases such as "continuing to improve," "never arriving," "continually growing," "always developing" "I think, I am yet to know" "I realised that it is very difficult to know". This described an understanding that the personal growth is an integral part of a teacher's life. Nearly all student teachers added their earlier experiences of teaching to the recent ones forming a loop of understanding thus making it an ongoing process. An inner dialogue about their teaching was clearly visible in their writing style such as S3: "I feel that I am becoming better at teaching younger (primary) learners. Starting my class with few activities helped me to gain their attention...earlier I only used to scream and shout...I am feeling so so good! Now I feel I can continue teaching EVS to them".

### **TEACHER BELIEFS**

Teachers' beliefs that are learnt as a student through observing their own teachers become a part of their identities. As explained earlier, Lortie termed this as 'the apprenticeship of observation' and described such an approach towards pedagogy as 'folkways of teaching'. Even Bruner termed such notions as 'folk pedagogy' as they shape a teacher's pedagogical experience. Beliefs, and their influence, tend to be unexamined by teachers because many are implicit, unarticulated, or

unconscious. On a contrary, they need to be debated and analysed and bring into the consciousness of the student teachers. Student teachers had very naïve views about teachers and teaching process such as S1: "I always believed that teaching is just another job that involves giving instructions to students". A lot of personal meaning and emotions were attached to teaching experiences that were in turn related to their own experiences as a student. A connection between personal and professional experiences can be seen where most of the student teachers related their own strengths and weakness as a human being with their identity as a teacher. S5: "I am quite soft spoken that is why my class is quite unmanageable". Such unexamined assumptions cause confusion and develop a feeling of helplessness in the new teacher who happens to be placed in a classroom with students of different ethnic, linguistic, cultural backgrounds. Therefore, for classroom to become a transformative space where learning and engagement can take place, the teacher needs to predispose to question herself, to see learners as subjects and to desire to learn with them rather than impose upon them.

Gradually, with the help of probing questions and discussion, student teachers could find out ways to re evaluate their work and beliefs so as to incorporate and accommodate new perspective into their teaching practice. A sense of agency develops

with such kind of reflective exercise. They would also try to integrate their teaching experiences in the classroom with the theoretical knowledge gained in the B.Ed programme to support or justify their pedagogical actions. Reflective journals provided the crucial space for describing the newly gained insights. The initial belief about themselves or teaching was challenged by the process of questioning and introspection. They mentioned problems in their own action that they need to focus on and issues in which they have to develop themselves. This kind of reflection provided student teachers to confront and even transcend their habits and constraints they otherwise regard as normal and typical to them. Reflective journals and peer observations aid student teacher to critically view their beliefs. It provided students teachers a critical space where they can challenge their preconceived notions about children, themselves and teaching and how all these clubbed to affect their pedagogy such as S1: "as a student, I always thought that teachers know all but now as a teacher I realised that how difficult it is 'to know'" and S3: "I always thought that working with the middle school students would be easier rather than the primary ones. But I was wrong. Middle school students do not like to be treated like kids but they are not adults as such. I too went through this phase but I find it very difficult to 'teach' them.....I don't know how much I have succeed.....but I tried."



It was observed that there was lot of introspection related to personal meanings of a situation that was going on the student teacher's mind. Student teachers interpreted their teaching experience with their chances of being a successful teacher. For example: S4: "to be patient...I am yet to learn that as a teacher...". The 'backstage' work of a teacher became prominent when they assumed the role of a teacher. All of them were involved in the process of assessment with the regular school teachers such as conducting summative tests, assisting and managing accounts of science labs and other administrative activities. S6: "...before SEP I always believed that teachers do all the work in the classroom but now I see that most of the work was done before coming to the classroom. A lot goes into lesson planning keeping in mind the interests of students. I have learnt that if one is well prepared even managing the class becomes easy".

### **VIEWING THEMSELVES AS AN AGENT OF CHANGE**

Initially, the student teachers did not engage with issues that are related to diverse cultural group of students. But with the help of probing questions asked by the supervisor on certain issues such as why a particular example was chosen by the student teacher to explain a concept went well and why a class was 'gone bad', helped student teachers reflect on such issues. Asking probing questions was crucial as meaningful questioning

helped student teachers uncover many taken for granted assumptions in the text as well as in their opinion. By the end of the SEP, most of the student teachers acknowledged a change in their perception of students belonging to different ethnic groups. They recognised and appreciated the classroom diversity from different dimensions such as gender, linguistic, religious, socio-economic and how these can affect the teaching-learning process. During a discussion, it came out that a conscious effort was done by the student teachers to reach out to every student. Some of those questions helped them to uncover and question the power structure presented in the text. They started viewing the text of a lesson critically, asking questions and moving from facts to how and why. It was observed that student teachers did try to make conscious attempts to challenge the unexamined assumptions by questioning the 'given facts' presented in the textbook. The feedback received by the student teachers from their learners on such kind of teaching was quite positive. Earlier the focus of student teachers was on to teach the given chapter by making information more interesting through teaching aids such as charts and models. Now they focused more on the chapter content; relating it to the learner's life.

In one instance, a student teacher reflected a lot before planning a sub-topic of retail and wholesale in the subject of Economics. Instead of

defining maximum retail price and consumer rights, she discussed with students how MRP is decided by a company and why certain countries become the guinea pig or the market for dumping defected/obsolete products. Initially, she was hesitant whether she should initiate such discussion with her learners but once she started off, it was heartening to see the level of discussion. The learners were quite aware of such issues and they actively participated in the discussion by adding more information about the topic. Even the discussion went beyond the designated concept that made the student teacher a bit worried about the completion of the lesson within stipulated time. While reflecting on her experience, she remarked that “I was taken aback and surprised, in fact shocked that students would be aware about such malpractices. They know so much...I never thought that...I felt so happy. It was an experience that I can do something in the lives of my students”. Most of the student teachers did acknowledge that students know much beyond the textbooks and they need and had to bring new things to keep them busy and make the task challenging. A need to reach out all the learners of the class was communicated throughout discussions with the student teachers. They felt that it is important to modify and plan the lessons to meet the challenges of learners with different abilities such as S6: “I struggle a lot to understand

the level of students.

*R: How do you do that?*

*S6: I observe students very carefully in the class. Sometimes outside too. I interact with them while teaching and see how they relate to a lesson.*

*R: Ok, but why do you think it is important?*

*S6: So that I can plan my lessons accordingly like I know Rajat is very well read and knows most of the lesson beforehand so I have decided that I will give him an additional story (text) on the concept (independence struggle) while I will continue with my lesson with rest of the class”.*

A change in the attitudes towards students’ background can be observed in the reflective journals of the student teachers. In one instance, a student teacher noted in his reflective journal, S2: “today, I used an example of maids while teaching a lesson on helper in EVS. I found out after discussing with students that all household work was done by their mothers and not by maids. I never thought about this... I realised that I need to be more careful while planning...” After this incident, it was seen that particular student teacher was more careful in selecting and designing his lesson plans and assessment (worksheets) carefully modifying them according to the level of students. Hence, a change in the attitude led to professional development. Student teachers developed sensitivity towards background of their learners which



in turn, strengthen their mutual relations.

## DISCUSSIONS

With the coming of *Sarva Shiksha Abhiyan* (SSA) and Right to Education Act (RTE), it is crucial for a teacher to be aware of the issue of power and dominance in the teaching and learning context to make education for all a reality. Giroux (1988) describes teachers as transformative intellectuals who combine scholarly reflection and practice in the service of educating students to be thoughtful, active citizens. Against the Freirean terminology of “banking education,” education should offer students conditions for self-reflection, and critical agency. Therefore, it becomes crucial for teacher education programme to incorporate critical reflection in their curricula. As argued above, nearly all researches in the area of reflection agree that it has considerable power and potential for professional development. However, it is widely assumed that with the help of reflection the prior ‘unreflective’ teacher suddenly brings about a transformation in her thinking and pedagogical styles. The potential of teacher reflection can only be realised through a planned and structured, which would in turn make the school experience programme more comprehensive and meaningful for the student teachers. It was observed that student teachers come to teacher education program with the set of beliefs and preconceptions about

teaching learning process as well as of learners based on their own experiences as student. It was also found that through dialogue and guided practice student teachers can examine their and others’ pedagogical practice as critical.

Through various components of the SEP programme such as reflective journals, discussions with supervisors and peer observations helped student teachers to shape their identities as an educator. It was also observed that initially the prime focus of the student teachers were on finishing the lesson plan rather than reflecting on their practice. It was felt that the duration of the SEP was short as the pre service programme is of year duration; there is an urgent need to extend the length of the SEP. The limited time student teacher spends in the school does not give space to move beyond in the area of critical reflection. Difficult questions related to equities in the classroom still needs to be brought out very clearly by the student teachers. Although the student teachers started bringing issues of criticality in their planning and pedagogy through probing questions and guided reflection used by the supervisor. But building and strengthening the aspects of criticality requires more deliberation and time. It was also felt to find out ways to include school’s regular teachers in guiding the process of teaching and reflection. Also, the process of reflection needs to be structured and designed in a way that it supports

professional development of student teachers. The benefits and potential of teacher reflection as a source of pedagogical knowledge will largely remain unspecified and unattainable until proper relevant methodological tools and their contextual applications are developed.

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# Learning Environment in Schools

## A Field Experience

R. K. SHARMA\*

ASHA K. V. D. KAMATH\*\*

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### Abstract

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*There are several factors which influence the regularity and performance of learners in the school. Learning environment is one such factor which gives the experience of pleasure or pain, success or failure, active involvement or passive listening, to the students. The present study is an attempt to study the learning environment in Government Secondary Schools of Rajasthan, in terms of learner centeredness, learners' hesitation in expressing themselves and learner treatment by the teacher. The study revealed that the classrooms are mainly teacher centered. Almost no activities are conducted for the learners or with the learners in the class. Teaching is highly oriented on textbook and classroom transaction is done with the textbooks in hand. Learners hesitate to participate in the teaching learning process because of abuse and punishment by the teachers for their wrong responses. Sometimes punishments are severe and highly de motivating. Teachers hardly respect the learners as individuals. Learners find it safe to non-participate in the class. Learners do not get sufficient time to think about the answer and their answers are not heard completely by the teachers. The present study is based on the field experience of the two authors in the secondary schools. The first author got an opportunity to perform field work in a government school for three months, while both the authors got the opportunity to observe classroom processes under one of the projects of NCERT. The experiences gained by them during field work and observation of classroom processes in relation to learning environment in those schools, is presented in this paper.*

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## **INTRODUCTION**

Children of today are citizens of tomorrow. They have their informal learning at home which is often quoted as 'Home is the first school of the child'. From a loving and caring environment of the home, child enters into school which is a formal centre for learning. Child comes in contact with others like, classmates, peers, teachers etc. Though learning can take place anywhere and at any time, every school has its role to play in creating an environment that supports and enhances both teaching and learning - a space where children feel safe, happy and wanted (NCF, 2005). It is expected that the school would provide a caring, loving, joyful and conducive environment for learning where teachers and children create a web of relationship and interact both formally and informally.

## **LEARNING ENVIRONMENT**

The learning environment has physical, social and psychological dimensions. While the physical environment consists of infrastructural facilities and instructional resources; the social environment consists of relationship between and among human beings whom they find in the school. The psychological dimension portrays the feeling of students towards learning, the kind words and actions towards learners, praise and gratitude received by them. All the three dimensions of the environment are important

and are inter-related. When a child is comfortable and feels secure with the learning environment, it supports learning. NCF 2005 has reflected on an enabling environment in schools. According to it, an enabling environment is one where children feel secure, where there is absence of fear and which is governed by relationships of equality and equity. This requires the teacher to practice equality and not discriminate among children. Teacher has to allow children to engage themselves in learning by asking questions, clarifying doubts and sharing related experiences. An ideal learning environment which is open, respectful, caring and safe makes the school an exciting, stimulating and welcoming place. It is vital to the success of the students. A positive learning environment always would allow students to feel comfortable and confident as learners with high achievement levels making it a structured space for guided learning. The environment should give a homely feeling to the child. It should be a home away from home. But what is the extent of such an environment in our schools? A safe and friendly environment is reflected even under Rights of the Child.

## **THE CONVENTION ON RIGHTS OF THE CHILD (CRC)**

Children are important future human resource and are required to be given special protection. Therefore, it is necessary to improve the condition of children all over the world. As the

situation of children in many parts of the world remains critical due to various reasons, a need was felt to promote well being of children and their development. One of the ways of achieving this was by creating an environment where children are allowed to grow as children by allowing them to enjoy their rights.

The Convention on Rights of the Child (1989) contains several rights of the child in its Parts I, II and III with Articles 1-54. In its Article 1 it is stated that for the purpose of the present convention, a child means every human being below the age of 18 years unless, under the law applicable to the child, majority is attained earlier. The CRC further in its Article 2, mentions that State Parties shall respect and ensure the rights set forth in the present Convention to each child within their jurisdiction without discrimination of any kind. A look at Article 31 shows that State Parties have to recognise the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in culture life and arts. As per Article 37, no child shall be subjected to torture or other cruel, inhuman or degrading treatment or punishment.

Other than these, there are also rights like, to get basic education in mother tongue; Right to life; to be protected from all forms of exploitation; to be protected from corporal punishment; not to be subjected to torture or other cruel

inhuman or degrading treatment or punishment; Right to rest, leisure and play and the right to express their views freely in all matters affecting them and to exercise freedom of expression. But, the NCF 2005 has remarked that children are frequently denied the opportunity to participate in decision making processes and activities that affect their lives and futures. Is this remark observable in the field - at home or schools? The RTE Act 2009 has guaranteed Right to Education to all children and has even indirectly specified the learning environment.

### **THE RTE ACT 2009**

The RTE Act requires the state to provide free and compulsory education to all children in the age group of 6-14 years and to prepare curriculum in consistent with constitutional values. It aims at quality education and protection of the child. A detailed study of the provisions of the Act makes one understand that there is a close relationship between the RTE Act and the Rights of the Child. It provides for learner centered activity based education, abolition of punishment and harassment, free expression and so on. Though the Act is applicable to children of 6-14 years of age group or till the completion of elementary education, the spirit behind can be applied to secondary stage too.

Though Acts and Policies say many things, for any change to occur in schools, it is necessary to

bring about change in the teacher education programmes. Considering this, the curriculum framework of teacher education has attempted at certain shifts in the teacher education programmes.

### **NCFTE 2009 AND THE TEACHER**

The National Curriculum Framework for Teacher Education (NCFTE, 2009), has been sub-titled as 'Towards preparing Professional and Humane Teachers'. This clearly indicates that the teacher preparation programmes were not completely fulfilling the objectives of either being professional or being humane in their outputs. One of the concerns of NCFTE is developing reflective teachers with positive attitudes and values; with skills for the craft of teaching. The document has also given the vision of Teacher Education and states that teachers to be prepared to care for children - enjoy to be with them, seek knowledge, own responsibility towards society, commitment to justice and sensitivity to the problems of the learners. It further states that teachers are to be trained in organising learner centered, activity based, participatory learning experiences - play, projects, discussion, dialogue, observation, visits and so on. Other than these, learners are to be viewed as active participants and learning has to be a search for meaning out of personal experience. Do our teachers in schools give opportunities to the learners to share their experiences? Do they follow learner centered and

activity based learning giving primacy to the learners? NCF 2005 has very clearly given its guidelines for learner centered learning.

### **NCF 2005 AND THE LEARNER**

According to NCF 2005, learner centered education or child centered pedagogy means giving primacy to children's experiences, their voices and their active participation. It also states that the school environment should create opportunities to try out, manipulate, make mistakes and correct oneself. Children are very important component of a school and come from different socio-economic and cultural backgrounds with diversity of all types. In spite of this, our rigid school system requires all students of a class to study the same textbooks, perform the same tasks, follow the same rules and show high achievement levels. If they fail to perform as per the expectation of the school they are many times, taken to task. Majority of school children are made to view learning at school as a boring, even unpleasant and bitter experience (Yashpal, 1993). They are also several times punished in spite of the Act for protection of child rights.

### **PUNISHMENTS IN SCHOOLS**

The punishments in the schools vary from standing in the class to torturing in the school. Media exposes the way the children are punished and their rights violated. Children are scolded openly, their individual dignity is hurt in the presence of their peers. They



are also being hit by duster, scale and whatever things the teacher gets in the class. There are instances of children made to stand/run/kneel down in the sun. Impositions are regular features of many schools. They are given such impositions which have no educational value. Children are forced to complete their incomplete homework, assignments, class work etc. during the leisure time. They are also mentally harassed. Are these really happening in our schools? Do they affect the children?

### **REVIEW OF RELATED STUDIES**

Though there are many studies on school environment, a few are reviewed in the following paragraphs.

Mourel (2000) studied the effect of corporal punishment on children. His study revealed that the use of corporal punishment influences attendance of school children. They remain absent and long absenteeism leads to withdrawal from schools. A study by Ahmad, Said and Khan (2013) through their study concluded that students who are subjected to corporal punishment are less motivated towards learning and hesitate to participate in classroom activities. They recommended that to increase the motivation level of the students, teachers have to create supportive learning environment which may help in learning sustainability of students. Another group of researchers Swan, Bell, Phillips and Shannon (2000) argued that size of the class and its

environment determines students' attitude towards learning. In a friendly and spacious classroom environment, students take interest in the activities, where as in an authoritarian and rigid classroom, students feel dejected. It was further supported by the study of Rousow (2003), whose study revealed that the students who are punished, less actively participate in the learning process. Vijaya (2009) emphasises on giving freedom to children to learn. She said, we need caring and nurturing classrooms and full-blooded, not lifeless teachers. We need opportunities to freely express one's own conclusions, make and learn from one's mistakes and without being obsessed about being right all the time. All the above studies stress the importance of a friendly, fearless, democratic and conducive classroom environment for learning to occur.

### **NEED FOR THE STUDY**

There are some schools which give enough freedom to the learners, teachers understand the learners and their family background and try to make learning joyful. But, their number is limited. Various documents and the review of studies show that the learning environment in schools is not encouraging. Children's voices and experiences do not find expression in the classroom. Often the only voice heard is that of the teacher. Children are often subjected to punishment, classroom



climate is rigid and authoritarian, participation of learners is poor in the teaching learning process, there is presence of fear and anxiety in learners and their specific abilities are not recognised. Secondary stage of education is considered to be an important stage as it is a link between elementary and senior secondary. It is also important, as many students discontinue their education after secondary due to various reasons. But, it is expected that they do acquire certain knowledge, develop skills as well as values that would help them to be responsible citizens of the country. The experiences they get in the schools go a long way in their life.

Concerned with the above aspects of school environment, the authors were prompted to investigate the real situation of some of the schools as the learning environment influences the learner performance as well as behavior.

Fortunately, authors got an opportunity to observe actual learning environment of the schools through working for a project under NCERT. One of the authors also got an opportunity to observe the situation through Field Work for three months in a ST/SC dominated government school.

As the review of studies indicated poor classroom atmosphere, the investigators decided to make use of the opportunity and study about the learning environment in schools with the following objectives.

### **OBJECTIVES OF THE STUDY**

- To find out to what extent our schools are learner centered.
- To explore the reasons for hesitation of students in expressing themselves.
- To know how the learners are treated by the teachers.

### **METHODS AND PROCEDURES**

**Design of the Study:** It was a survey type study. Students responded to the questionnaire and also had personal discussion with the investigators.

**Sample:** For the first objective, in relation to observation of classroom processes and learner centeredness, 32 classes of class IX and X in different subject areas were observed by the investigators in Government schools of Churu and Jalore districts of Rajasthan.

For the second and third objective, the sample was 54 students (only boys were in the class) of class X of a randomly chosen Government school of Rajasthan in Jaipur district. The school was located in ST/SC dominated area. The students were considered to be not teachable by the teachers.

**Tool:** In relation to observation of classroom processes and learner centeredness, investigators observed the classes as well as held Focus Group Discussions with the students.

In relation to reasons for hesitation of students in expressing themselves and treatment of learners by the teachers, an open ended

Questionnaire for students was used. It contained questions like,

- Why are you afraid of teachers?
- Why do you hesitate to express yourself?
- Why don't you participate in the class?
- What punishments do you get in the schools?
- Give incidences which have created an impression of fear in you towards the teachers.

The investigator also held interview with the students to know more about the responses given by them in the questionnaire.

**Procedure of Data Collection:** In relation to observation of classroom processes to collect data on learner centeredness, investigators observed 32 classes of class IX and X in Government schools of Churu and Jalore districts of Rajasthan. After the class, the investigators held Focus Group Discussions with the students who were randomly selected representing all diverse groups of the class. The discussion mainly focused on learner centeredness of the classes.

In relation to collection of data regarding hesitation of the students in expressing themselves and the treatment of the learners by the teachers, the investigator developed rapport with the students and teachers of class X, observed the teaching learning processes and held regular classes for teaching science using activity based learning method. In the beginning the investigator observed

that students were gloomy, quiet, non active and mum in the class. He discussed with the students for their dullness and silence in the class. Later he told them that he would like to know more about the state of affair in the class. They were told about the purpose of the study and asked them to give their response without fear as it is going to be confidential. A Questionnaire which contained five open ended questions was given to 54 students. They took 30 - 40 minutes to respond, though there was no time limit. After analysing the responses of the questionnaires, each of the students was interviewed separately by the investigator to know more about their experiences related to learning environment in schools.

### **ANALYSIS AND DISCUSSION**

The observations made by the investigators and the responses given by the students were analysed qualitatively and by using percentage wherever needed. The details are given in the following paragraphs.

**Learner Centeredness:** Classroom observations by the investigators revealed that all the classes were mainly text book oriented, teacher was in the center stage, learners were passive listeners and no activities were held for the learners. Neither teacher asked the questions regularly nor did the students ask the questions in the classes. Though there are illustrations in the textbooks, they were not even referred to by the teachers. None of the classes had discussions, dialogue,

role play, discovery and participation of the students. Though many studies (Tony Evangelisto.2002; Ausubel, 1978; Fosnot, 1996) have proved that activity based learning is very effective in improving the performance of the learners irrespective of the subject, it was not used in any of the classes. In Social Science, though maps are given in the textbook, while reading the text in the class it is very sad that the teacher never referred to them. Completing the textbook was the main purpose as the students had to face Board Examination. This is just different to what Vijaya (2009) expressed. According to her, when there is a nurturing atmosphere in the classroom, where children can express their joy and excitement, anxiety and fear, where the teacher and the children experience the wonder of discovery, where the teacher is more of a facilitator, there will be more meaningful and long lasting learning.

**Hesitation in Expressing Themselves:**

When the students were asked, why they hesitate to participate in the class, 50% of the students said that they are afraid of giving wrong answers. Suppose, their answer is wrong, they would be punished by the teacher.

As per the response of 22% of the students, when they are punished, their friends tease them. About 10% of the students said that they feel insulted at the reaction of the teacher for their wrong answers. One boy said that one of his friends

could not answer a question and the teacher insulted him at which all the boys in the class laughed. The boy considered it as a bad experience. He never participated in answering any question from that day. As Yashpal (1993) has said, learning at school is viewed as unpleasant and bitter experience by the children. This is true with regard to the above child who stated as bad experience. A few students wrote that they are afraid of parents being called to school. In such cases they get scolding not only by the teachers in front of the parents and classmates but also by the parents at home and many a times beating. Sometimes even parents were scolded in front of their children and others. This is highly humiliating both to the parents and the students. So, non participation keeps them safe. The fear of failure reduces the capacity to try out new things. Though the NCF (2005) and Vijaya (2009) say that students should be allowed to make errors and mistakes, not many schools take them positively.

**Learner Treatment by the Teachers:**

Teachers have a very important role to play in schools. It is the teacher whose attitude towards the learner influences the likeness or the dislike of the subject by the learners. If they like the teacher, they would surely like the subject taught by the teacher. But, if the teachers treat the students badly without respecting dignity of the individual, there is neither learning nor value development. The school would be indirectly nurturing the

students to be aggressive, violent and anti social elements of the society. In the present study some students have expressed that teachers sometimes ask questions but do not listen to the answers given by them. A few students have said that this behaviour of the teachers de motivates them and even discourages. A few more have said that when they require some time to think, they are not given sufficient time but the teacher demand answer immediately. Many times they do not allow us to complete our answers.

Students have also expressed that they are being punished by the teachers mainly by beating and other physical punishments. The incidences given by them are - once a student was beaten with a rod which pierced into his head. He was badly hurt and profusely bleeding. Another student was badly hit by a wooden stick on his legs and even now sometimes it pains. In another incident, one student was regularly abusing another student. So, he warned him not to repeat. In spite of that, he continued to abuse and even complained about him to the teacher. Teacher instead of telling anything to the student who abused, he caught the boy who warned, pulled his hair and beat him badly.

No children are bad by birth. The students of class X are not so bad as to be physically punished or mentally harassed. Even if they are, there are right and accepted ways of setting them right. They lack affection and appreciation. In fact,

they have dreams to be good citizens and want to enjoy a respectable life. They want to learn and are ready to work hard. They expect their teachers to be friendly with them as they experienced friendly relationship between the teacher and the students in constructivist classes taken by the investigator. Students enjoyed a lot during teaching learning process and produced wonderful results, though these students were reported by their teachers that they are good for nothing and they cannot do anything. Therefore, it is necessary to see that our classes are full of warmth that gives a feeling to every learner that he/she is wanted.

#### **FINDINGS OF THE STUDY**

- The classrooms are mainly teacher centered.
- No activities are conducted for the learners or with the learners in the class.
- Teaching is highly text book oriented and classroom transaction is done with the textbooks in hand.
- Learners hesitate to participate in the teaching learning process because of abuse and punishment by the teachers for their wrong response.
- Sometimes punishments are severe and highly de motivating.
- Teachers hardly respect the learners as individuals.
- Learners find it safe to non participate in the class.
- Learners do not get sufficient time to think about the answer

and their answers are not heard completely by the teachers.

- Learners welcome a friendly atmosphere in the school.

### **EDUCATIONAL IMPLICATIONS**

The findings of the study cannot be generalised as the sample is small. However, they throw light on the situations prevailing in the schools. It is necessary to create a friendly and loving atmosphere in schools that makes the learners comfortable. There is a need to orient the teachers and bring about some changes in the pre service teacher education to make the teachers more children friendly. Learner participation is a matter of concern. Preparing professional and humane teachers (NCFTE, 2009)

must be of priority. The experience presented in the paper is an eye opener to all the teachers to know what is expected by the students. Unless students feel comfortable in the class, it is not possible to make them participate in the classroom processes. Let there be every effort from the community of teachers to make learning joyful, participatory and effective, giving primacy to the learners.

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# Low Learning Achievements of Children in Elementary Schools of Tribal and Rural Pockets of Odisha

## What Do the Teachers Say?

MANORANJAN PRADHAN\*

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### **Abstract**

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*According to several surveys and reports (mainly Annual Status of Education Report), the learning achievements of the students at elementary stage in government schools of rural and tribal Odisha is not satisfactory in comparison to their counterpart private schools. Instead of all efforts made by administration in terms of incentives and interventions, the learning achievement is not up to satisfaction. The study is based on the status of the performance of learners in different subjects according to the ASER 2014. An attempt made to know the factors accountable for the gloomy picture of elementary school students in tribal dominated and rural pockets of Odisha. The opinions of 151 experienced teachers working in these areas from 39 Blocks (4 major tribal districts) were taken into consideration. For data collection, 34 questions were asked to teachers related to the issues on infrastructure, teachers, students, pedagogy, community involvement and administrative matters. The suggestive measures to improve the performance of the learners were also reflected in the present study.*

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### **BACKDROP AND RATIONAL OF THE STUDY**

The 10th Annual Status of Education Report (ASER) 2014 released by the Pratham Education Foundation in the month of January, 2015, is a pointer to the kind of education the RTE Act has been able to provide. While the act is important to get children enrolled in elementary schools, it is equally important to keep a tab on what they learn and how they use the learning.

Based on a survey in 577 districts and 16,497 villages covering about 3.5 lakh households and 5.70 lakh children, the report is depressing as the previous ones were. While the enrolment rate has remained over 96 per cent, the schools complying with the RTE pupil Teacher Ratio increased from 38.9 in 2010 to 49.3 per cent in 2014. The percentage of schools having useable toilets has increased from 47.2 to 65.2 percent. But there has not been substantial improvement in the students learning skills. The report reveals that 25 percent student enrolled in Class VIII were found incapable of reading text books prescribed for Class II. The number of children, who could not read Class II text books, increased when the lower classes were surveyed. Forget English, the students were not able to read their mother tongue.

A comparison of the current report with earlier ones shows that there is no significant improvement in the reading skills of children during

the last five years in all states except Tamilnadu. As regards arithmetic skills, the picture is equally disappointing. In fact, the ability to solve basic division problems has declined during the last eight years almost in all states except Tamilnadu. There has also been an increase in the number of children studying in class II who cannot recognise number from 0 to 9. It is amply clear students are being promoted to higher classes without their acquiring any value addition in their learning skills. A brief discussion on the learning achievements of students in elementary schools of Odisha is a need of the present study.

### **LEARNING ACHIEVEMENT IN RURAL ODISHA**

The target of *Sarva Shiksha Abhiyan* (SSA), a mega educational project or movement, is not only to expand the scope of elementary education by providing facilities of universal access, enrolment, retention and participation but also to make qualitative improvement in achievement. But it is seen, the learning competencies of pupils in government schools are not satisfactory instead of all efforts. The ASER 2014, which maps the academic efficiency of the students, shows that the reading levels and arithmetic ability of students in government schools are too fall short of their private counterparts. It is also observed that when the government school students go to higher classes, the ability surprisingly drops sharply

and the gap between them and their private counter parts rises by almost 100 percent.

### READING LEVELS OF CHILDREN

According to ASER 2014, the learning achievements of students in elementary schools of rural Odisha in their mother tongue (Odia) are not satisfactory. The report reveals in class III, 8.8% children could not read even letters, 21.9% could read letters but not more, 22.5% could read words but not Class I level text or higher, 13.4% could read Class I level text but not class II level text and 33.4% could read class II level text. The table 1 gives a clear picture regarding the learning competencies of children in their mother tongue.

Similarly, the learning gap between private and govt. school children is

very acute. As per the report, 82.4% children in Class II in government schools could read at least letters while the percentage in the private schools was 96.2%. Similarly, the percentage of children in Class III who could read at least words both in govt. and private schools were 66.8% and 92.4% respectively. It is a matter of concern that the reading levels of the students in government schools has been decreasing. For example in govt. schools the percentage of children in Class II level who could read at least letter in 2010 was 86.2%. But it was scaled down to 82.4% in 2014. Similarly, in 2010 75.8% children of govt. schools in Class III could read at least words. But in 2014 the percentage was dropped to 66.8%. On the other hand, the performance of students in private schools is

**Table 1**  
**Reading Mother Tongue- Odia**

Children by Class and Reading level all schools in 2014						
Class	Not even letter	Letter	Word	Level I (Std I text)	Level 2 (Class II Text)	Total
I	31.2	37.5	14.6	7.2	9.5	100
II	15.9	30.0	20.2	11.9	21.9	100
III	8.8	21.9	22.5	13.4	33.4	100
IV	6.6	15.0	17.1	16.6	44.7	100
V	4.2	11.6	14.4	17.9	51.9	100
VI	2.4	8.1	9.9	15.8	64.0	100
VII	1.6	4.7	8.6	13.6	71.5	100
VIII	1.5	4.5	7.1	11.7	75.2	100
Total	9.1	16.8	14.4	13.6	46.1	100

Source: ASER-2014

gradually increasing. The following tables will be able to give clear idea regarding the learning achievements of pupils in elementary schools or rural Odisha.

Let's discuss the performance of student's in all schools (Govt. & Private) in reading and comprehension in English. The survey reveals in

Class V, 11.7% children could not even read capital letters, 11.7% could read capital letters, but not more, 24% children could read small letters but not words or higher, 29.7% children could read words, but not sentences, and 22.9% children could read easy sentences and 22.9% children could read easy sentences.

**Table 2**

<b>Percentage of Children in Class II and III at Different Reading Levels by School Type 2010-2014</b>						
<b>Year</b>	<b>% Children in Class II who can read at least letters</b>			<b>% Children in Class III who can read at least words</b>		
	<b>Govt.</b>	<b>Pvt.</b>	<b>Govt &amp; Pvt.</b>	<b>Govt.</b>	<b>Pvt.</b>	<b>Govt. &amp; Pvt.</b>
2010	86.2	94.9	86.8	75.8	90.9	76.5
2011	82.8	88.5	83.1	68.4	88.8	69.5
2012	75.1	96.1	76.7	60.7	95.3	62.9
2013	73.3	92.7	75.7	58.0	90.2	60.7
2014	82.4	96.2	84.1	66.8	92.4	69.3

Source: ASER-2014

**Table 3**

<b>Percentage of Children in Class IV and V at Different Reading Levels by School Type 2010-2014</b>						
<b>Year</b>	<b>% Children in Class IV who can read at least Class I level text</b>			<b>% Children in Class V who can read at least Class II level text</b>		
	<b>Govt.</b>	<b>Pvt.</b>	<b>Govt &amp; Pvt.*</b>	<b>Govt.</b>	<b>Pvt.</b>	<b>Govt. &amp; Pvt. *</b>
2010	60.5	81.6	62.6	45.5	60.7	46.0
2011	57.2	78.0	58.0	38.4	61.3	39.1
2012	58.6	91.8	60.3	46.1	75.7	47.1
2013	56.8	88.6	58.9	53.6	76.3	44.9
2014	59.3	87.6	61.3	50.1	76.7	51.9

Source: ASER-2014

**Table 4**

<b>Children by class and reading level in English all schools 2014</b>						
<b>Std</b>	<b>Not even Capital letters</b>	<b>Capital Letters</b>	<b>Small letters</b>	<b>Simple words</b>	<b>Easy sentences</b>	<b>Total</b>
I	54.0	19.9	13.7	9.9	2.5	100
II	38.6	18.1	22.8	15.1	5.3	100
III	23.7	19.9	26.3	22.1	8.0	100
IV	16.4	15.9	26.7	26.0	15.0	100
V	11.7	11.7	24.0	29.7	22.9	100
VI	7.0	10.6	21.0	28.6	32.9	100
VII	5.0	6.4	19.2	29.8	39.7	100
VIII	4.8	5.6	17.2	26.6	45.7	100
Total	20.3	13.6	21.5	23.5	21.1	100

Source: ASER-2014

**Table 5**

<b>% Children by class who can comprehend English all schools 2014</b>		
<b>Std</b>	<b>Of those who can read words, % children who can tell meanings of the words</b>	<b>Of those who can read sentences, % children who can tell meanings of the sentences</b>
I	68.0	-
II	62.1	-
III	67.9	54.0
IV	58.9	52.4
V	55.8	55.3
VI	63.8	56.0
VII	68.2	61.7
VIII	64.2	62.6
Total	62.9	58.1

Source: ASER-2014

### **ARITHMETIC LEVELS**

The ASER 2014 also maps the performance of students of Odisha in Arithmetic Skills. In Class III, 8.6% children could not even recognise numbers 1-9, 28.1% could recognise

numbers up to 9 but not more, 35.2% could recognise numbers up to 99, but could not do subtraction, 21.3% could do subtraction, but could not do division and 6.9% could do division. Similarly, in Class VIII, 9.2%

children could not even recognise numbers 1-9, 21.2% could recognise numbers up to 9 but not more, 29.6% could recognise numbers up to 99 but could not do subtraction, 21.3% could do subtraction but could not do division and 18.8% could do division.

On the other hand, the competency levels of children in Govt. and private schools are remarkably different. For example in 2010, 84.2% children in Class II of Govt. Schools who could recognise numbers 1-9 and more while 94.6% children of private schools could do so. But in 2014, the rate was decreased to 83.6% in Govt. Schools, but the status of counterpart private schools was 95.7%. Similarly, in 2010, 50.8% and 31.3% Class IV and V children in Govt. schools could do at least subtraction and division respectively. Where as that of private schools was 76% and 57.2% respectively. Similarly in 2014, percentage of children in Class IV who could do at least subtractions in both Govt. and private schools were 35.7% and 70.5% respectively. Similarly the percentage children in Class V who could do division in Govt. and Private schools in 2014 were 20.5 and 45.4 percent respectively. Keeping in view this backdrop, the teachers who are working in rural and tribal pockets of Odisha were asked the factors responsible for the low learning achievements of learners in elementary schools. The present paper is the outcome of their responses.

### **OBJECTIVES OF THE STUDY**

1. To study the learning achievements of the learners in elementary schools of Odisha.
2. To study the views of teachers with regard to the factors accountable of low learning achievements of the learners at elementary stage.
3. To find out the suggestive remedies from the teachers to improve the learning achievements of the learners of elementary schools.

### **LIMITATIONS OF THE STUDY**

1. The study was conducted on 151 experienced in-service teachers of mainly four tribal dominated districts of Odisha.
2. The teachers included in the sample were Graduates, Post Graduates and some were having MPhil and PhD degree.
3. All teachers (sample) were IGNOU BEd in-service teachers of both 1st and 2nd years.

### **DESIGN OF THE STUDY**

#### **Sample**

For the present study, a sample of 151 in-service teachers from four major districts of Odisha and 7 teachers from neighbour state Chhattisgarh were selected. All the teachers were IGNOU, B.Ed students drawn from government and public schools of the states. Out of total sample, 68 % teachers were male and rest 32% were lady teachers. 72 % teachers were graduate, 23%

were Post Graduate (MA/MSc) and rest 5 % teachers having MPhil / PhD degree. But all teachers were working in elementary schools. The teaching experience of the teachers ranged from 5 to 22 years. The detailed distribution of sample is presented in the table 6.

### DATA COLLECTION

The required data for the 1st objective were collected through document analysis and record verification. The views and opinions of the teachers regarding the low learning achievements of students of elementary schools were gathered through self-prepared opinion poll (questionnaire form) consisted of 34 statements covering the issues related to infrastructure, teachers,

students, parents and community members, pedagogical aspects and administrative concerns. The teachers had been given 5 options against each statement i.e. Strongly Agree (SA), Agree (A), Undecided (UD), Strongly Disagree (SD) and Disagree (DA). Besides, the blank space was also given in the tool to give own views beyond the statements, if any. The teachers were instructed to give their valuable suggestions for the improvement of the achievement levels of the learners. Besides, discussion with teacher educators, educationists of the locality, persons associated with SSA were consulted for their suggestions and remedies addressing the issue of low achievement of the learners of different elementary schools of the districts.

**Table 6**  
**Distribution of Sample**

Districts	No of Blocks	No. of Trs	Gender		Educational Qualification			Teaching Experience (in Year)		
			M	F	Degree (+3)	PG	MPhil/ PhD	Up to 5	6-10	11-22
Koraput	12	53	34	19	36	13	04	19	16	18
Rayagada	10	41	27	14	29	10	02	15	16	10
Nawarangpur	10	32	25	07	27	04	01	08	18	06
Malkangiri	4	18	12	06	14	04	00	04	10	04
Others*	3	07	04	03	03	04	00	01	05	01
Total	39	151	102	49	109	35	07	47	65	39
Grand Total	39	151	151		151			151		

\*Others refer to 7 teachers belonged to Chhattisgarh state (from the blocks of Dantewada District)

## DISCUSSION AND FINDINGS

### Infrastructural Facilities

Better infrastructural facilities are the assets of any educational institutions. It helps teachers and other members of the school to plan for organising activities for holistic development of the students. Here, infrastructural facilities in schools refer to the minimum resources for smooth functioning of the schools in order to attain the goals of education. In the study, the focus was on adequate number of class rooms, well furnished office, well equipped library, adequate Teaching Learning Materials (TLMs) and necessary science equipments, required number of trained teachers, safe and secure boundary, play ground, drinking water facilities and joyful learning environment. In this

regard, four questions were asked to the teachers. Out of 151 teachers, 115 (76.15 %) teachers strongly agreed that infrastructural facilities were not good in schools. Similarly, 134 (88.74%) teachers said low learning achievements of the children in tribal pockets of Odisha is due to inadequate numbers of the teachers available in the schools. Besides, 75% teachers replied insufficient TLMs and 87% teachers said lack of well equipped library and laboratory facilities are accountable for low performance of children in elementary schools of tribal and rural districts of Odisha. Above all, most of teachers (83%) felt lack of better infrastructural facilities in schools (Govt. Schools) is one of the prime factors responsible for low learning achievement of learners in tribal areas of Odisha.

Sl. No.	Statements	Response of Sample Teachers				
		S A	A	UD	DA	S D
1.	Infrastructural facilities are not good in schools	26	89	03	03	30
2.	Adequate number of teachers are not available	79	55	04	00	13
3.	Sufficient TLMs are not available in schools	36	77	2	9	27
4.	Lack of library and laboratory (if yes, not usable)	47	84	1	5	14

\*SA>Strongly Agree, A>Agree, UD> Undecided, DA>Disagree, SD>Strongly Disagree



### ISSUES RELATED TO TEACHERS

Teaching is a noble but an exacting profession. It demands much from the self, from the resilience and integrity of the person within. It always needs the positive attitudes and passions of teachers towards their profession and commitment towards teaching as a function. Their competency, commitment, creative and constructive efforts and elegant intensities glorify the school, society and state as a whole. Without the outstanding contribution of teachers, all assets (building, classroom,

library, laboratory, play ground, garden, teachers, students, SMC members etc) will be meaningless and worthless. Keeping in view the role and importance of teachers for better learning achievements of the learners 13 questions were asked concerning the competencies and motivational techniques of teachers, methods and tools used during classroom transaction, their dedication, workload, etc. The teachers who were working in the tribal and rural pockets of Odisha stated their views in the following ways.

Sl. No	Statements	Response of Sample Teachers				
		SA	A	UD	DA	SD
1.	Teachers are not competent enough	02	53	06	11	79
2.	Teachers are competent but not dedicated	23	77	12	5	34
3.	Irregularity of teachers attending schools	07	49	07	25	63
4.	Teachers are not serious about students' learning	14	57	14	06	60
5.	Teachers are very much interested to engage in other assignment like tuition	14	35	14	18	75
6.	Teachers are heavily work loaded. (other than Teaching -Learning i.e., official and government Works).	66	65	03	02	15
7.	Teachers are not competent enough in Mathematics	05	57	10	18	61
8.	Poor vocabulary stock of teachers in English	18	82	06	10	35

9.	Wrong pronunciation of teachers while teaching English	12	69	10	12	48
10.	Irregular correction of note-books	16	75	7	5	48
11.	Teachers do not use required TLMs in class	10	63	4	8	66
12.	Motivational techniques of teachers are not Satisfactory.	09	79	13	07	43
13.	Teachers are serious to complete course ignoring students interest and standard	23	88	3	9	28

The above data reveals the issue related to teachers' role for the low learning achievements of the learners in different subject areas mainly in language and mathematics. According to the above information, the competency and commitment of teachers in rural and tribal pockets towards their profession is think worthy. Whatever may be the reason, irregularity of teachers in the schools of rural and tribal areas is a major problem. About 50% of the teachers agreed that the teachers are not serious about students learning while 73.5% participants said teachers are serious to complete their course ignoring the interest, mental ability and standard of their learners. This show completing a syllabus is the prime target of teachers. Similarly, 60% teachers replied the note books of the students are not evaluated regularly. But 62% teachers rejected the general allegation against them that teachers are very much interested to do private tuition. It is noteworthy

that 87.5 teachers said they are work loaded due to other assignments excluding teaching. Like that 58% teachers said the teachers are failed to motivate the learners towards schools because their motivational techniques are nor appealing and satisfactory.

### **FACTORS ASSOCIATING STUDENTS' CONCERN**

Learners and teachers are the two poles of the learning process. The active participation of both makes learning successful, lively and joyful. It is said, the teachers chalk out strategies of learning according to their students' standard, need, interest and attitude. Thus in the process of learning, the role of learners is very vital particularly in child centric and learning centric approach. But it is revealed in the study that the students of tribal and rural pockets of Odisha are not regular in schools. Around 74% teachers said poor attendance of

students in schools is a vital factor accountable for their poor learning achievements in different content areas. Similarly, 63% teachers said that students in elementary schools of rural and tribal areas are first generation learners. Besides, 58 % teachers said that students in their areas come to schools to avail facilities (free dress, mid day meal, stipend, etc) not for learning. But responding the statement that the children are not interested towards learning, 50 % teachers did not agreed with the statements. During discussion, they said students are interested for learning but the factors like non-cooperation and illiteracy of parents, irregularity and incompetency of teachers, massive absent in schools for supporting parental profession or caring younger members of the families are discouraging them. The responses of teachers on issues associating with children are given.

### **PEDAGOGICAL ASPECTS**

The teachers were asked eight questions concerning pedagogical aspects which are responsible for low learning achievements of the students in rural and tribal districts of Odisha. 62% teachers said that they are not provided regular orientation while about 61% teachers stated that they are not provided the need based training. Similarly, 68% teachers admitted that the traditional chalk and talk i.e, teacher dominated methods are still practiced in schools instead of activity based and student friendly methods of teaching. 62% teachers admitted that activity based methods of teaching are symbolic in schools. Like that, most of teachers agreed that teachers in these areas emphasised on students' attendance not on better learning. They are very serious to complete prescribed courses ignoring students need, interest and standards. Neither

Sl.No	Statements	Response of Sample Teachers				
		S A	A	UD	DA	S D
1.	Poor attendance of students in schools	30	81	02	05	33
2.	Most of the students are first generation learners	34	61	12	06	38
3.	Children are not interested in learning	11	53	10	16	61
4.	Students come schools to avail facilities not for learning	20	68	08	16	39

S. No.	Statements	Response of Sample Teachers				
		S A	A	UD	DA	S D
1.	No regular orientation to teachers	24	70	05	07	45
2.	Need based training is not provided to teachers	27	65	06	05	48
3.	Traditional methods of teaching are still practiced	27	75	06	07	36
4.	Activity based method is symbolic in schools(rarely used)	22	81	14	03	31
5.	Focus on students attendance not on better learning	21	73	12	06	39
6.	Serious to completing course ignoring students Interest and standard	23	88	03	09	28
7.	Teachers do not give individual attention to students	17	64	05	07	58
8.	Remedial classes are not organised for weak students	28	68	05	05	45

remedial classes nor individual attention to students are given. The opinions of the teachers relating to pedagogical issues are stated in the table below.

### **COMMUNITY PARTICIPATION AND PARENTAL INVOLVEMENTS**

Active community participation and involvement of parents in both scholastic and co-scholastic activities help the school authority for smooth conduct of any programme. Their participation encourages the teachers and other staff member to do something innovative as the society (parents, villagers, etc.) with

them. Any sort of misunderstanding, misconception, conflict, complexity and disturbances relating to school administration, pedagogical intervention and financial matters can easily be solved if there is good rapport between school and community, teachers and parents. The challenge of hundred percent attendance and participation is easily possible if the parents and community members support the teachers. The spectacular achievements of schools in any aspect cannot be practicable only due to hard labour, efforts and commitment of teachers. It calls for the support of parents,

S. No.	Statements	Response of Sample Teachers				
		S A	A			
1.	Parents are not cooperative	29	88			
2.	SMC members are not supporting teachers	16	74			
3.	No relationship between parents, teachers and community	16	66			
4.	Parents and children are indifferent about learning	09	79	13	07	43

SMC and community members. It is seen the grand success of private managed schools in academic and non academic spheres is due to the collective efforts of teachers, students along with the supports of sensitive and serious parents (towards the education of their wards) and committee members. Relating to the role of parents and SMC for holistic growth of schools, four questions were asked. Responding the first question, 75% teachers said the parents are not cooperative.

#### ADMINISTRATIVE FACTORS

Good administration is also one of the pre-requisites of quality education. Regular monitoring, supervision and inspection to schools by competent authority not only strengthen the education system but also bridge the gap between education authorities and teachers. Any sort of difficulties, problems and loopholes can be checked or overcome through regular and judicious administrative intervention. The teachers were asked two questions associating the administrative factors.

S. No.	Statements	Response of Sample Teachers				
		S A	A	UD	DA	S D
1.	The performance of teachers are not assessed and monitored properly and regularly	30	84	09	05	23
2.	Low salary and no promotional facilities discourage Teachers for quality teaching	21	73	12	06	39

Responding the first question, 75% teachers said the performances of teachers are not assessed and monitored regularly and properly which impact quality education. As a result learning achievements of students hamper severely. Similarly, 62% teachers replied that low salary structure and no effective promotional facilities discourage teachers for quality education in schools which severely impact on performances of the learners.

### **SUGGESTIONS AND IMPLICATIONS**

Based on the findings and recommendations of teachers, the following suggestions and implications have been made

1. The infrastructural facilities of schools should be developed as per Right to Education Act.
2. The multi grade teaching strategy should be discouraged or abolished as it is not suitable for children of rural areas. It has to be used their teachers need to be prepared accordingly.
3. Regular Head Masters should be appointed in each school for better and smooth working of the schools.
4. Adequate number of teachers should be appointed in single teacher schools and other schools where the vacancy position is very acute.
5. Teachers should be made free from official burden, mid day meal, different surveys and others. So that they can devote more time for academic improvement of the learners.
6. To increase the attendance in schools, the regular visit of teachers to discuss/convince the parents will be more fruitful in rural and tribal areas. So the teachers should visit the homes of the parents to strengthen the relationship between school and community.
7. The teachers should stay nearby the locality of the schools (villages where the schools are located) for easy going to schools. But due to several reasons, the teachers do not like to stay in nearby villages. So residential facilities for the teachers should be made available with all necessary facilities.
8. Regular and continuous monitoring and supervision by competent authority should be done.
9. Provision of need based orientation and training should be organised to update and refresh the teachers. This will help the teachers to come across innovative teaching practices and address the issues related to children, school, teaching learning and evaluation strategy.
10. Reward and appreciation certificates should be given to dedicated, competent and disciplined teachers through

- appropriate evaluation and judgement.
11. Textbooks and other study materials should be supplied to schools on or before new session.
  12. Strict and constant transfer policy should be executed and all teachers should be made compulsory to work at least 5 years in the remotest villages. Those who have not worked in remote areas should not be given promotion or bonus point with financial benefits/ incentives should be given to the teachers who worked in remotest and inaccessible areas particularly in tribal pockets.

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# Exploring Potentialities in a Child

ADITI BANERJEE\*

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## Abstract

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*The goal of this paper is locating schools and prevalent pedagogic practices in the context of the debate on Democracy and Citizenship. The paper tries to explore the current scenario of the schools which lacks dialogue in classrooms which in turn makes the students uniform followers of an institution which provides no space for imagination and creativity. It explores the classroom setting taking into consideration variables like the teacher, learning environment, textbooks and the student himself. This article talks about the evaluation system and examination as a tool to create hierarchy and to perpetuate fear in the students making learning a burden. Finally it talks about education as a journey of endless possibilities.*

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*Education is the progressive discovery of our ignorance*

*– Anonymous*

Educationists and Philosophers have been perpetually reflecting on the purpose of education. It is generally agreed that the purpose of education is not just to acquire skill, possess a baggage of information and knowledge and earned one's livelihood. Rather it is argued that the purpose is to cultivate the fundamental faculties of learning-

how to observe, how to explore and experience the connectedness among different phenomenon around us.

Schools and pedagogic discourses have been subjected to varying analysis of different perspectives. Some have analysed schools as an agent of social change leading to modernity and making social mobility possible (Pathak 2002:22).

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Others like Green has argued that "schools exist not to create a democratic society or a civil ideal, but for 'certifying, sorting and selecting personnel'" (Green 1971:133). For classical sociologists like Durkheim education serves two functions, firstly it prepares a child for a specific type of occupation and secondly it enables the child to internalise the core values of the society.

However, if schools are placed within the debate of democracy and citizenship locating schools and the pedagogic discourse would be highly contested and paradoxical because the process of the present pedagogy and the system of schooling is leading towards a situation that negates the participatory spirit of democracy. Prevailing pedagogic discourse can be situated within the 'representative' nature of democracy, which is not undesirable but limited in scope. It fails to transcend the duality of the rulers' vs. the ruled; and which reduces 'governed' into passive receivers of policies/decisions formulated by the political elite and select techno-economic experts. And democracy exists as mere formal democracy: voting, same-rights etc. Pedagogy focuses on transforming little minds into uniform, non-questioning and obedient followers of a particular system which curtails creativity and imagination.

Therefore, under the larger theoretical questions/propositions discussed above we are posing two critical questions. Firstly, we are

raising a question on the culture of schooling: the way it breeds uniformity, and negates reflexivity, uniqueness and criticality. Secondly about the status of teachers: as mere "professionals" they fail to create meaningful pedagogy. And, how these processes are leading to a situation that negates the participatory spirit of democracy. These questions come to a full circle when we try and tie these questions to Bourdieu's concept of "symbolic violence" by which he means "... a gentle violence, imperceptible and invisible even to its victims, exerted for the most part through the purely symbolic channels of communication and cognition (more precise misrecognition), recognition or even feeling" (Burawoy 2008:5). However the understanding of schools in the context of Democracy would be incomplete if we do not discuss components like classroom transactions, role of the teacher and other variables in depth.

In the article I will be discussing about the child (student) who is central in relation to schooling and learning. My emphasis will be on the children up to the elementary level. While talking about schools evaluation and assessment are essential components to understand and 'quantify' the 'growth' of a child. However, in my view this idea of evaluation is highly problematic as it breeds inequality and hierarchy between children and also curtails or even suppresses the individuality and uniqueness of

each child. Their own understanding or their ability to comprehend the reality is ruthlessly crushed under the burden of examination, but does any examination have the power to determine the qualitative growth of a child which is equally important for the holistic growth of the child. This concern has been resonated in Pathak's book (2002) "*Social Implications of Schooling: Knowledge, Pedagogy and Consciousness*" where he states,

*To begin with, examinations make objectification (of students) possible, because the 'neutrality' of examinations – their 'coldness' their 'impartiality' does not see a student as an autonomous person with his/her specific needs, tastes and demands. In the ultimate analysis, grades, percentage of marks define them. Their qualitative experiences, biographies, and their unique ways of knowing/comprehending, are all forgotten. What is recognised is their position in the hierarchy. This objectification is also an effective way of controlling them; of telling them that they are destined to be hierarchised, graded quantified.*

Even in the *National Curriculum Framework* (2005) there were mentions about reforms in the examination system but did the reforms really helped? At this juncture the process of Continuous and Comprehensive Evaluation gains limelight because it claims to evaluate every aspect of the child. This new evaluation came to the forefront

with the belief that this process of assessment would help reduce the stress making learning joyous and fun-filled. I agree, that this mode of evaluation as a systematic reform did make a difference but the difference is not too widespread and happening only in small pockets.

It is now essential that we talk about the teacher. I read somewhere that 'the biggest illusion that a teacher have is he/she can teach, for a teacher can never teach but facilitate'. This phrase makes complete sense to me as a spectator of the contemporary scenario where which is fiercely driven by market oriented forces and schools are no exceptions. Every school are running a cut throat competition to met the target of result which takes a toll on the very imagination and creativity of children to do something innovative or something that interests them. This very meeting the target of exemplary result is just breeding fear-fear of losing, failing and fear of not being able to fit oneself in the herd of "Bright students". We forget or does not even consider the fact that classroom transaction are not about teacher questioning and pupil answering, the other way round could also be a viable tool to make the teaching-learning experience innovative and meaningful. As far as learning is considered it is a multi-dimensional process and cannot be limited in classroom setups and constrained within the prescribed textbooks, rather the task of the

teacher should be to inculcate the habit of critical thinking in students enabling them to look beyond the mundane nature of classroom and textbooks because they are not the only source to "educate" them for their holistic development.

Having said that we will also have to understand the power nexus that is prevalent (at times implicit and at times explicit) in a classroom situation. Teacher is having the power over the students by the virtue of being the teacher. However in order to create a more democratic and conducive learning environment this power discourse has to end because in the process of teaching the teacher too learns from the students through their questions and queries. Therefore, the teacher at the first place has to shed off the illusion that he/she has complete mastery of Knowledge, in doing so he/she will automatically create a conducive learning space for newer perspectives and possibilities eventually making way for a new knowledge base upholding and glorifying the participatory spirit of democracy where everyone has the right to voice their opinions and thoughts without any fear of judgement and restrictions.

But how can this realisation come about in teachers? This realisation is only possible through reflection (in action and on action). The teacher has to make himself/herself understand that it is alright to not know everything also he/she must feel empowered and comfortable

enough to say "*I don't know*" in a class for that will help the students eventually to realise that failing is not a taboo and it is completely fine to fail. In the larger context this sort of an attitude will prove effective in making the children learn to satisfy his/her curiosity rather than rote learning meant to pass examinations. It will make the students shift from being passive consumers of information to active participants in classrooms.

Freire claims that every individual no matter how deeply conditioned and accustomed in the 'culture of silence' is capable of exploring and realising his own world in a dialogic encounter with others. He also argues that when such an 'oppressed' individual is equipped with the adequate tools for such an encounter he can gradually perceive his personal and social reality as well as contradictions in it and become conscious of his own perceptions of that reality and deal critically with it it is at this juncture the role of a teacher as a potent facilitator gains momentum for only a teacher has the capability and power to make the student equipped enough to look beyond the obvious to challenge and to question. In his work, *Pedagogy of the Oppressed* he gave paradigm importance to dialogue, and saw it as most important way of communication-a medium through which the hierarchical gap between the teacher and the student could be broken and a more reciprocal bond could be formed. And if this sort of an ideal situation arises social mobility

would indeed be possible in the realm of reality because the student themselves will question and even challenge the existing social order, which breeds hierarchy and inequality heralding a new dawn at the face of the current society where democracy has been reduced to a lofty ideal as enshrined in the constitution.

### **CONCLUSION**

Therefore, keeping in mind all the above discussed arguments and propositions it would be safe enough to say that education is a life-long process and cannot be contained or constrained within a particular

classroom or a particular textbook. And if the student learns how to look beyond textbooks learning would be enriching and more meaningful. If the teacher becomes sensitive enough they can become potent tools of change in the society and also if the students are given the space and motivation to pursue their interests they can do wonders which would give rise to boundless possibilities, but the current examination system hold them back in doing so because the system perpetuate fear in the tender hearts of the student who are part of the mad rat race. After all Education is an endless journey of possibilities.

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# Pedagogical Innovation can make Primary Mathematics Adaptable

POONAM PANT\*  
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## Abstract

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*Mathematics is considered to be the most difficult subject to study. General perception is that mathematics is not made for all, whereas, the reality is that basic mathematics is not difficult for anyone. In fact, mathematics is required in every aspect of our life and learning basic mathematics is one of the emergent requirements of the modern era. Fear from mathematics or say 'math anxiety' is a bigger problem for a teacher rather to tackle a student who is bad in mathematics. We have tried to examine the situation and provided certain steps which a teacher may adopt so as to overcome the problem. In our view, with some changes in the teaching techniques, with use of certain devices and systemic improvement the scenario can be changed. We highlight the problems being faced in teaching of mathematics, especially in teaching of primary mathematics, and provide solutions to overcome these problems. It must be an endeavour of every teacher to present mathematics in the plate of every child with proper garnishing of supporting devices so as to make it adaptable for all.*

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## INTRODUCTION

Mathematics is often considered as the most difficult subject to study. It is a common belief that some special skill or aptitude is required to learn

mathematics. Such presumptions may be true to some extent, but not acceptable in toto. Due to some inherent skills or zeal someone may excel in the field of mathematics.

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This, however, does not imply that others cannot do mathematics at all. Just like the fact that a few among us are good players, few others are good dancers or writers or actors or teachers etc.; some of us may be good or excellent in mathematics. All of us may not excel in the field of mathematics. But, there are no reasons to keep ourselves at a distance from the perception that mathematics 'it is a difficult subject', which is still prevalent in the society. Basic mathematics is not difficult to learn. There may be a possibility that some persons may learn mathematics with less effort but others may require more efforts or some special efforts just like the fact that some of the children start talking their mother tongue earlier as compared to the others. The parents start making some extra or special efforts to make their child talking their mother tongue. Same happens with mathematics also. In the present scenario, the mathematics has become as important as the mother tongue and the basic knowledge of mathematics is required in almost all spheres of life. From purchasing grocery from a local store to launching a satellite, mathematics is required everywhere. Life cannot be imagined without mathematics. Therefore, it becomes necessary to make learning of mathematics children friendly and to find out the reason as to why most of the children still keep mathematics at a stone's throw and have a fear from learning mathematics.

We are living in a time of revolutionary, extraordinary and accelerating change, in which, the need to understand and use Mathematics in everyday life is continuously and rapidly increasing. Basic knowledge of Mathematics has become an essential requirement for smooth functioning in day to day life. Imparting mathematics education has become an important task because it, if performed properly, may result in popularisation of mathematics among the people and 'mathematically educated' people may make any country strong and advance. Mathematics education at primary level plays a pivotal role, because it has the privilege to lay the foundation over which the entire building of mathematical concepts and procedures is erected. Mathematical education at elementary stage is aimed at preparing the children for the challenges they face in the life. Mathematics Knowledge and Skills refers to the conceptual understanding of numbers, their relationships, combinations, and operations. Mathematics also includes shapes and their structure; reasoning; measurement; classification; and patterns. Math skills during the early years help children to connect ideas, develop logical and abstract thinking, and to question, analyse, and understand the world around them. Math knowledge, interest, and skills are basic to children's success in school and in later life. Early math skills are highly predictive of later



academic achievement – not only in the field of mathematics but in multiple subject areas.

There is broad consensus among the policy makers, curriculum planners, school administrators and the business and industry leaders that mathematics is an important element of the school curriculum. The objective of mathematics education in school is to bring clarity of thoughts among the pupils so that they can think mathematically and pursue their assumptions to logical conclusions. There are many ways of thinking and the kind of thinking one learns in mathematics is an ability to handle abstractions and an approach to problem solving.

According to the National Council of Teachers of Mathematics (NCTM), the school mathematics is based on the six principles (NCTM) – Equity, Curriculum, Teaching, Technology, Learning and Assessment. Excellence in mathematics education requires equity. All students, regardless of their personal characteristics, backgrounds or physical challenges, can learn mathematics when they have access to high-quality mathematics instruction. Equity does not mean that every student should receive identical instruction. Rather, it demands that reasonable and appropriate accommodations be made and appropriately challenging content be included to promote access and attainment for all students. A curriculum is more than a collection of activities; it must be coherent,

focused on important mathematics, and well articulated across the grades. Effective mathematics teaching requires understanding what students know and need to learn and then challenging and supporting them to learn it well. Students' understanding of mathematics, their ability to use it to solve problems, and their confidence in doing mathematics are all shaped by the teaching they encounter. Technology has become essential in teaching and learning modern days mathematics. It influences the mathematics that is taught and enhances students' learning. Students can develop deeper understanding of mathematics with the appropriate use of technology. Assessment is another important aspect of learning mathematics. Assessment should support the learning of important mathematics and furnish useful information to both teachers and students. Periodic assessments inform and guide teachers as they make instructional decisions.

### **SOME PEOPLE CANNOT DO MATHEMATICS : A MYTH OR REALITY?**

In our daily life we come across many people who say that 'I am not good at mathematics'; or 'Mathematics! it is not my cup of tea'. It is true that some people are better at mathematics than the others – just like some are better than others in singing, dancing, painting, running and playing a

particular game etc. It is also true that learning mathematics does not come as naturally as learning to speak and it requires some efforts and, of course, a considerable period of time.

However, the notion that 'some people just cannot do math' is a myth (Willingham, Daniel T. 2009-2010) Virtually, everyone is fully capable of understanding arithmetic procedures, algebra, geometry and probability deeply enough to allow application to the problems in our daily lives. Place 2-3 chocolates at one corner of a table and 5-6 chocolate at another corner. Then bring a child of less than 2 years near the table and tell him to grab one set of chocolate. You will notice that the child will go for the bigger one. Again take two pieces of sweets or chocolate such that one piece is slightly bigger than the other. Take both the pieces in your hands and offer one of them to a small child. Any child who likes sweets/chocolate will go for the bigger one. These examples show that basic concepts of mathematics are inherited among all of us. In fact, it is one's own perception that he/she can't do well in mathematics and such perceptions are often wrong. Role of a teacher is very important to cultivate the habit of doing and enjoying mathematics among the students and to realise them that of course they can do well in mathematics, in as much as they are able to do in other spheres of their lives.

Our country has great mathematicians. Bhaskar, Varahmihir,

Aryabhata, Narayan Pandit, Boddhayan, Ramanujan, Chandrashekhara and a large number of other Indian mathematicians of antiquity have done a lot which has placed India in a respectable position in the international mathematics. Our great mathematics heritage shows that genetically we are not inferior to any other community in the world. Then where is the problem that our children are having a fear from mathematics. Why we are not able to produce the quality children with a passion in mathematics as are being prepared at Finland, Japan and Hungary. As far as primary mathematics is concerned, we can show better results by using some innovative ideas in teaching so that each and every student can take part in the process of learning and start taking interest in mathematics. If at the primary stage a child starts thinking mathematically and takes interest in mathematics, he/she would be able to explore the vast kingdom of mathematics in the higher classes with great enthusiasm. A teacher plays a crucial role here in laying foundation stones of mathematics in the minds of the tiny tots.

### **EXPECTATIONS FROM A MATH TEACHER**

Question arises now as to what a teacher is required to do so as to make the mathematics interesting and understandable for the kids. What innovative ideas and techniques can be used to strengthen the concept and

knowledge of mathematics among the kids? We point out some of the pedagogical methods, which may help in making primary mathematics enjoyable and understandable among the kids.

‘Learning by doing’ is very effective methodology in teaching learning process as the experience gained through practical course remains permanently affixed in the minds of the children. Mathematics should not be taught like an abstract subject and instead each and every aspect must be explained with the help of practical exercise, pictures, stories and using audio visual tools so as to conceptualise the aspect. Once a concept is made in the mind of kids and gets picturise in their mind they would be able to recall it any time. This not only helps them in solving the related problems but also makes them able to correlate one aspect with others and he starts enjoying mathematics. Teachers are the single most important resource for developing students’ mathematical abilities. By attending to the differing needs that derive from home environments, languages, capabilities, and perspectives, teachers allow students to develop a positive attitude to mathematics. A positive attitude raises comfort levels and gives students greater confidence in their capacity to learn and to make sense of mathematics.

Young children are drawn to things that are colourful and interactive. A teacher should make full use of such

instinct to push math related games to them. Use of graphics, computer and internet may be useful in this regard. Many times we know that our child needs cereals, vegetables, fruits etc for the purpose of nutrition. However, the child does not like the taste and keeps away from the nutritious food. Then what we do, do we start him giving lessons on the importance of nutritious food or their requirement for the body? No, because the child is not mature enough to understand all these things and such lessons will not serve the ultimate purpose. We simply start preparing food according to his taste ensuring that he gets all the essential nutrients and try to develop her taste buds towards the food which is good for health. With the passage of time he starts adapting the taste of the food and the purpose is served. Same happens in case of mathematics. Mathematics is not a preferred subject for most of the children, yet it is a ‘must required’ and ‘nutritious’ from the point of view of developing logical and scientific approach. Therefore, basic mathematics is required to be made adaptable for all. Like an apt mother, who uses various recipes to provide the nutritious food for her kids, it is the duty of a teacher to devise and use the colours, information technology, manipulative, pictures, games, cartoons etc., towards which the children are normally get attracted and start taking interest, to make mathematics adaptable for them. A teacher must use various devices and

techniques to make her presentation attractive just like garnishing is done to present the food in better manner.

Nobody likes to do things that they think they are not good at. If our child has always done badly in math questions, especially problem sums, then it is natural for him to dislike math. It is the duty of a teacher to determine when and where the child started to perform badly. This is very crucial because it indicates that the child may not have conceptualised certain concepts well, which might be affecting his/her ability to understand deeper mathematical concepts. Once the teacher finds the points where the child is experiencing difficulty, the child should be allowed to attempt very easy question for the concept. Every success builds the confidence of the child and plants an important thought in her mind that I can now solve questions that I couldn't before. It is now time to give reward to the child for each success to motivate him to climb further. For e.g., If a child could not understand the concept of Place Values, he may have difficulty while solving big addition or subtraction problems.

Innovative teaching aids and projects of math's laboratory plays a vital role in the conceptualisation process as recommended by NCF 2005 also. For this purpose a classroom can be made a resource room. Multi-purpose sets of materials collected and made by the teacher can be kept in the classrooms which

can be used for various mathematical explorations and tests. Some materials which may be very useful in multiple ways include:

- Bag of counters/bottle caps/tamarind seeds and small baskets
- Abacus or UTH sets: Unit, tens and hundred cubes and about 200 additional unit cube blocks
- Mala-moti sets, mala-moti cards
- Basic geometrical shapes: triangle, square, rectangle etc.
- 1-100 number card
- Small cards/tokens with numerals from 0-200, and in multiple sets
- Flash cards or erasable cards and marker pens for writing numbers, small problems, shapes, names, for use in sorting based items
- Match-sticks in large numbers
- 3-D shapes in various sizes
- Cloth pieces and cloth bags, string, pins, chalk etc.

The NCF 2005 emphasises that children's experience of school education must be linked with the life outside the school, to make the learning experience joyful. With this perception in mind, several opportunities may be provided to students to construct their systematic knowledge by engaging them in activities, experiment, projects, field visits, discussion with peers and teachers, group work, enquiring, listening, thinking etc. The examples provided during the teaching must be related with the family and social background of the child. To illustrate our assertion, we give an example:

**Example 1**

Suppose while teaching mathematics in some village, a teacher gives a problem to the students – ‘if 8 pizzas are to be divided among Ram, Shyam, Sohan and Mohan so that each of them get equal share then how many pizza will one get?’

This may be a good example to illustrate the process of division. However, the main point here is that the children who are being taught should be familiar with pizza. Pizza has become a routine part of our eatery in the urban area but it is not so easily available to the rural children. The point we want to argue here is that if this example is given to rural children who have never seen pizza, their maximum attention will be towards the pizza and they will hardly pay any attention to the aspect of division for which the example was formulated. Such examples are, therefore, not purposive or fruitful. Instead these create more complexities and, therefore, needs to be avoided. Finally the conclusion we draw here is that the mathematics teaching must be supported by examples and examples must be essentially from the domain of daily activities of the child.

Further, suppose the parents of a child earn their livelihood by ironing cloths. As usual happen among the child, after going back from school sits with his parents at the kiosk and sometimes help them in returning the cloths to the neighbours and get money from them. Without having

much idea about the multiplication or division or subtraction such children are able to calculate the amount due or the amount to be returned etc. Suppose the child of this environment is introduced the concept of division, multiplication, addition or subtraction in the background of the professional skill inherited by him, it may be interesting and easier for him to learn.

**ASSESSMENT IS IMPORTANT**

Assessment is essentially a process of gathering information. In the assessment of learning, if marks alone are used they do not tell us much about what is being learnt or how. Even the child’s statement ‘I don’t know’ provides us valuable information, and we must not mark ‘zero’ for the question. In addition to telling us that the child does not know the answer, it does tell us that the child is confident and comfortable enough to say that he does not know.

Give a problem to the students and then watch for their response. Each child is to be observed separately as a separate entity and thereafter, required to be guided accordingly. One example follows :

**Example 2**

Suppose a classroom has 3 windows at one side wall of it, each window has two pans and each pan has 3 glass pieces. Suppose the students are given a problem to count total number of glasses on the basis of the information provided as above.

The problem may be addressed in different ways by different students.

Student I may first calculate the number of glasses in one pan  $1 + 1 + 1 = 3$ . Then she may calculate the number of glasses in one window by either adding  $3 + 3 = 6$  or by multiplying  $2 \times 3 = 6$ . Then he may find the total number of glasses by adding 6 three times or by multiplying 6 and 3.

Student II may first calculate the total number of pans by multiplying 2 and 3 to get 6 and then she may find the total number of glasses by multiplying 3 and 6 or by adding 6 three times.

Student III may draw picture of the pans of the window and then calculate the total number of glasses by counting them in the figure drawn by her.

Student IV can count the number of glasses just pointing his finger towards the wall and pans and write the correct answer.

There may be several other methods and several students in the class may not have attempted the question. The teacher is required to interact with every children explaining him all the possible methods and comparing them.

Before starting any topic or any presentation before the students, a teacher must always think over the following:

1. Is there some new way in which I can present this material in order to make it more meaningful and more interesting?

2. What activities, demonstrations, teaching aids, etc. would enrich the classroom presentation and divert the attention of students towards what is being taught to them?

3. How to conceptualise the subject matter to the students so that every student can follow something which is being taught and associate himself from learning?

Once the teacher discovers innovative ways to arouse interest and enthusiasm in the class, mathematics becomes interesting and adaptable.

The learning of mathematics requires three types of knowledge – factual, procedural and conceptual (Willingham, Daniel T. 2009-2010). Factual knowledge refers to the answers ready in the memory of simple problems of addition, subtraction, multiplication and division. For e.g.,  $1 + 1 = 2$ ,  $2 \times 2 = 4$  etc. The answers are not calculated but retrieved from our memory. The procedural knowledge refers to the knowledge of the sequence of steps by which a problem is solved, whereas the conceptual knowledge is clear understanding of each step and the fact that why the step is required.

Of the three type of knowledge mentioned, the conceptual knowledge is the most difficult for the students. A teacher plays an important role in imparting the conceptual knowledge. In our country, the primary mathematics, which is the foundation of mathematics, is suffering from



various problems. As highlighted in the *National Curriculum Framework, 2005* and the Position Paper presented by the National Focus Group on Teaching of Mathematics (NCERT 2006) the following are the core areas of concern in primary mathematics:

- i. A sense of fear and failure regarding mathematics among a majority of children,
- ii. A curriculum that disappoints both a talented minority as well as the non-participating majority at the same time,
- iii. Crude methods of assessment that encourage perception of mathematics as mechanical computation, and
- iv. Lack of teacher preparation and support in the teaching of mathematics.

All these problems, except that related to the curriculum, can be addressed by using innovative pedagogy. A teacher who is committed can make changes with little efforts.

### **ROLE OF A TEACHER IS IMPORTANT**

A teacher is required to respect the level of knowledge and the ability the children have, the background and the culture they are coming from and then try to create harmonious environment in the classroom which can help to increase the level of mathematics in each and every student. The teacher is an important tool which helps the student to improve his/her mathematical skills. She should prepare the lesson plan

in such a way that it must contain something for everyone. At one place, the lesson plan must be prepared keeping in view the weakest student of the class, but the brightest student of the class must also get something interesting and challenging in it, otherwise he will remain cut off from what is going on in the class. Preparing a food tasty for a group is not enough, unless it is served properly and everyone in the group finds something of his or her interest in the menu. Likewise, the lesson plan may first be prepared carefully and the delivered properly so that every child must get something interesting in his or her plate. During the entire course, if the teacher is able to develop the taste buds of the child towards mathematics, the purpose is well served.

We now share, in the form of following example, an experience, the first author had during the course of teaching a class and making assessment:

### **Example 3**

Suppose Kanika is said to write seven hundred two and the response she gives is 702. Then she is told to write seven hundred twelve and she writes it as 7012. Suppose another student Amit is told first to write seven hundred twelve and he writes it correctly as 712. However, when after writing 712 when he is told to write seven hundred two, he writes it as 72. Surprisingly, when he is told to read what he has written, he reads it



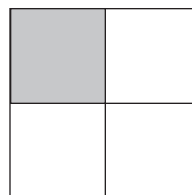
correctly as 'seventy two' and realises that he has written seven hundred two incorrectly. After realising his mistake, Amit may write seven hundred two as 7002.

The important point which is noticed here is that if the traditional method is used for assessment Kanika writes seven hundred two correctly whereas, she cannot write seven hundred twelve correctly whereas in case of Amit he can write seven hundred twelve correctly but is unable to write seven hundred two. However, if thorough and child centric assessment is done, it is found that both Kanika and Amit have not conceptualised the notion of place value of numbers and learning of place value is required to overcome the problem. In fact, the teacher may test their abilities to recognise the numbers like 678, 302, 320, 9005, 9025, 9154 etc. and it can be found out whether the children are able to recognise the numbers correctly, whether the problem is in recognition or it is in writing or in both. Necessary exercise may then follow accordingly.

Another important point we would like to mention here is that during the interaction between the teacher and the students, each and every child is required to be taken as single entity. The teacher must understand his or her individual depth of knowledge or understanding and the way of his/her thinking before imparting any new concept. To explain in better way, we cite an example.

#### Example 4

Suppose the following figure was shown to four students – Zakira, Arjun, Rashmi and Dhruv and they were asked to tell the fraction of the shaded portion in it.



The answers given by Zakira, Rashmi and Dhruv are  $\frac{1}{4}$ ,  $\frac{4}{1}$  and  $\frac{1}{3}$  respectively, whereas Arjun has not given any response. The students are asked for the reasoning adopted by each of them for giving the answers. It is found that the Zakira has clear concept about the fractions. Rashmi too knows the fractions, however, she is little bit confused about writing it – whether it should be  $\frac{1}{4}$  or  $\frac{4}{1}$ . Dhruv has written the answer as  $\frac{1}{3}$  because in his view 1 portion is shaded and 3 are not shaded. Arjun could not respond as he has no concept about fractions.

The important point we would like to mention here is that even if the final responses given by Rashmi, Dhruv and Arjun are incorrect, all of them require to be taught in different manner to clarify their concepts. Rashmi is required to be taught the fraction  $\frac{x}{y}$  like 'x out of y' or 'x parts out of total y parts' followed by other similar picture problems. Dhruv may be explained like that before shading

the portion, there were 4 equal portions and out of these 4 portions 1 has been shaded. Therefore, in terms of fractions it is written as 1 out of 4 or  $1/4$ . As far as Arjun is concerned, he is required to be taught the concept of fractions afresh. Thus the assessment gives us feedback about the level of understanding or knowledge what a particular child possesses and provides us a direction to teach the child further. As per the traditional method Rashmi, Dhruv and Arjun all are on the same footing, as all of them have answered incorrectly. However, as elaborated above, the assessment shows us that Rashmi and Dhruv are not completely incorrect. They need to remove slight doubts in conceptualisation of the notion of fractions.

### **Use of Representations**

A teacher must be encouraged to create an environment where student can learn mathematics with understanding. True understanding occurs when students are able to use what they know and apply it to new situations (Perkins D. 1993). It is also important that the students must be provided sufficient opportunities to show their understanding to ensure that they are constructing knowledge upto the desired level. Research has established that to make the grasping and understanding easier, mathematical ideas can be represented with the help of external and internal representations (Putnam, R.T. et

al. 1990). External representations include manipulatives, pictures, diagrams, spoken languages and written symbols (Lesh and Behr. 1987), whereas the internal representations include mental models and cognitive representations of the mathematical concept (Putnam, R.T. et al. 1990). A way to make easy to understand and conceptualise learning is using external representations in teaching. Research on learning with representations has shown that when learners are taught with an appropriate representation, their performance is enhanced. Recent research is focused on learning with more than one representation. Use of Multiple External Representations (MERs) is being considered an effective tool of learning (Ainsworth. 2006). For further reading on MERs we refer (Ainsworth. 2006) and (Ainsworth *et al.* 2002). The effectiveness of a representation depends on the information provided in the representation and the way it is presented. A representation may be in form of a multi-media system which can display pictures, text, animations, sound, equations and graphs etc. Computers, power point presentations on big screens, charts, 3 D shapes/structures etc maybe used as external representations. A teacher must carefully select the external representation or a combination of external representations keeping in view the topic to be delivered and the background and knowledge level

of the children to be taught. Case study can be done to analyse as to which representation(s) is best suited for the children in order to make the topic interesting and help the students to understand the same. It is commonly seen that the people who are not formally educated often use many modes of mental mathematics for measurement, estimations, calculations etc, are called '*folk algorithms*' (NCERT. 2006). If the children come from such families/environment, such '*folk algorithms*' may be used as representations to inspire and motivate the formal learning.

### **Math Phobia IS A BIG HURDLE**

There is no doubt about the fact that mathematics makes some children very anxious. For many people 'math' is a scary four letter word. They do not like it at all, they have a strong feeling that they are not good at it and they simply want to stay away from it. People who feel tension, apprehension and fear of situations involving mathematics are said to have 'math anxiety'. Students with a high degree of math anxiety perform worse in mathematics from elementary school through college, relative to their less math anxious counterparts (Maloney and Beilock. 2012). Math anxiety is not confined to a particular group or a country, but it is a global phenomenon. Caution here is that math anxiety is not solely related to being bad at mathematics.

In fact, '*math anxiety*' is more than 'being bad in mathematics.' Someone may have been better in mathematics if he/she was not so anxious about mathematics. Study has shown that the kids with highest level of working memory or say most cognitive horsepower are most susceptible to math anxiety (Ramirez et al. 2013). Math anxiety depresses math performance because it eats up the working memory space. Therefore, the impact would be lesser for those having lesser working memory space. Due to fear for mathematics and subsequent degradation in performance, even a bright student can succumb to the math anxiety if not taken care of properly. The role of a teacher is very important to find out whether the child is suffering from math anxiety. The child needs to be first boost up by asking what he knows and appreciating him for that. Then he must to be introduced with the subject and then gradually but in slowly pace he must be taken to the depth of the topic keeping in view his adaptability and appetite. Research has shown that math anxiety is more strongly linked to poor performance when kids take a timed test (Faust et al. 1996). Therefore, initially, such timed test must be avoided and the kids may be given sufficient time to do the task. Further, careful and thorough assessment of the kid's response is also required to be done. He should be appreciated/rewarded for every correct step he thought/

expressed/ wrote. Initially, help may be extended to him/her by giving clues and by communicating with him/her.

### **LINK LEARNING WITH REAL-WORLD APPLICATIONS**

The learning of mathematics becomes ultimate when it is connected to its practical and real-world applications. A teacher should develop real-world examples to explain any aspect or phenomenon. Mathematics is in the core of our day-to-day life and life without mathematics cannot be imagined. There are a number of examples around us which may be quoted as real-world application of mathematics.

Today mathematics is considered one of the most important subjects. Basic knowledge is required in every aspect of our life and everywhere there is a scope of use of lot of

mathematics. The problem is that learning Mathematics is not in the schedule of most of the people and there is a fear of difficulty and failure. Teachers are the most effective tool to help the society to overcome the problem. While teaching mathematics, the students, particularly the kids are to be taken care of particularly of the aspect that there should be no fear of mathematics and he must enjoy doing mathematics. Mathematics must not be taught just as a subject, the focus must be on the aspect that it should improve the logical and analytical ability of the child and be able to mathematise his thoughts. The teaching of mathematics must not be focused on merely solving problems given in the text book, but the Endeavour should be focused towards conceptualisation of the fundamentals and creation of a positive approach towards mathematics.

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# A Study to Examine the Relationship between Mathematical Creativity and Mathematical Problem-solving Performance

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## Abstract

*The present study aimed to investigate whether a relationship exists between the mathematical creativity and mathematical problems solving performance. As bi product of the main study the sex and cultural differences were also examined in the study. In addition, whether the both variable differ with respect to gender and locality. Data were collected from four hundred eighty participants (201 male and 279 female) of eighth grade standard selected through random cluster technique from eight intermediate and high schools located in Varanasi region, India. Data were analysed by Pearson moment correlations, t-test and simple regression analysis. The results showed positive and significant relationship between mathematical problem solving performance and mathematical creativity. Male students were found to be significantly higher on both mathematical problem solving performance and mathematical creativity than their counterparts. Mathematical problem-solving performance significantly contributed in the prediction of mathematical creativity.*

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## INTRODUCTION

Mathematics is a very important discipline on this planet but due to complex nature it could not be

understood easily by everyone. Therefore, the most people feel mathematics as a boring subject and resultant of which a large

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number of students are feared from solving the mathematical problems. Mathematical problem-solving is one of the most central aspects of mathematics and it helps students to make sense how mathematics can be used in daily situations. Each student has different problem solving conceptions and the complexity of problem-solving procedure has caused the confusion in the minds of young generations. Polya's (1957) theory defined mathematical problem solving as a process that involved four dynamic activities; understanding the problem, making a plan, carrying out the plan and looking back. Hadamard (1949) describes problem solving as a process which has four stages namely preparation, incubation, illumination and verification. Problem and problem solving both are the core of the subject mathematics. Thus, problem solving is evidently and essential component in mathematics.

Mathematical problem-solving is the complex area of human behaviour. Zhu (2007) reported that many complex variables (biological, psychological, and environmental) are revealed to contribute in gender differences in problem-solving performance in some specific area like, mathematics. Amani et al. (2011) and Gallagher et al. (2000) also reported little difference between male and female in math problem solving favouring male students. In contrast, Caplan and Caplan (2005) argued that the link between gender and mathematics

performance was very weak. Pajares (1996) found that gifted girls outperformed than their counterparts in mathematical problem solving. Orhun (2003) concluded that there was not any important effect of gender and attitude towards mathematics on mathematical problem-solving performance. These conclusions were even sometimes challenged by the opposite evidences. However, the main goal of our educational system is that the students learn mathematics at each level effectively and easily.

Mathematical creativity has been accepted as an insurance of the growth of the field of mathematics (Sriraman, 2004). Teachers at elementary and secondary levels have not recognised the importance of creative thinking and problem solving in mathematics. The role of culture in development of mathematical creativity has been reported by Milgram (2008), Nevo (2008), and Subotnik (2008). Bahar and Maker (2011) also found significant correlations among all the measures of creativity and measures of mathematics achievement. Some research studies found gender differences with respect to mathematical creativity (Sethi, 2006; Sak and Maker, 2006; and Jensen, 1973). They concluded that girls excelled than boys in fluency, flexibility and originality aspects of verbal mathematical creativity. In contrast, Singh (1989) and Walia (2012) reported no significant difference between boys and girls.

Yet there has been no general consensus among creative workers and psychologists about relationship between mathematical creativity and mathematical problem-solving performance. Universal definition of mathematical creativity (Mann, 2005) and the reliable criteria could be used in measuring mathematical creativity. The declining popularity of mathematics among students and poor mathematical performance and creative ability in mathematics of students are not only a national but also a global concern of the past years. Therefore, this study has been conducted to examine the relationship between mathematical creativity and mathematical problem solving performance. As bi-product of the main study the sex and cultural differences were also examined by the investigator.

### **OBJECTIVES OF THE STUDY**

The objectives of the study were as follows.

1. To study the relationship between mathematical creativity and mathematical problem-solving performance.
2. To find out the contribution of mathematical problem-solving performance in the prediction of mathematical creativity.
3. To compare the mathematical problem-solving performance of rural and urban students.
4. To compare the mathematical problem-solving performance of male and female students.
5. To compare the mathematical creativity of rural and urban students.
6. To compare the mathematical creativity of male and female students.

### **HYPOTHESES**

Following hypotheses were formulated to test the objectives of the study.

1. There is no significant relationship between mathematical creativity and mathematical problem-solving performance.
2. Mathematical creativity does not contribute in the prediction of mathematical creativity.
3. There is no significant locality difference in mathematical problem-solving performance.
4. There is no significant gender difference in mathematical problem-solving performance.
5. There is no significant locality difference in mathematical creativity.
6. There is no significant gender difference in mathematical creativity.

### **DESIGN**

The descriptive survey method was used in the present study.

### **SAMPLE**

The Ss of this study consisted of 480 (83 urban male + 107 urban female +

118 rural male and 172 rural female) of eighth standard students selected through random cluster technique from nine intermediate and high schools located in Varanasi region, India.

### TOOLS USED

The following tools were used to collect the data.

1. Mathematical creativity test developed by Singh (1985).
2. Hindi adaptation of Krutetskii's mathematical problem-solving performance test by Singh (1993).

### PROCEDURE OF DATA COLLECTION

Both the tests were administered on

the selected sample at the interval of 3 hours.

### ANALYSIS

Table 1 shows the mean age group of participants include in selected sample were eleven to thirteen years. All participants in the study scored on mathematical creativity and mathematical problem-solving performance. Difference in mean scores of mathematical creativity and mathematical problem-solving performance was found with respect to gender and locality. Minimum and maximum scores on mathematical creativity test of male participants were found to be higher than their counterparts.

**Table 1**  
**Study of Participants**

Mathematical Creativity					Mathematical Problem-solving Performance				
Gender	N	Min	Max	Mean	SD	Min	Max	Mean	SD
Male	201	74	209	100.59	23.83	0	14	3.124	2.85
Female	279	31	168	94.09	18.21	0	14	1.86	1.90
Total	480	31	209	96.81	209.98	0	14	2.39	2.42

**Table 2**  
**Correlation Coefficient between Mathematical Creativity and Mathematical Problem-solving Performance (N =480)**

Sr. No.	Variable	r	p
1.	Fluency vs Mathematical Problem-solving Performance	0.64	≤ 0.01
2.	Flexibility vs Mathematical Problem-solving Performance	0.62	≤ 0.01
3.	Originality vs Mathematical Problem-solving Performance	0.39	≤ 0.05
4.	Mathematical Creativity vs Mathematical Problem-solving Performance	0.61	≤ 0.01

As can be seen from the Table 2 that the obtained coefficient of correlations between fluency, flexibility, originality dimensions of mathematical creativity and as well as total mathematical creativity scores, and mathematical problem-solving performance scores were found to be significant at .01 level with  $df = 478$ . Singh (1993) also support similar findings. Lekin, & Kloss (2011) found that problem solving is highly correlated with fluency, flexibility and originality while originality as shown as a special mental quality.

### REGRESSION ANALYSIS

The following simple linear regression models were considered,

$$X = \alpha_1 + \beta_1 Y + \varepsilon \quad \dots(1)$$

$$Y = \alpha_2 + \beta_2 X + \varepsilon \quad \dots(2)$$

Where,  $\beta_1$  and  $\beta_2$  are the regression coefficients,  $\alpha_1$  and  $\alpha_2$  are the intercepts and  $\varepsilon$  is the random error which is normally distributed with mean zero and certain variance. R-software was used for the computation of simple linear regression. Results are given in Table 5.

**Table 3**  
**Analysis of Variance Table**

Source	df	Sum of Square	Mean Sum of Square	F value	p
Regression (between)	1	1060.6497	1060.6497		
Residual (within)	478	1744.4444	3.64		
				290.63	< 0.01
Total	479	2805.02			

$$F = 290.63$$

$$\text{Correlation Coefficient: } r = 0.61,$$

$$\text{Adjusted } R^2 = 0.3781$$

Equations:

$$X = 5.30Y + 84.1$$

$$Y = 0.07X - 4.51$$

The relationship between mathematical creativity and mathematical problem solving performance was found to be moderate positive and significant. It means that both the variables are significantly correlated to each other. From the regression analysis it can

be easily observed that X on Y and Y on X effect significantly ( $p < .01$ ). However, the effect of Y on X is high rather than the effect of X on Y. From equation -1 we observed that if one unit increase in Y leads to increase 5.30 units in X. furthermore, if the effect of Y supposed to zero then

X remains 84.13. Similarly from equation - 2 we observed that if 100 unit increase in X leads to increase 7 units only in Y.

The result in Table 3 shows that F-value from ANOVA was significant at 0.01 level. Mathematical problem-solving performance explained 37.8 percent of variance in mathematical creativity. The result of F-ratio indicates that mathematical problem-solving performance is significantly contributed to the prediction of mathematical creativity. ( $H_0$  is rejected).

Table 4 shows that the obtained 't' values with respect to mathematical problem-solving performance scores of male and female, and rural and urban students were found to be significant at  $df = 478$ . The group of male and urban students was found to be significantly better than their counterparts with respect to mathematical problem-solving performance scores. Amani, et al. (2011), Gallagher et al. (2000) and Pajares (1996) also supported similar findings. In contrast, Chukwuyenum (2013) and Caplan, Caplan (2005)

found no significance gender difference in mathematics problem-solving performance. Mathematical teaching was considered as a culture free subject. This conception has been declined by the students' motivation and solution of their difficulties particularly in mathematics or mathematical sciences.

It is evident from the Table 5 that obtained 't' value was found to be significant between male and female and rural and urban students with respect to mathematical creativity ( $df = 478$ ). The group of male participant was found to be significantly higher than their counterparts. The group of urban students was also found to be significantly higher than their counterparts. Gender difference was also found in mathematical creativity (Sethi, 2012; Sak and Maker, 2006; and Jensen 1973). In contrast, Walia (2012) do not support similar findings. Singh (1989) found that rural and urban science students do not differ with respect to mathematical creativity. It is clear from the above result that gender and locality affect to mathematical creativity scores.

**Table 4**  
**Mean, SD and 't' values of Mathematical Problem-Solving Performance Scores with respect to Gender and Locality**

S. No.	Variables	Groups	N	Mean	SD	t-value	p-value
1	Gender	Male	201	3.124	2.85	7.86	< 0.01
		Female	279	1.86	1.90		
2	Locality	Rural	290	1.30	1.44	19.17	< 0.01
		Urban	190	6.975	3.91		

**Table 5**  
**Mean, SD and 't' values between gender and locality**  
**with respect to Mathematical Creativity**

S. No.	Variables	Groups	N	Mean	SD	t-value	p-value
1	Gender	Male	201	100.59	23.83	2.90	< 0.01
		Female	279	94.09	18.21		
2	Locality	Rural	290	91.41	13.47	15.04	< 0.01
		Urban	190	125.27	28.92		

It is evident from the Table 5 that obtained 't' value was found to be significant between male and female and rural and urban students with respect to mathematical creativity ( $df = 478$ ). The group of male participant was found to be significantly higher than their counterparts. The group of urban students was also found to be significantly higher than their counterparts. Gender difference was also found in mathematical creativity (Sethi, 2012; Sak and Maker, 2006; and Jensen 1973). In contrast, Walia (2012) do not support similar findings. Singh (1989) found that rural and urban science students do not differ with respect to mathematical creativity. It is clear from the above result that gender and locality affect to mathematical creativity scores.

### DISCUSSION AND CONCLUSION

The present study investigated the relationship between mathematical creativity and mathematical problem solving performance. Mathematical problem solving performance was found to be significantly related to mathematical creativity. Significant positive relationship between these

two important variables may be due to the fact that both the abilities belong to the same cognitive domain. The significant relationship between the two important variables may open the door to detect the causal relationship between them. Furthermore, it was found that mathematical problem-solving performance made a significant contribution to the prediction of mathematical creativity. Furthermore, the findings of this study also suggested that mathematical creativity and mathematical problem solving performance both were affected by gender and locality, favouring males and urban students. The findings of the studies (Sethi, 2012; Sak and Maker, 2006 and Jensen, 1973) do not support the result of this study. Walia (2012) found no significant difference between boys and girls with regard to mathematical creativity. Singh (1989) found that rural and urban science students do not differ with respect to mathematical creativity. Therefore, it emerges that mathematical problem-solving performance plays an important part in the development of mathematical creativity among middle school

students in India. In contrast, Singh (1993) concluded that mathematical creativity does not contribute in the development of mathematical problem solving performance.

The results of this study show gender and cultural differences in both mathematical creativity and mathematical problem-solving performance. The following may be the reasons of these results; (1) the tests used in the study are not gender and culture free; (2) In India particularly in rural, remote and low educated families, disparities between the education of boys and girls may be the possible reason for the same; (3) due to lack of awareness, parental support and parental education and fear about mathematics very few girls may select mathematics or mathematical sciences as a subject for their future career.

Understanding of pupil's cultural diversity is essential for teaching and fostering their creativity. Government should open some good institutions in rural and remote areas and reserve some seats in reputed schools

located in urban areas for girls and rural students. Teachers of rural schools should be trained how they can develop mathematical creativity and mathematical problem-solving performance among children. Some extra activities like mathematical quiz and debate be conducted in rural schools particularly in girls institutions. In this study regression equations between mathematical creativity and mathematical problem-solving performance have also been developed. One can know the mathematical creativity of a child with the help of mathematical problem solving performance and vice versa. In future, impact of some environmental and social factors on mathematical creativity and mathematical problem solving performance should be examined by longitudinal studies. Furthermore, cross-lagged panel analysis should be used to find out which one variable is cause and which one is effect between mathematical creativity and mathematical problem-solving performance.

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# Pedagogical Concerns Regarding School History

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## Abstract

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*History has been an important component of school curriculum for a long time. Since Independence a number of changes have taken place both in the content and teaching of history. In more recent years, there have been changes in almost all the aspects of history namely, its concept, approach and also in the methodology of teaching. The main reason for this change is the deeper understanding that developed about the purpose of studying history. However, unfortunately, these changes have not been reflected in the textbooks and pedagogical issues of teaching and learning history, particularly in schools. New findings brought out enormous research, with the aid of advanced tools that is being carried out in the universities and advanced centres of learning, have not been reflected in the classroom practices and school text books. The old themes with emphasis on chronological approach dealing with the dynastic changes and biographical details, presented in a narrative style are being continued both in classrooms and textbooks. This is more deplorable to say the least. For, the scope of history has broadened as it includes now, within its purview, every aspect of life of human beings in society from the time of the evolution of man on earth about a million years ago. Also, the purpose of studying history has changed enormously. Therefore, there is a need to bring innovative approaches in the pedagogical aspects at school level. The aims and objectives of the paper is to suggest the teachers of history to be aware of new methods and techniques of teaching learning History at school level, to adopt new pedagogical approaches such as constructivist approach in making history teaching effective in the classrooms, help them adopt a constructivist approach in the classroom activities, learning process, and able to organise activities, discussions, within the parameters of constructivism in history classroom.*

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## I

History has been an important component of the school curriculum for a long time. In light of changing trends in classroom teaching there is a felt need for social science/history teachers to adopt a constructivist approach in classrooms and organise activities, discussions and teaching strategies within the parameters of constructivism. Since Independence a number of changes have taken place both in the content and teaching of history. In more recent years there have been changes in almost all the aspects of history namely, concept and approach and methodology of teaching. The main reason for this change is the deeper understanding that developed about the purpose of studying history. These changes have not been reflected in the textbooks of history, particularly in schools. New findings brought out various insights into evolution of the subject history with the aid of advanced tools. The old themes with emphasis on chronological approach dealing with the dynastic changes and biographical details presented in a narrative style are being continued in textbooks. This is now debated among academic circles. For, the scope of history has broadened as it includes now, within its purview, every aspect of life of human beings in society from the time of the evolution of human beings on earth about a million years ago. On the other hand, the purpose of studying history has changed. Earlier it was meant to

study the past in order to justify the present and legitimise the present day institutions and beliefs.

Today, history is considered as a discipline that deepens our understanding of the process through which societies have changed and evolved to the present stage, thus adding to our grasp of the contemporary processes of change. Gradually history has developed into a scientific study of society in all its facets-social, economic, political, cultural etc and, more importantly, their mutual interactions. The purpose of history is neither to glorify the past nor to condemn it but to understand it. As E.H. Carr puts it, *the function of the historian is neither to love the past nor to emancipate himself from the past, but to master and understand it as the key to understand the present.* The study of the past is mainly intended to understand the present.

Textbook, being the first source that a student uses, should be able to provide right kind of material to get the necessary training in history. It plays a significant role in dissemination of information required to understand the dynamics of the discipline. Most of our schools, even now, do not possess sophisticated teaching aids. Hence, the need for a good textbook and appropriate strategies of teaching methods cannot be over emphasised. In fact, these are the key sources to teachers and children before they lay their hands upon other more advanced sources of

knowledge to enrich their teaching-learning process.

## II

Constructivism is an idea based on the understanding that the learners are not merely recipients but the constructors of knowledge. It is important to understand what is meant by constructivism through behaviouristic terrain. This will help us to get a sharper view of the meaning of constructivism. Basically, learning is behaviouristic and this is due to reinforcement of various strategies. In the behaviouristic tradition learning is a process. It is a changing process or conditioning of observable behaviours through the selective reinforcement of learner's responses to stimuli. Teachers can assess the stress placed on the efforts of learners to accumulate knowledge and also in transmitting knowledge. The scope for learners' initiated questions or the independent thoughts of children in classrooms are generally limited. Goal of a learner is to regurgitate the expected explanation or the methodology expostulated by teacher. Preference for learners' manifest behaviour, without looking for changes in mental states is the acceptable standard for identifying learning. Behaviouristic tradition invariably emphasises on observable external behaviours and obviously, avoids reference to representation and thought of the learner. When one examines behaviouristic epistemology, no

one ignore the stress placed on intelligence, domains of objectives, and levels and reinforcement of knowledge.

Constructivism is used in the sense that the learners actively construct their own knowledge by linking new information to the existing knowledge on the basis of materials presented to them. For example, a young learner's initial construction of the idea of Indus Valley civilisation is based on the characteristic features of a civilisation familiar to him such as climate, soil fertility and physical features which greatly contributed to the progress and development of people. Students after listing out various types of information about this civilisation must be able to visualise what could be their social organisations or religious practices. Likewise, after reading the text and viewing a video or illustrations on the text on transport system and human life during a particular age or period, a constructivist learner attempts to build a mental model of the relationship (cause and effect) between transport system and human life.

In constructivism, learning is the result of a learner's mental constructions. A learner learns by fitting new information together with what she/he already knows and actively constructs her/his own understanding of the issues. Learners actively interact with their objects (learning material) and events. Thereby, they gain an understanding

of the features held by such objects and events. What is central to constructivism is its conception of learning. Constructivism helps and shows how the learner arrives at a particular answer. Certainly, it is not a stimulus-response phenomenon. It is a process of building conceptual structures through reflection and abstraction, behaviours, skills and the aims, objectives and goals of instruction. In order that the practicing teachers can implement constructivist pedagogy effectively in their day to day teaching, it is necessary to provide them with appropriate and adequate inputs through in-service training.

The specific aim of constructivism is to focus on the development of concepts and deep understanding of the knowledge. Learning is a process of constructing meaningful representations of external reality through experiences. Construction of internal representation of knowledge depends on the degree to which learners integrate new knowledge with the base of their existing knowledge. Integration demands restructuring and changing the existing knowledge structures. For instance, a learner who initially constructed the idea of Harappan civilisation around the towns and cities of Harappa, now with the support of textual materials and illustrations or video on the text, along with appropriate activities, reconstructs the idea of Harappan or Indus Valley civilisation from the excavated materials such as

pottery, seals, bricks, bones, bangles, metals, import and export materials, agricultural materials, structural aspects like social life, economic life, cultural life and destruction of Harappan or Indus civilisation. In reality, learning is a process of construction and reconstruction of knowledge. Given the right context, a learner becomes an active participant in knowledge structuring, engages in restructuring, manipulating, reinventing and experimenting with knowledge to make it meaningful and permanent. Learning is an internal process and influenced by the learner's personality, prior knowledge and learning goals. Learners are encouraged to take responsibility of their own learning process.

The concept of curriculum entrenched in our system of education is overlooking child's role in constructing knowledge. Certain topics acquire importance for the final examination but nothing gains significance or inscriptional value. Tools of analysis, such as classification of ideas and information and the steps involved in judging evidence are ignored. Syllabus and text book designers assume that teacher's job is to impart interactive life to the long and continuous narratives given in the text book. The idea of enlightened citizenship cannot be achieved with bookish education. Work implies an activity that fulfils a genuine need. It also implies the development of an attitude capable of sustaining self-reliance, initiative and questioning

spirit. Opportunities to infuse work culture into our routine school life should be increased constantly and utilised optimally. The legacy of pedagogic modernism implies the cultivation of questioning spirit and tolerance for differences. Teaching must be viewed as a relational and constructivist activity rather than information-transmission activity. History teachers should see that textbooks should encourage interaction with various activities in the class. Values like originality, self-reliance and tolerance must be inculcated among children. History curriculum should address children's concerns and anxieties about the world they are living in. It should not by pass children and keep them at a distance in the academic world.

History teachers should help children to find out on what basis different historians take different positions to construct knowledge in history. In this way history teachers can effectively train children to look at things historically. This is perhaps the most important and key issue in history education. History teaching at school level in our country is considered backward and out-dated. In science subjects children are given opportunities to experiment. In history, teachers expect children to listen to the narratives, memorise text materials and reproduce it along with names, dates and places. What is required is to accelerate interest in history teaching and a new way of learning strategy along with new

syllabus at all levels. History syllabus should allow children to engage with work that archaeologists and historians do to reconstruct the past. Of course, children cannot be expected to judge all kinds of evidences, but history teachers should inform children that historians need evidence — archaeological, documentary and other forms of evidences. These evidences can themselves be acquainted with.

### III

Characteristics of constructivist classroom can be described as: active involvement of learners, democratic environment in classroom, student-centred interaction and facilitation of process of learning where student is made responsible for learning. These characteristics are drastically different from traditional mode of teaching where teacher is information-giver and the students are passive learners. Teacher training therefore focuses on the changed role of teachers in the new pedagogy.

Construction of knowledge is an active process. It involves mental actions of the learner. Constructivism views learning as experience created and discovered. Knowledge is the result of active construction built up by the learner within a social context. Physical actions and hands on experiences are the essential aspects for engaging the learner for thinking.

Construction of knowledge depends upon doing activities. Most of the time teachers talk to the learners.



In History class children rarely get something to do. When students have something to do they are active participants in their learning rather than passive recipients of information. This is the primary message of constructivism. Learners who are engaged in doing activities in history classroom will make their own meaning.

Constructivist learners involve in interactions and collaborations. It promotes interactions with others such as teachers, peers, family members and others in the learning. Children use conversation, discussion and interactions with others. They share ideas. This is an integral aspect of construction of knowledge. These aspects cannot be ignored in history subject. Construction of knowledge is interactive, inductive and collaborative.

Language plays a critical role in constructing knowledge. While structuring various activities teachers should initiate conversations, discussions and encourage questions. Learners talk to themselves while they learn. Language and learning are inextricably intertwined.

Context related to knowledge construction is critical. Learners do not learn actively in isolation. They do not learn isolated concepts, ideas or facts. They relate to what they know. For instance, on a project on environmental pollution, learners read a passage on environmental pollution and then they move on to look at illustrations and later relate

it to what they have already known on the same portion of environmental pollution. They relate it to a variety of reference materials depicting different situations on environmental pollution contextually.

Knowledge construction involves multiple perspectives on concepts and content. Learners interact in groups with various materials. They also generate multiple perspectives. They expose themselves to various ways to interpret data, find how different principles can be used to make sense of knowledge and discover various ways of meaning. Collaborative and cooperative strategies provide conditions for generating and sharing multiple viewpoints. For example, students have been told that we achieved our independence through non-violent struggle. But there were revolutionary movements during the national struggle as well. A discussion on their relative role and importance can help to develop multiple perspectives.

Errors serve as tools for reflection and reconstruction. In constructivism errors committed by children will act in a positive light. This is a means of gaining insight into how the learner forms knowledge construction. They provide feedback on the learners' understanding.

Construction of knowledge is not instantaneous. It does not take place in few seconds. Learners need to revisit ideas, ponder over them, engage with them, reformulate and use them. Children reflect on the ideas they have learnt.

History is the cumulative experiences and efforts of the past generation. There is a mistaken notion that history is filled with wars and conquests. It is the experiences and efforts of the human beings to build a society. It is not the event which is interwoven according to the principle of causality. The states or kings are not divine creations. History is an investigation into the truth of events and happenings on the basis of the principle causality. It is not an investigation into the facts on the basis of usefulness. When historical events are viewed from the angle of usefulness truth will lead to distortion. In this sense, history becomes a fiction not science. History too is a science based on actual facts and their coordination in accordance with their coexistence in space, their succession in time and the principle of causality. Historians reconstruct the past with the help of sources. They find subjectivity or bias in the interpretation of sources. There is a need for verification of accounts and the consultations through a variety of sources. Historians must be free from all biases and prejudices. The subjective interpretations of historians are influenced by usefulness but not the principle of truth. Bias by itself is not harmful if it leads to a further study of investigation. Bias or subjectivity will turn into bad history if historical truth is accepted as indispensable truth. In history, assumptions are the first stage of scientific investigation. Assumptions

must be treated as tentative frame work for further testing.

Individuals themselves do not make history. History is the product of social milieu. It could be understood in the social context of social, economic and cultural forces. Study of human beings cannot be a biographical study. Interpretations of historical movements involve value judgements. Teachers and historians describe how these events affected them adversely or otherwise. Historians, teachers and scholars should not make passing judgements since the study of the subject is a process of social change and development. History deals with revolutions and evolutions. This evolution is also based on the principle of dialectical materialism. Past cannot be swept off. History covers all comprehensive things in nature. It promotes an understanding of national heritage. The growth of this heritage is obscured by rising trends of chauvinism. For example, references of bravery of soldiers of one's own religion and glorification of local chieftains in defence of local independence narrow down our perspectives. History teaching should be made familiar with human heritage. The national heritage should not be isolated from the general human heritage. History deals with the talk of conflicts between chauvinistic distortions of human history. Chauvinistic history prevents the development of international outlook. Development of international understanding is

necessary for promoting cooperation and interdependence in this shrinking world of modern science.

Constructivist teaching learning process in history envisages that the process of learning or constructivism is so different from what children learn from normal class room teaching or what children expect to learn from text books. In schools children learn history from texts books or from the lessons explained by teachers. Constructivist practice of teaching history will provide opportunities for children to learn history in interesting ways with hands on experience. In the process, teachers and students share the pleasure of making and understanding historical facts. Normally, history books and other historical materials are filled with illustrations, photographs of historical sites, inscriptions, monuments, reproductions of paintings, posters, leaflets and immense range of visual materials that will help children reflect on these materials. Learning then will be very different from usual cramped and breathless textual materials.

History textbooks and teachers should teach history in creative ways. Students should be introduced to the basics of historical research. In history class children should be exposed to historical documents and to the basic understandings of historical facts. History is open ended. Constructivism in history is also open ended. For example, in a history class of IX standard if students are exposed

to the contemporary documents of the Indian freedom movement children will be exposed to various issues of contributions and vision of the freedom movement. If history teacher explains French revolution with the help of documents children will be able to reflect on the French society and people, the French declaration of the Rights of man and the views of contemporary writers on the French Revolution.

Students in the history classroom should be exposed to historical questions and various suggested classroom activities. Constructivism visualises creative student-teacher interaction in place of enforced and rote learning. For example, if students are being taught about the agricultural practices in modern times, after reading the textual materials, students might be encouraged to visit open fields and view Indian agriculture from the point of view of the rich farmers, and poor farmers and also from the labour point of view. In this situation children will be able to construct their knowledge about the agricultural system and practices in India.

Constructivism helps history students and teachers to construct themes in history. Due to time and space the entire syllabus of history cannot be completed by history teachers. Selection of themes in the historical ages will save time. Suppose, when students are exposed to world history in Class IX certain themes in world history may be

selected. Students can be asked to select important themes from the selected content. They may be asked to imagine the shopping lists of a country in those times and may be encouraged to study history from the cultural and civilisation point of view. The pattern of examinations and setting of questions need reform in the context of teaching/learning history. Objective type questions and multiple choice questions may be changed to application types in order to encourage constructive learning process in history. Constructivist paradigm of teaching history is pedagogically vital. It breaks the dominant assumption that history teaching and learning must be comprehensive and should cover all relevant facts.

History teachers should stimulate interest and curiosity among children. Children should understand what history is and how it is relevant in today's context. The idea of constructivism in history always suggests broader patterns of learning history. It stimulates further interest among children to pursue subject. For example, students of Class VI study about themes in Ancient India. Students can be exposed to prepare comprehensive lists of archaeological sites etc. But sometimes this may cause a greater burden on the memory of children. Instead, history teachers may ask children to select one or two sites or inscriptions of Indus civilisation and encourage them to observe all the details with

profuse illustrations. Students may be encouraged to have detailed discussions on the selected cities and inscriptions. For example, when history teacher is explaining about the French and Russian Revolutions she/he need not go into every detail of the events of 19<sup>th</sup> century European revolutions. By going into such minute details of either Nazi Germany or Fascist Italy students do not construct history. Teachers can introduce children to time charts in the classroom. Historical materials relating to contents/units may be divided according to the continents. These materials will indicate for the learners at a glance that they must not assume a single, linear pattern of development for all times and places.

History text books should convey the progressive value of society. Mere teaching of the subject in classrooms will end in listing out facts. Assumptions and stereotypes current in the immediate environment of children will be often retrogressive or obscurantist. Constructivist approach to teaching history is often result oriented. For instance, after learning/hearing about Nazi atrocities and the holocaust, a question is posed about whether students have ever encouraged stereotypes of other communities among people around them, and how they could overcome the problem of narrow identities of every kind. Secular and humanitarian values have to be inculcated in the minds of children through teaching of history.

In constructivist teaching learning process, the students will be able to concentrate on everything which is interested to them. Sports and social history of clothing of people of a particular region or country may be cited as an example in this context. Students get more interested as they discover something on their own. In the process of constructing ideas children discover new issues and ideas. History does not deal with remote and dead matters. It deals with various themes including controversial as well as important issues which no one will ever deny at any point of time. For example, while discussing about decline of handicrafts under the colonial rule, the mills of Lancashire and Bombay cannot be separable from the discussion on clothing. While dealing with Indian Freedom Movement teachers and students cannot ignore studying about the boycott of foreign cloth, wearing of Khadi and Gandhi's conversion to loincloth. So also while teaching social life of Indians, children should be exposed to the life of hunters, food gatherers, pastoralists and the ways in which they interacted with nature. Children should be exposed to such themes so that they can understand the developments in the emerging areas such as environmental history. Constructivism will help children to take to new themes. Children will be trained to work on the identified themes from various perspectives.

#### IV

During the last few decades there has been an unprecedented debate on history teaching in schools, colleges and universities. This was due to various reasons like the policies of the government. History syllabus had been revised in a variety of ways. The debate on history teaching in schools in particular is with regard to the issue of pedagogy. At a quotidian level, one problem that history teachers acknowledge virtually at all levels of the teaching is lack of interest in the subject. In fact, history along with mathematics has the dubious distinction of being considered dull. Besides, both the teachers and learners perceive history as heavy in terms of its content. It is evident that we need to both rethink the content of the syllabi as well as pedagogic strategies to ensure that we are able to convert the latent interest into an active and informed engagement through constructivist approach.

It is important to devise pedagogical strategies in history teaching. Constructivist strategy involves children in constructing history from simple excerpts from the source, visuals, illustrations of monuments, sculpture, coins, tools, paintings, pots, photographs etc. It involves learners in the process of historical reconstruction. It is likely that development of teacher's manuals in social sciences in general and history subject in particular can enhance and enrich the potential of the pedagogical strategies of the

teachers in teaching the subject. Several historical processes were explained in terms of the implications for children belonging to a particular age group. This allows learners to engage with these developments instead of regarding them as remote events that happened long ago.

There are other possibilities, both in terms of defining the content of syllabi and the development of strategies of constructivism, which need to be evolved. History teachers should collectively engage with the issue of constructivist pedagogical practices as practitioners of history understand the diversities in terms of region, caste, community and gender. The subject of history as it has evolved over the last three decades has the potential of addressing the concerns of constructivism. For instance, the questions and challenges posed by women's movements, Dalit movements and environmental issues have shaped the content of history in recent times. Histories of regions have also been enriched through detailed studies.

Interactive teaching attempts to assist children for a healthy engagement with the world, the way society takes shape and functions from the material and physical foundations. It provides essential skills of comprehension that are fundamental to any activity. It helps self-understanding and fulfilment that can be diverting, exciting and challenging. Knowledge apparatus of children is complex due to

wide range of materials and the nature of problems of everyday life. Constructivist teaching will provide a firm and flexible perspective of history. Children explore to see and understand the historical process which they come across. Constructivism clarifies doubts and disputes through active discussion, questioning and further explorations to the questioning. Group work will help children to negotiate with problems. Project work gives children a sense of locality, region and nation in an interconnected and complex manner. Students need to see history not simply as a set of facts about the past. They need to learn and think historically. They have to acquire the capacity to make interconnections between processes of events taking place in different locations, and see the link between history of different groups and societies. Discussions on case studies, time lines, and historical maps help children to locate the developments of one region in relation to what was happening elsewhere. Children should be encouraged to imagine what it would be like to live in the society that was being discussed and how children of the time would have experienced the events being talked of in the classroom.

Children's life at the school must be linked to their life outside the school. Constructivism marks a departure from bookish learning and bridges the gap between the school, home and community. Given the space, time and freedom



children generate new knowledge by engaging with the information passed to them. Constructivist method of teaching attempts to enhance the endeavours by according priority to opportunities for contemplation and wondering, discussions in small groups and hands on experience. Historians who study the past often depend on sources, both primary and secondary. They refer to the information available in manuscripts, inscriptions, archaeology etc. Once sources are found learning history becomes an adventure. They use all these sources like clues to construct historical knowledge.

21<sup>st</sup> century is an age of exploration of knowledge. The pattern of human life is changing. Children should adjust to advanced scientific and technical knowledge and modern patterns of life. Children should face the challenge of democracy. They should have the ability to understand the problems and face the challenges in the society. Education is a sure remedy to develop independent thinking, critical thinking and construction of knowledge. These traits involve collection of facts, weighing and sifting of facts, formulating hypothesis, unifying and arriving at conclusions. History provides a unique opportunity for this intellectual exercise. History is the barometer of achievements and failures of humans in political, social and economic fields. Content in history offers enough raw materials for critical thinking and to construct

knowledge by exposing children to different pedagogical activities. For example, when a student in the history class is faced with challenging problem like the nature of 1857 revolt, the teacher can take up the activities such as: children should be motivated to read other sources/materials and talking/discussing the problem with peers; encourage children to collect information from different sources; children should be allowed to scrutinise and verify historical information. They should not arrive to final conclusion based on textual information.

Methods and techniques of teaching history must be regarded to achieve the objective of construction of knowledge in history. Conventional approaches encourage dullness, boredom and passivity in learning. They encourage memorisation of facts, debates and content load. Therefore, history teachers should switch over to the effective pedagogical approach which encourages children for joyful learning through the medium of critical thinking and constructivist approach to teaching learning history.

History teachers should encourage discussions in the classroom. For example, while teaching a topic on *Marathas*, Shivaji's character and personality may be taken up for discussion. Extracts from the contemporary *Maratha*, Muslim and English observers could be presented to the class. After circulating details regarding Shivaji's exploits students may be encouraged or asked to find out



why Shivaji was described differently by nationalists, Muslims and the English. Students may be encouraged to express their views based on facts in the discussion. They then will have an opportunity to construct knowledge from the sources given to them. Like the present exercise, other topics too may be broached for critical discussion and presentation of a critique on the same by students. Some of these topics could be: *the seemingly unwise, eccentric policies of Mohammad Bin Tughlaq of shifting the capital; Akbar as a national monarch vs. Rana Pratap as a national hero; the division of Europe into two armed camps; the first division of Indian National Congress into extremists and moderates; Would the Second World War have taken place, if the treaty of Versailles had not been signed?; Although USA and USSR fought together in the later phase of the Second World War, how could cold war between the two begin and develop?* Topics like these provide opportunities in history class to develop the ability to think critically and construct knowledge rather than forcing opinions or finding ready-made solutions or conclusions on them.

Sources form an important tool in historical teaching and research. While teaching about the Asoka's Dharma in the class, various inscriptions of Asoka will serve as the sources which the students should be made to study. The lesson on Asoka should enable them to develop certain major

understandings like: wars cause death, misery and starvation; king is not the master but the servant of people; promotion of welfare of people is the quality of good government; religion is purely personal; everyone has a right to follow his/her own religion etc; Asokan inscriptions such as Minor Rock Edict II, Rock Edict VIII, Rock Edict I, Rock Edict V, Rock Edict XV, Rock Edict XIV etc., will help the teacher to assist students to construct appropriate knowledge in this regard. History teachers can make use the usual lecture method; asking students in the class to read copies of the edicts; group work or group discussion; project method etc.

History teacher should start by explaining theories about various points of controversy. This should be followed by examination of theories supported by evidences. One should try to clarify reasons why the theory supporting region around Caspian Sea as the original home land of the Aryans. History teacher should help students to understand different kinds of sources- archaeological, epigraphic, literary, numismatic etc. The whole lesson may be taught by the history teacher in three ways: through lecture method; distributing two views regarding the original home of the Aryans and providing available evidences asking every student to study them and arrive at their own conclusion. History teacher may divide the class into two groups. Each group is asked to study two different viewpoints with the help of

evidences supplied to them. Each group presents its reports to the class. The reports will be discussed and conclusions will be arrived at. This will enable children to construct their knowledge.

History teachers should act as facilitators in creating suitable learning experiences for children. They should have mastery over their subject and create a friendly and democratic atmosphere in the classroom. They should respect the opinion of students. History teachers should plan and guide student discussions in the class. Teachers should not read history textbooks in the class. Instead they should give a summary of the historical events and controversial problems. Issues should briefly be indicative of the nature of controversy with pointed reference to different exponents. History teachers can cite a few original quotes from history books. Teachers also should help children with a well-equipped history room with source books, reference materials, journals, newspapers, maps, charts, pictures, films and filmstrips. This will attract students to study on their own and pursue their activities in the spirit of construction of knowledge. Evaluation scheme with tools to test different abilities will go a long way in promoting the testing ability of children. Teachers of history should also be conversant with Information and Communication Technology (ICT) and exploit technology and its possibilities in the classroom.

## V

Future of human race depends on global approach to peace. Since wars began in the life of men, defences of peace must be constructed among the children's mind. Right approach to history teaching through dissemination of knowledge, creation of right attitudes and fostering interest in the welfare of human race will help to develop international understanding. It is with this objective the United Nations Organisation was established. Article 51 of our Constitution reiterates this by stressing the need for promoting international peace, co-operation and understanding. Enormous scientific and technological progress have brought world closer. They also have fostered competition, jealousy and hatred among natives and the power to destroy human civilisation. A single erratic and unwise decision can trigger off a catastrophe for the entire human race. Security against this is the development of international understanding and the idea of world citizenship. During teaching history emphasis should not be on chronological presentation of historical events dealing with wars of conquest, exploits of kings but on efforts of rulers/state on the promotion of peaceful life within the respective territorial limitations. History should be depicted as an evolutionary process contributing to the growth of human civilisation. Discoveries and inventions should be viewed as the cumulative contributions of

human mankind. It should be made clear that no nation can exist in isolation for long. For the progress of human mankind cooperation and mutual help are important. The interdependence of nations is to be stressed particularly with reference to post war developments. Through proper and careful presentation of national history, healthy national and international outlook could be developed. In fact, in today's context national interests are bound to suffer if international interests are ignored. To the extent possible, without destroying historical facts, world's perspective should be kept in view in classroom situations.

How children construct knowledge in history? Construction of knowledge is learning. It is important to note that learning occurs when the learner actively participates in the process of learning. This process of learning often depends upon the practice of drilling. The learner has to represent historical facts in his/her memory. A critical point that needs to be kept in mind is that the process of knowledge construction in history entirely depends on cognitive activities of the learner of history. It does not depend upon the behavioural activities of the learners. For example a lesson on 'the golden age of the Gupta emperors', the learner working on the lesson engages in copying marked portion of a history text book. Here the learner is behaviourally very active since he/she is actively writing in a note book and may not be trying to make sense

out of the materials collected. Later, the learner focuses on the text portion of materials, reads silently and tries to make sense out of the context. In this situation, the learner is cognitively active in trying to make sense out of the text through knowledge construction. They should pay attention towards selecting relevant information, organising information, and integrating knowledge with the knowledge already existing with them. Selection, organisation and interpretation of historical facts are the cognitive processes of construction of knowledge in history. Knowledge construction in history focuses on the learners' working memory. It pays attention to the information collected from primary and secondary sources or materials. It is practically impossible to store all the information that is collected from sources. Only some selected portion of the content of collected information, ideas, and facts is retained or processed. Visually presented materials such as posters, pictures and text materials are initially retained in memory. Verbally presented materials such as lectures, conversations and group discussions are retained in short memory. Learners select only a selected portion of the lesson and its key words, concepts or relevant passages, images and words of the lesson and connect them together based on certain identified relationship patterns. Further children make their mental connections between various kinds of the materials collected with their prior/prerequisite knowledge.

The first step in constructivism is the selection of relevant information for further processing of knowledge in history subject. For example, students see illustrations or video clippings and read the text information on First World War. They represent the scenes and activities in brief words as a sensory memory. They may not retain all the details of the First World War. They recall only some of the important scenes for further processing. A learner focuses on the key issues such as army camps, war tanks, war materials etc. The reading text helps them to foster ideas because it highlights the key ideas and events of the First World War. The important cognitive process is the selection of relevant key information that needs to be retained in the working memory. History teachers are expected to provide guidance in framing of lead questions etc in order to encourage children to construct knowledge.

The second step in construction of knowledge in history is organisation of materials collected by children. Organisation of historical information focuses on how the constructivist learners organise the selected historical materials into verbal representations and selected visual images. This is done based on certain key and relevant ideas identified from the illustrations or from the video texts. They construct relations with destruction of wars, loss of life, and sufferings of people etc. Integration of historical information implies that the learners make one to one

connection between corresponding elements of the pictorial and verbal representations that children have constructed using their prior knowledge. The key component of constructivism in history is how the history teacher has constructed the content in history text book and how children are guided to construct the knowledge. Broad headings, highlights of various terms and concepts, construction of time lines and maps are some of the effective tools that assist teachers and students in the process of construction.

History teachers should provide a learning environment in their class room for children. This is an essential and pre condition for the construction of knowledge in history class rooms in the schools. It depends on various factors in schools. First of all history teachers should be aware of various activities that can be provided to children. Activities constructed for children should be authentic in the sense that they should inculcate interest, real or actual situations and provide opportunity for the construction of knowledge.

## VI

There was a wrong notion that children learn only within the four walls of a classroom. This notion has changed over the years. Children learn many things in their life beyond the textbooks and the classroom. For example, they learn social values when they come in contact with their peer group and with adults. Learning does not mean only

textbook learning. On the other hand, learning encompasses all aspects of one's life. During the festivals, national celebrations, village temple festivals and birthday celebrations of the great personalities many values are learnt. Society itself is a big classroom where children come in contact with varieties of persons like doctors, engineers, social workers, historians, scientists, social reformers, sports persons, film heroes, military officers, police, soldiers etc and get an exposure to plethora cross-social experiences of others.

First of all, it is important to know what is presented and what is not available in the history textbooks by the teachers. It is not a great job for teachers to teach what is there in the textbook. The challenging task is to teach them what is not there in the textbook which is known as moving beyond the textbook. There are many things which are available outside the textbooks. Whatever that is relevant to the topic which is not available in the textbooks students should get to know by exposing them to the information available through various information sites. The suggested strategy in this regard could be:

- to encourage children read a few other works written by various scholars. History teachers should refresh their knowledge by an effective use of historical works, journals, periodicals, films, source materials etc; History teachers should develop visual images for

the history topics/themes that are going to be transacted with children. This will enable children to develop a proper understanding and imaginary ideas;

- teachers should give ample opportunities to the children to explore, imagine, express through various tutorials, discussions, debates, seminars, creative writing etc. Students should be provided with well guided tasks and they should be encouraged to complete their tasks. At every stage they should be provided with appropriate feedback;
- well-designed project works will enable children to go beyond the text books. Children should be motivated to present information gathered for the project. This will develop their creativity. For example, when the history teacher teaches modern painting, teacher can ask the children to collect information from the local art galleries etc. In the class the teacher may introduce painting of a particular age as a topic for discussion. In class VII, history teachers can encourage children to gather information by introducing them Emperor Jahangir as a natural painter and ask them to explore what kind of brushes and colours were used by the Mughal Emperor, Jahangir in order to understand the nature of medieval painting. A visit to an art gallery is will be an added advantage for history teachers.



- teachers play a vital role in taking children on educational excursions, visits to important places like historical museum, zoo, exhibitions, bird sanctuaries, science and technology parks, museums, historical temples, rivers, dams, historical palaces etc in order to give them first-hand knowledge about society. Confining of children to the classroom will not improve their mental horizons. Schools may invite experts in different fields like scientists, social workers, agricultural experts, theatre persons, film stars, sport-persons etc to talk to children about their experience which will definitively add a lot of information to the community of children.
- children must be made to understand the concept of gender bias and how to treat boys and girls equally. Attitudinal change will definitely make children better in all aspects of their personal life. Also, children must be taught to give a fair deal to the challenged persons. History teachers can make children interview some of the historians to dig into past and to know the life of people in yester years. Children can be taken to the local historical places to get the glimpse of the past.

The traditional role of teachers as the discipliners of facts has come under scrutiny as envisaged in the *National Curriculum Framework-2005*. The teacher playing a role of

facilitator needs to utilise a wide variety of opportunities and resources in order to meet diverse learning needs of children in a classroom. At primary level, both social sciences and history teaching should relate to the local environment of the learners. The instruction should be appropriately planned to structure students' daily experiences while developing concepts in history so as to make learning a joyful experience. The overall aim should be to stimulate and strengthen scientific attitudes and historical abilities among children by drawing examples from their daily experiences. Too often, this is neglected by assuming that children need more elaboration on their local content. Actually, an imaginative history teacher knows the importance of developing teaching sequences related to every day experiences of the child. For example if a teacher is teaching about the coins the teacher can develop a questionnaire asking questions in order to get the primary information such as:

1. Identify the materials used for a given coin.
2. What are the various type of coins used in the ancient, medieval and modern periods?
3. Can you find out any writings on these coins?
4. Can you identify/infer the authority, the year and value of the coins? What was the language used in the coin?
5. What was the quality of the coin in terms of its design, materials used etc.?

Children should be encouraged to visit school library in order to consult sources available there. History teachers can collect some government papers, original books published by Archaeological survey of India, Anthropological survey of India, Census Reports, Gazetteers, Museum Bulletins, epigraphical Manuscripts, state and national archival material and other primary sources. These sources of information may be carefully preserved in the school libraries in order to encourage children to consult them as and when required in order to assist their learning. While teaching Ancient Indian History materials collected from the Archaeological Survey of India will greatly benefit both teachers and students. Similarly, while the teacher is teaching topics of the Medieval Indian History translated manuscripts of various Museums will assist them. Teachers should be aware of these materials before they lecture or demonstrate to children. While teaching modern Indian history, various documents can be photocopied from the state and national archives like famine reports, diaries of Governor Generals, newspaper reports etc and preserve them in the library. This will invariably assist history teachers in their teaching process of the topics pertaining to the modern Indian History. To get a holistic picture of history one should not get the titbits of history, but rather a complete and continuous picture of it so that

children can objectively study the materials offered to them. This will provide them a bird's eye-view of the past and help them understand the present in a meaningful way.

History teachers have an onus to build the complete picture of historical events and present them with examples and illustrations. Mere teaching history will not help. It should be taught with an understanding of making children realise the modern perspective of history. History should be integrated with other social science subjects such as geography, political science, economics and sociology. The content area of history can be integrated meaningfully if it is based on different topics. For example, in democracy, economic affairs and sociological affairs can go together. In political science, philosophical issues, human rights, education etc can be taken together. Emphasis on these issues is lacking in the text books. For the construction of knowledge history teachers and classrooms should provide natural or real situations or atmosphere for learning. It means that classrooms become the source for learning through experiences. History teachers should provide variety of learning situations such as projects, readings, field visits, field diaries, reports, class discussions for the construction of knowledge in history. Activities provided by the teacher should challenge the learners to reason, question, draw connections,



communicate, evaluate view points, perspectives in history must be identify and use evidences for better linked in the constructivist form of understanding. Multiple ideas and learning.

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

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

NANDINI NARAYANAN\*\*

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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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\* This study was conducted as a part of the author's doctoral work conducted at the Tata Institute of Social Sciences, Mumbai.

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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, Gurumukhi, 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 programmes 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 experiences. 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

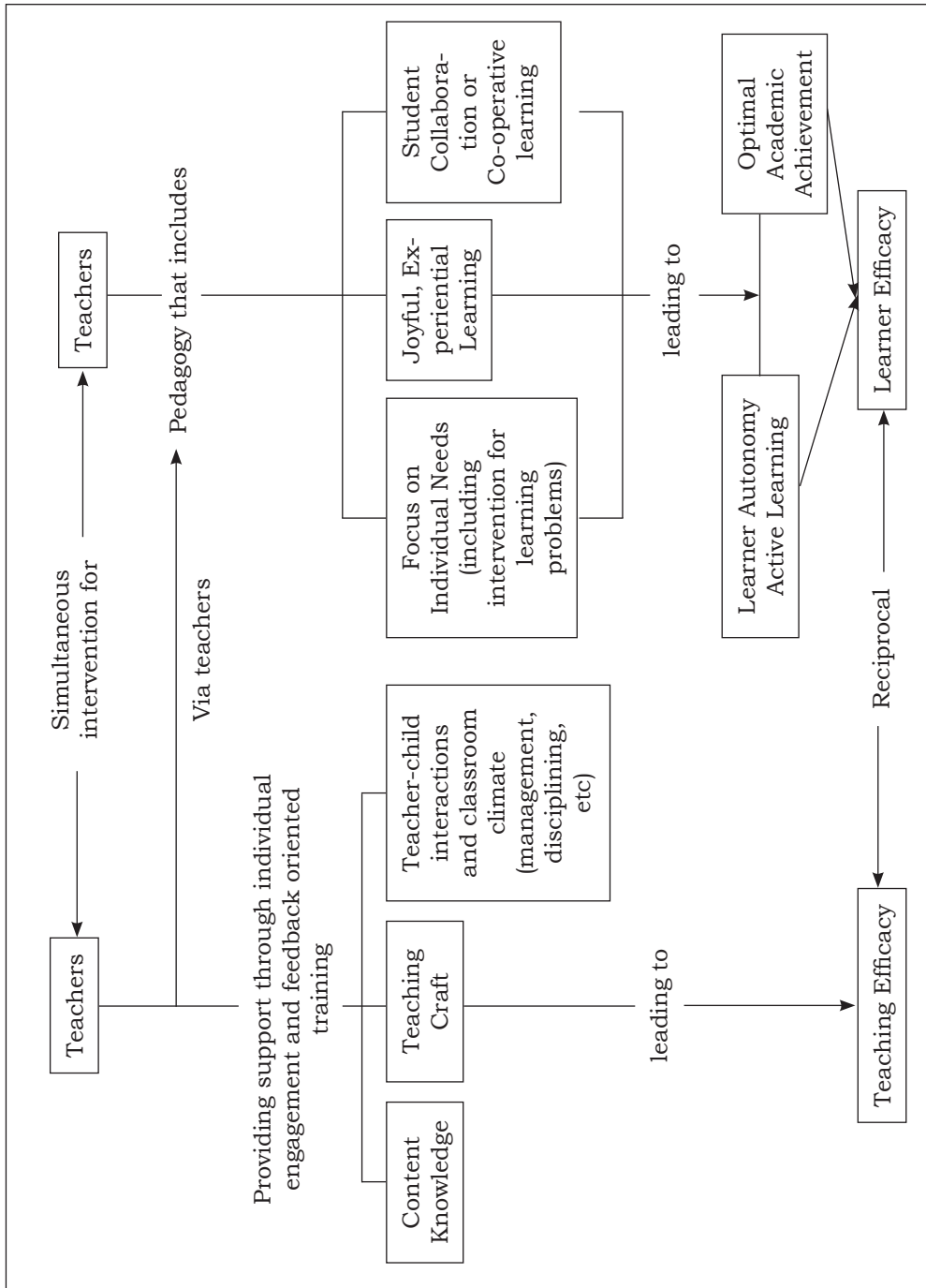


Figure: Reciprocal Model for Addressing Quality Issues in Education

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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# Mainstreaming of Out-of-School Children with Community Support

## A Study

KAMALA KANTA TRIPATHY\*

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### Abstract

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*One of the stumbling blocks on the road to achieve education for all is out of school children in the age group 6 to 14. To address the issue out of children, the All India Primary Teachers' Federation conducted a study in 2014-15 to bring out of school children in the age-group 6-14 to the mainstream with the support the community. The study was conducted in the states of Tamilnadu and Odisha. Investigators were selected to conduct household survey in the selected villages to identify out of school children.*

*In Odisha, the investigators identified 544 (283 boys and 261 girls) out of school children in the age-group 6-14. Out of these 544 children, 325 (175 boys and 150 girls) in the age group 6-14 were mainstreamed into schools in their neighbourhood with the support of community leaders. In Tamilnadu 46 (25 boys and 21 girls) are out of school children in the age group 6-14 were identified by the investigators. Of these, 43 (23 boys and 20 girls) were mainstreamed into class appropriate to their age in neighbourhood schools. But for this project, out-of-school children both in Tamilnadu and Odisha states might have remained illiterate throughout their lives.*

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### ACCESS TO ELEMENTARY EDUCATION— EXISTING SCENARIO

India has made significant strides towards increasing access to

education. There has been a manifold increase in the number of schools at different levels over the years. As a consequence, the net enrolment ratio in class-I has risen to about 88 per

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cent. Only 12 per cent of the children at the age of 6+ are still unreached (NUEPA, 2014). These children primarily belong to disadvantaged sections of society and households of the poorest of the poor.

Though there has been an appreciable improvement in the net enrolment ratio, but the dropout rate of students both at the primary and upper primary level, though declining over the years, is still alarming. At present, it is about 18 per cent at the primary level. This means that of 100 children admitted into class-I, only 82 complete successfully primary education. The rest of 18 are dropout on the way.

### **(i) Quality of Education**

The above situation reflects that high dropout rate at the primary level is a stumbling block towards the achievement of education for all. Not only this of the children who complete primary education, some hardly acquire requisite knowledge and skills to become productive members of the Indian society. This is primarily due to the reason that the quality of education has not kept pace with the quantitative expansion of education. The UNESCO EFA Global Monitoring Report (2014) also highlights that the quality of education is low in India. The report further highlights that even after completing four years of schooling, 90% of children from poorer households remain illiterate. This holds true for around 30% kids from poorer homes despite 5 to 6

years of schooling. There is learning crisis in India. Mostly children from poorer households are worst hit by this low quality of education. The report also warns that the learning crisis would affect generations of kids if no corrective steps are taken.

### **(ii) Out-of-School Children**

There is hardly any exact figure available about the number of out of school children in India in the age group 6-14. There are different estimates in this regard. One estimate is there are about 30 million out of school children in the age group 6-14. A Centre backed recent survey has revealed a disturbing trend that in the six years since the Right to Education Act, around 60 lakh children between ages six and 13 years remain out of school in the country. While children from Scheduled Castes and Tribes form 49% (29.73 lakh) of the deprived kids, those from other backward classes constitute 36%, which shows that RTE has brought little change in the lives of marginal groups. At 77%, a majority of out of school (OOS) children are in rural areas. Besides, 15.57 lakh Muslim children too are out of school, comprising 25% of unschooled children. In all, around 3% of the total 20.4 crore school-going children are deprived of their right to education. (Times of India dated 27th July, 2015.)

The number of out of school children is however, uneven among states and regions. India has already missed the target of achieving the goal

- quality education for all by 2015. The issue of out of school children needs to be addressed appropriately to achieve quality education for all.

### **RATIONALE FOR THE STUDY**

The high dropout is eroding the gains being made by increasing access to education. Therefore, there is dire need to check the dropout rate at primary and upper primary education or to eliminate altogether the phenomenon of dropout. This is possible through educating the parents/guardians of children. They need to be sensitized about the importance of education for development of children. Education develops life and livelihood skills.

Poverty impels some parents to withdraw their wards from school when they are in class III or IV and send them for labour to supplement the income of the family. They do so on the premise the income of their ward(s) would reduce their poverty. This is an erroneous notion. The child labour does not mitigate the poverty of the family, it rather perpetuates poverty. This is because children engaged in child labour are deprived of facilities for education. Many of them tend to remain illiterate throughout their lives. Since they are not able to develop proper livelihood skills, they end up as labourers throughout their lives. They suffer immensely for not fault of them. Parents need to be educated properly in this regard.

Further, there is a need to identify out of school children in the children in the age-group 6-14 and to admit

them into their nearby government primary/upper primary school in class appropriate to their age. It is possible to achieve this goal by educating and persuading parents/guardians of identified out of school children and with the active support of the community. In view of the above, it was decided to launch a study with the following objectives:

### **OBJECTIVES OF THE STUDY**

The objectives of the study were to:

- Identify out of school children in the age-group 6-14 in the selected area, with the support of the community leaders;
- Mainstreaming identified out of school children with the support of community leaders into government schools in their neighbourhood; and
- Orient parents/guardians, social activities, members of SMC, community members etc. with a view to bringing about a change in their mind set regarding importance of quality elementary education for all.

### **DESIGN OF THE STUDY**

#### **(i) Sample**

The study was conducted in the states of Tamil Nadu and Odisha. In each of these states, two districts were selected for conducting delineated activities. In each district, two blocks and five villages in each block were selected. The selected districts, and blocks in both the states are mentioned in Tables 1 to 3.

**Table 1**  
**Names of Selected Blocks in Vellore and Trichirpalli Districts**

<b>S. No.</b>	<b>District</b>	<b>Block</b>
1.	Vellore	Anaicut and Katpadi
2.	Trichirapalli	Trichy Urban and Manaparai

**Table 2**  
**Names of Selected Villages in Anaicut and Katpadi Blocks**

<b>Villages in Anaicut Block</b>	<b>Villages in Katpadi Block</b>
(i) Vettuvanam	(i) Arimuthumottur
(ii) Karungali	(ii) Virudhambat
(iii) Basuvanayini Kuppam	(iii) Sevoor
(iv) Kandaneri	(iv) Karasamangalam
(v) Thippasamudram	(v) Akkireddy Pudur

**Table 3**  
**Names of Selected Villages in Manaparai and Trichy Urban Blocks in Trichirapalli District**

<b>Villages in Manaparai Block</b>	<b>Villages in Trichy Urban Block</b>
(i) Maravanur	(i) Kalnayakkan St. Solamanagar Annai theresa colony
(ii) Kallipatti	(ii) Venis street, Antoniyar kovil St. Gandhi nagar
(iii) Podangupatti	(iii) Pudur Puthu St., Agraharam, Nagarathinam pillai. St. Salai pillaiar koil st.
(iv) Perumampatti	(iv) Sengulam colony. Palakarai
(v) Servaikaran patti	(v) Thooku medai, Thillai Nagar

In Odisha, two districts namely Bolangir and Boudh were selected. These blocks are mentioned in Table 4. In each of these districts, two blocks

**Table 4**  
**Names of Selected Blocks in Bolangir**  
**and Boudh Districts**

S. No.	District	Block
1.	Bolangir	Turaikela and Belpada
2.	Boudh	Harbhanga and Boudh

### (ii) Tools

The following tools were developed for collecting the requisite data for the study:

1. **Proforma - I** Recording Particulars of identified Out of School Children Admitted into Schools in their Neighbourhood
- Proforma - II** Consolidated Report of out of School Children Admitted into Schools
2. **Questionnaires**
  - i) Pre-test - Elementary Education
  - ii) Post-test - Elementary Education

### (iii) Description of Tools

#### **Proforma - I and II**

This tool was developed to record particulars of identified out of school children. These particulars include age in respect of out of school child, gender of the child, name of the child and his/her date of birth, his/her father's name, name of the school and the class into which out of school child was admitted. Performs-II is meant for consolidated picture of out of school children admitted into schools.

### **Questionnaires - Pre-test and Post-test for Elementary Education**

One of the approved activities of the project was to generate awareness among parents/guardians, teachers and members of the PTAs, MTAs, SMC, VEC etc. about the need and importance of education for all. Therefore, two questionnaires - pre-test and post-tests were developed to determine the effectiveness of orientation of the said personnel in changing their perceptions about the importance of elementary education. Pre-test comprised 12 items which were formulated to determine the existing perceptions about need for elementary education for all. The post-test comprised 14 items. These were structured to assess change in their perceptions about the need and importance of education for all as a result of their orientation.

### (iv) Procedure of Data Collection

- (i) For identifying out of school children, investigators were appointed. They were imparted training with regard to the process of interaction with parents/guardians for identifying out of school children in the age group 6-14. They recorded the requisite information in proforma-I. They also convinced them about the need and importance of education for all. They also had meetings with community leaders and sought their support in

persuading parents/guardians to admit their out of school children into school for their better future.

- (ii) For determining the impact of orientation programme upon participants' mindset regarding importance of quality education for all, pre-test and post-test were developed and administered to participants. Data resulting from these tests were analysed to gauge the impact.

### **HOUSEHOLD SURVEY**

The investigators went from one household to another in the selected villages in both the states and interacted with parents/guardians to identify out of school children in the age-group 6-14. They later reported that some parents did not cooperate with them. They, on one pretext or the other did not provide the requisite information. However, most of the parents did provide the requisite information with regard to their out of school children. The entire work in this regard was completed in about two months in both the districts. This uphill task could not have been accomplished without the active support of community leaders.

#### **(i) Mainstreaming of Out-of-School (OOS) Children**

Investigators visited all the 20 villages in all the identified blocks of Vellore and Tricherapallu districts of Tamilnadu state and identified out of school children in the age group 6-14.

Table 5 presents complete picture with regard to number of out of school children (both boys and girls) admitted into their nearby school in class appropriate to their age with the support of parents/guardians, community leaders and social activists.

Table 5 reveals that the investigators visited 3634 households. Forty three out of school children (23 boys and 20 girls) were admitted into their nearby government schools. The number is very small due to the reason that the dropout rate at the primary and upper primary level is quite low in Tamilnadu. This may also be due to the reason that some parents/guardians might have concealed the fact their ward(s) in the age-group 6-14 was out of school. They might have sent him/her to a household/factory/industry/ eatery for work to supplement the income of their family. Though the number is small, but the outcomes of the project are of quite significance and have far reaching implications. But for this project, most of these children might have remained illiterate throughout their lives. Besides, many of them would have ended-up as labourers throughout their lives. Their education has an implication for their children also. They would see that their children get education to the level higher than their own education. This would reduce illiteracy and poverty in the country.

**Table 5**  
**Out-of-School Children Admitted into Schools in four Blocks of Tamilnadu State**

Sl. No.	Name of the Block	No of Households Visited in the block	No. of Children below 14 years of age in the household		No. of Children below 14 Years not going to school		No. of out of school children in different age groups				No. of out of school children re-admitted in school		No. of the children admitted in different class							
			Boy	Girl	Boy	Girl	6-8	8-10	10-14	Boy	Girl	I	II	III	IV	v	vi	vii	Viii	
1.	Anaicut	813	277	267	5	3	2	4	2	5	3	0	1	0	4	1	0	2	0	
2.	Katpadi	744	217	194	9	13	8	2	12	9	13	4	3	1	2	0	6	3	3	
3.	Manaparai	1137	645	598	2	0	1	1	0	2	0	0	0	0	1	1	0	0	0	
4.	Trichy	940	546	541	9	5	3	4	7	7	4	1	0	2	0	2	4	1	1	
	Total	3634	1685	1600	25	21	14	11	21	23	20	5	4	3	7	4	10	6	4	

**Table 6**  
**Out-of-School Children Admitted into Schools in their Neighborhood in Odisha State**

Name of the Block	Number of Children below 14 years in the visited households	No. of Children below 14 years not going to school from the household		No. of the out of school children in different age groups		No. of out of school children who dropout from school		No. of Child/Children from the household who were readmitted into the schools		Name (s) of the child/Children, gender, date of birth, who were admitted in the school.	
		3	4	5	6	7	8	9	10		11
1	2	3	4	5	6	7	8	9	10	11	12
Harbhanga	456	42	30	42	18	12	00	00	42	30	72
Boudh	1284	98	95	157	16	20	45	77	90	82	172
Tureikela	338	112	102	51	78	85	1	1	28	23	51
Belpada	1127	31	34	30	15	20	02	02	15	15	30
Total	3205	283	261	280	127	137	48	80	175	150	325



### **Mainstreaming of Identified Out-of-School Children in Odisha State**

Investigators identified out of school children from the selected villages in all the blocks – Harbhanga, Boudh, Turiekela and Balpade. The data in this regard is presented in table 6.

Table 6 reveals that the investigators identified 544 (283 boys and 261 girls) out of school children in the age group 6-14. Out of 544 out of school children, three hundred twenty five (175 boys and 150 girls) were mainstreamed in Odisha state.

### **ORIENTATION OF PARENTS/ GUARDIANS, COMMUNITY LEADERS**

One orientation programme was held in each block of the selected districts in the both states. In this programme, members of School Management Committee, parents/ guardians, community leaders, teachers, social activists etc. participated. The objective of the entire programme was to generate awareness among participants about the need and importance of elementary education for all and to help them to perceive their role in achieving the goal of quality education for all. Two questionnaires were developed to gauge the change in the perceptions of the participants regarding the importance of education for all. One of these questionnaires was Pre-test and other Post-test. The Pre-test was administered to them before the orientation programme and the

Post-test after their orientation. As mentioned above, it was also intended to determine whether the participants perceived any change in their perceptions regarding child labour, need for quality education all.

### **FINDINGS**

The following are the main outcomes of the study –

In the selected four blocks of Odisha – Boudh, Harbhanga, Tureikela and Belpada, investigators identified 544 (283 boys and 261 girls) out of school children in the age-group 6-14. Out of these 544 out of school children, 325 (175 boys and 150 girls) in the age group 6-14 were mainstreamed into schools in their neighbourhood with the support of community leaders. From four blocks of Tamilnadu state, 46 (25 boys and 21 girls) are out of school children in the age group 6-14 were identified by the investigators. Of these, 43 (23 boys and 20 girls) were mainstreamed into class appropriate to their age in schools in their neighbourhood. This is remarkable outcome of the project. But for this project, out of school children both in Tamilnadu and Odisha states might have remained illiterate throughout their lives. Many of them would have become victim of child labour due to the poverty of their parents.

Another objective of the project was to bring about a change in the mind set of parents/ guardians, community leaders, villagers, social activists, teachers, students, etc.,

regarding importance of education for all. This was to be emphasised that elementary education for all is absolutely necessary to develop the human resource and to improve the economic condition of the people. It was thought that the desired change in the mind set of stakeholders would improve enrolment in schools to facilitate the long cherished goal – Quality Education for all.

For this purpose, multi-pronged approach was followed. Orientation programmes and rallies in all the selected blocks were also organised to bring about requisite desirable change in the mind set of all the above stakeholders.

An analysis of data which flowed from administration of pre-test and pro-test revealed that orientation programme impacted the mind-set of parents/guardians, community members, local level political workers with regard to need for elementary education for all. Four orientation programmes- one each in four blocks of Tamilnadu were organised. In these programmes 199 parents, guardians, community members, teachers, students, etc. participated. Of these, 198 participants reported that education for all is necessary. Besides, they perceived that they too have a role in achieving education for all and they would make necessary endeavours in this regard. They also expressed that they would meet parents/guardians and would impress upon them that they should

not send any of their children for labour. This is because child labour perpetuates poverty rather than mitigating it. Before to their orientation, only 18 participants have such a perception. This reflects the effectiveness of their orientation in bringing about a desirable change in their mind-set regarding importance of education for all and that the child labour does not mitigate the poverty of the family and rather it perpetuates poverty.

In Odisha state, two hundred thirty five parents/guardians, community members etc. participated. Before their orientation, only 32 participants held the view that education for all is very essential. After orientation of the participants, this figure rose to 210.

Rallies were also organised in all the eight blocks of both the states. In each rally, about three to four hundred persons participated. They were raising slogans regarding importance of education for all. But each rally was witnessed by more than 1000 persons including villagers from the place of its origin to the terminal place. Coverage of the rally was much more than that of an orientation programme. Thus both the orientation programmes and the rallies impacted the mind-set of all the stakeholders.

## **CONCLUSION**

The issue of out of school children in the age group 6-14 has contributed significantly to the failure of the

country in achieving the goal – addressed appropriately by seeking Education of All by 2015. The support of the community leaders in study reveals that this issue can be each village/habitation.

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## BOOK REVIEW

### **1. Yoga: A Healthy Way of Living (Upper Primary Stage)**

**PUBLISHER :** NCERT, New Delhi

**YEAR :** 2015

**PAGES :** VI+99, Rs 50

### **2. Yoga: A Healthy Way of Living (Secondary Stage)**

**PUBLISHER :** NCERT, New Delhi

**YEAR :** 2015

**PAGES :** VI+80, Rs 50

Benefits of Yoga as a practice for healthy life have been recognised for long. Making young people learn the practice of yoga scientifically benefit them as well as the nation to shape it into a healthier one. The two books by NCERT on yoga for school children in the age groups of ten to thirteen and fourteen to sixteen respectively for upper primary and secondary stages is an instrument to achieve aim of a healthy life for a healthy nation. There are many publications on yoga, but most of them are not addressing the needs of young children of the age group mentioned above. Each book is designed in such a way that the children can

follow the exercises well without any hassle and also by teachers and adults who practice children to do yoga. As statement of the Director, NCERT goes in the foreword, "The main emphasis of these materials in on developing physical fitness, emotional stability, concentration and mental development among the learners." The books are a valuable addition for schools as well as for our homes.

Each book contains four units. The introductory unit provides the guidelines for doing yogic activities, besides giving a brief history of yoga and the origin of it. The book for upper primary is carefully designed

for it has separate yogic exercises for Class VI children, Classes VII and VIII children. This is because yoga for very young children in the age group of 8-10 should be taken carefully as their bones are tender. Chapter three illustrates how yoga serves as an instrument for physical fitness. Explaining what flexibility is and how yogic practices can enhance flexibility, the chapter presents *asanas* which include: *Tadasana, Hastottanasana, Trikonasana, Katichkrasana, Padmasana, Yogamudrasana, Paschimottanasana, Dhanurasana, Makarasana, Supta Vajrasana, Chakrasanamd Ardhajalaksana, Sharvasana* and so on. Each *asana* is presented with a brief description what it is and what it is meant for, how to perform the same (giving step-by-step movement), most importantly the Do's and Don'ts of the *asana*, benefits of doing the *asana* and the limitation of the same. This makes the book very user friendly and any one can do yoga effectively with the help of the book.

Unit four of the book is titled as 'Yoga for Concentration.' The movement from physical fitness to concentration has to be gradual and natural movement for humans. This unit like the previous unit presents an overview and the whys of yogic practice for concentration followed by *anasanas*. *Asanas* for concentration are also presented in the same manner as in unit three. *Anasana* included in this unit are: *Garudasana, Baddhaadmasana, Gomukhasana, Ardhamatsyendrasana, Bhujangasana,*

*Shalabhasana, Makarasana, Matyasana, Naukasanam Setubandhasana, Makarasana. Matyasana, Naukaaan, Setubandhasana, Halasana and Shavasana.* The section under *kriya* has *asnisara* and the section under *pranayama* has *anuloma-viloma pranayama, seekari and pranayama and bharmari pranayama.* The last section is meditation which directs learners to unit two where how to perform meditation is described.

The book for secondary has also more or less the same structure and presents *asana* for children at secondary stage. *Asana* here are explained how to do them, benefits and so on. There are separate units for Classes IX and X. This makes it easier for children to start from the easier one to move on to difficult ones.

The way of the books have been produced needs a special mention. Designed in multi-colour with fine images which would attract children the books have been produced in a high quality glossy (120 GSM) imported art paper. The quality of print and the fonts are neat and clean; illustrations and table are presented in colours to make the book attractive. The team who developed the yoga books deserves special kudos for their efforts to make the books user friendly. A special mention has also to be made to the team leader and coordinator, Professor Saroj Yadav for making it possible to bring out the publication on time.

Why is this book important and, a must read and use for teachers,

students, parents and youths? Probably, this is the first time such a publication on Yoga for young children has been brought out with much care explaining the purpose of each *asana*, benefits of doing yoga *asanas* and dos and don'ts of the same. Generally yoga is taken for granted that it does not need any knowledge for practicing it. This book makes it a comprehensive practice guide which tells us how to do and what not to do. The guidelines can be followed by young children in school and parents who can guide their children to do the *asanas* well at home. There is no exaggeration of any *asana* for it makes a kind of

glorification; it is only makes children, teachers and parents understand the importance of yoga for healthier life for our children and to develop concentration. These books, I would recommend to parents, teachers and students for practicing yoga in a scientific way. These Yoga books are an essential reading for everyone and in every home.

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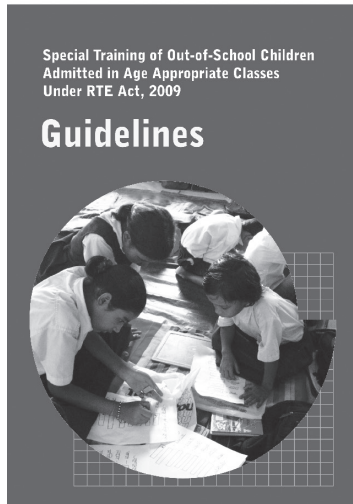
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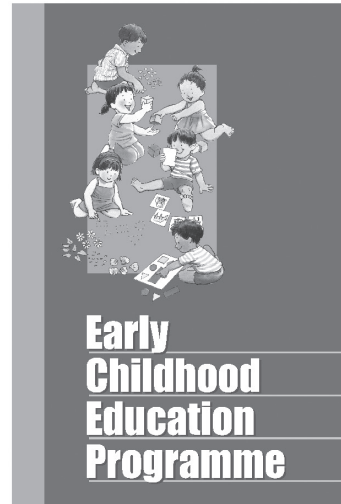
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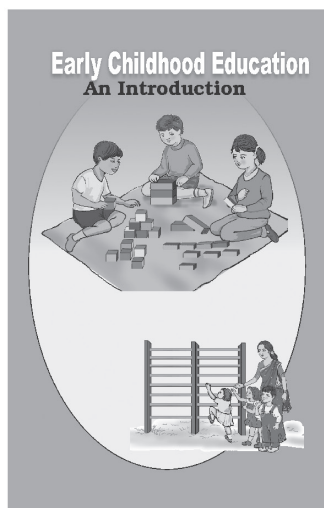
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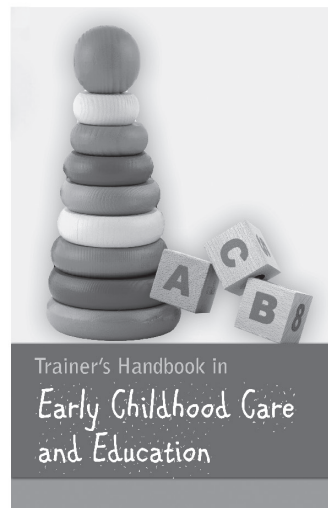
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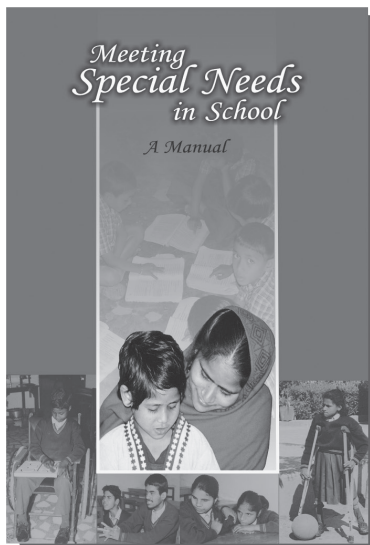


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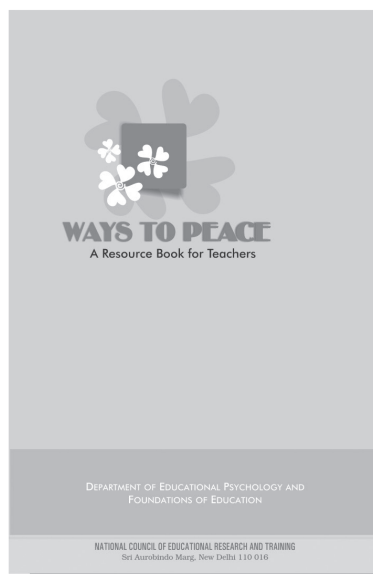
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