

# The Primary Teacher

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*The Primary Teacher* is a quarterly journal, brought out by the National Council of Educational Research and Training (NCERT), New Delhi. The journal intends to give practising teachers and concerned administrators authentic information about the educational policies being decided on and pursued at the central level. It also provides a forum for the discussion of contemporary issues in the field of education. The major features of *The Primary Teacher* are:

- Educational policies concerning Primary Education
- Questions and Answers
- States Round-up
- Illustrated material for classroom use.

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## CONTENTS

<b>Editorial</b>		3
<b>ISSUES AND POLICY PERSPECTIVE</b>		
1. REFORMING TEACHER EDUCATION	SANTOSH SHARMA	7
2. TRAINING OF TEACHERS – SEARCH FOR APPROPRIATE INSTRUCTIONAL STRATEGY	S.K. MISHRA	18
3. SYSTEMIC CHALLENGES FOR PRIMARY TEACHERS	SANJEEV KUMAR JHA	24
4. TRANSFORMATIONS: TEACHING-LEARNING PROCESS IN THE 21ST CENTURY	SAPNA YADAV	30
<b>SCHOOL PRACTICES</b>		
5. DEEPER LEARNING THROUGH CONSTRUCTIVISM – A CASE STUDY WITH PRIMARY CHILDREN ON NUMBER CONCEPT	P.K. CHAURASIA	37
6. CONTENT KNOWLEDGE OF ELEMENTARY SCHOOL TEACHERS IN MATHEMATICS	P. PONNUSAMY	48
7. CONNECTING CHILDREN TO NATURE	SHEFALI	52
8. CELEBRATING TEACHERS' DAY	VANDANA MISHRA	57
9. TEACHING ENGLISH LANGUAGE IN EARLY GRADES	PADMA YADAV	64
<b>Did You Know</b>		
<i>PADHE BHARAT BADHE BHARAT</i>		72
<b>My Page</b>		84

## *Do You Know*

According to the 86<sup>th</sup> Constitutional Amendment Act, 2002, free and compulsory education for all children in 6-14 year age group is now a Fundamental Right under Article 21-A of the Constitution.

**EDUCATION IS NEITHER A  
PRIVILEGE NOR FAVOUR BUT A  
BASIC HUMAN RIGHT TO  
WHICH ALL GIRLS AND WOMEN  
ARE ENTITLED**

*Give Girls  
Their Chance !*



## EDITORIAL

### Learning to Read

NCERT initiated 'field visit' programme for the faculty of NCERT, in which all the faculty members were required to teach in Government rural schools for three months. The objective of 'field visit' programme was to understand the current school practices and also the effectiveness of NCERT textbooks particularly in the rural school context. In one such 'field visit' programme, while teaching Mathematics to Class V, I realised that students' inability to read the sentences in the Mathematics textbook was a hindrance in the learning of Mathematics. Then, I tried to find out how many students could read their Hindi textbooks meaningfully. After a short reading activity, on the basis of students' reading ability, four groups could be identified. The first group of students could read their textbooks meaningfully; they could also read simple story books and informative literature such as 'Measures for Prevention of Dengue' meaningfully. The second group of students could recognise words and read them correctly. Surprisingly, however, they did not seem to be able to make sense of the written text. The third group of students recognised the letters of the alphabet and sequentially grouped these into words. For example *ma, cha, lee (machalee)*. The fourth group of students recognised the letters but could not group these meaningfully into the words. This raised a question: What factors could be responsible for such a situation? I tried to find out the factors that influence the development of reading ability. I observed teaching-learning processes, interacted with teachers and students, and also compared the reading ability of students studying in different classes.

The teachers use alphabetical approach, where students are first taught to recognise the letters of the alphabet in this case, Hindi. The students are expected to memorise the letters of the alphabet in sequence (*varnamala*). Children learn appropriate sound label for letters of the alphabet. To teach sound labels, teachers use words, for example *ka for kamal, A for Apple*. For English, students were seen memorising the spelling of words, H-A-T (HAT). For learning Hindi, students did not memorise spelling; they read separate letters and grouped these into words. Slowly they start reading words and sentences. However, the study conducted by NCERT in Mathura (U.P.) suggests that 'whole' language approach facilitates meaningful learning. The 'whole language' approach essentially means the integration of the four language skills in the language classroom. With 'whole language' approach, the number of students struggling to group letters into words

can be significantly reduced. However, teachers in this school, believe that recognition of the letters of alphabet is essential and a mixed approach, taking the best of alphabetic, phonetic and 'whole language' approach may work better. Experiments by teachers can help them to evolve effective methods and strategies. The 'whole language' approach has not reached the schools. All teachers' training programmes should have some discussion on 'teaching approaches for early grades'.

Interaction with the students revealed that all the students who could read meaningfully had a regular private tutor at home. The private tutors too used the same traditional alphabetical approach but they spend a fixed number of hours with students and also provide individualised instruction. Even in group tuitions, individual learner's difficulties are addressed. This suggests that adult support at home in the form of a tutor or any other family member facilitates the development of reading skills in children.

The third factor investigated was the availability of reading material other than textbooks. Many schools visited during 'field visit' programme, have a collection of children's books kept locked in a book case. In some schools the books are not issued to the students. Also there is no library period or reading time in school time schedule. Interaction with teachers revealed that the teacher in-charge of the library issues books only to the class teachers. The class teacher has to take the responsibility of returning books to the library in good condition. The teachers are apprehensive that students may take books home and may not return them or may damage the book. Practically students do not get books to read. However, the field experiences of NCERT faculty show that students love to read story books and other interesting material related to forests, wild life, nature, new places, life stories, experiences etc. It was observed that children, who can read meaningfully, borrow books from different sources and enjoy reading books. The 'Barkha series' and 'Firki Magazine' developed by NCERT, were very much liked by the students. Students who get opportunities to read story books or other interesting literature become better reader. Therefore, schools must ensure that all students get books of their interest from the library. Schools must encourage students to read Children's page in newspapers and other literature available in the school library.

I also compared the reading ability of students from different classes of the same school. In those classes where teachers are regular and time devoted to each task is more, the reading skills of students are better. Further, the reading ability of students can be improved with teacher efforts.

The field visit programme suggests that factors which influence the development of reading include teacher efforts, availability of reading material and print rich environment, teaching approach and adult support at home.

Dear teachers we look to you to support our Government's programme, 'Padhe Bharat Badhe Bharat' putting in all your efforts, providing children more time for reading, making books and print material available to them and innovating effective strategies for teaching in the early grades. The programme will surely become a success with your efforts.

— **Academic Editor**



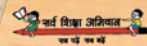
अपना कोना, अपनी किताब  
पढ़ने को है मन बेताब



मौका दो पढ़ने का, लिखने का  
मन की बातें कहने का



राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्  
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING





### Reforming Teacher Education

Santosh Sharma\*

#### Background

The need to reform teacher education in India has been expressed in various commissions and committees on 'Teacher Education' but very few concrete steps have been taken during the past fifty years. Let us examine what various commissions and committees say about teacher education reforms. The Kothari Commission (1964-66) noted that there is a need to bring teacher education into the mainstream of the academic life of universities on the one hand and of school life and educational development on the other. The Commission recommended the introduction of "integrated courses of general and professional education in universities with greater scope for self-study and discussion and a comprehensive programme of internship." The Chattopadhyay Committee (1983-85) reiterated the concurrent model of teacher education that is, general and professional education to be pursued concurrently.

The Commission recommended that the length of these concurrent courses following the completion of Class XII be five years. Both the Kothari Commission and Chattopadhyay Committee recommend concurrent programmes for teacher education and the placing of these programmes in universities.

*The National Policy on Education (NPE-1986-92)* emphasised the improving of quality of teacher education. The policy recognised that, "...teachers should have the freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs of and capabilities of and the concerns of the community." *The National Policy on Education (1986)* recommends improvement in quality of teacher education by the setting up of quality teacher education institutions at district and state levels. The policy recommends, "District Institutes of Education and Training (DIETs) will

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be established with the capability to organise pre-service and in-service courses for elementary school teachers and for the personnel working in non-formal and adult education. As DIETs get established, sub-standard institutions will be phased out. Selected secondary teacher training colleges will be upgraded to complement the work of State Councils of Educational Research and Training (SCERTs). The National Council of Teacher Education will be provided the necessary resources and capability to accredit institutions of teacher-education and provide guidance regarding curricula and methods. Networking arrangements will be created between institutions of teacher education and university departments of education”.

The *National Curriculum Framework* (NCF, 2005) focuses on improving the quality of teacher education by bringing about changes in the existing methods of teaching-learning and recommends a pedagogical shift from teacher centered to learner

centered; a curricular shift from disciplinary to multidisciplinary focus, and assessment changes from short, few appraisals to multifarious, continuous appraisals. The *NCF-2005* views learning as an active process where learners construct their own knowledge based on their experiences and prior knowledge in the social and cultural context of their situations.

### **Reforming Teacher Education**

On the basis of recommendations of various committees and commissions, and interactions with teachers and teacher educators, teacher education reforms with proper planning, a vision for teaching, and redesigning curriculum and assessment strategies, are urgently required.

### **Planning Teacher Education Programmes**

Teacher Education Programmes prepare teachers to teach in our schools. It is, therefore, necessary to consider school structure and curriculum for planning teacher education programmes.

#### **School Structure and Curriculum**

<i>School Stage</i>	<i>Classes</i>	<i>Curricular Areas</i>
Preschool	Nursery, K.G.	Development through play, arts (drawing, dance, singing etc.)
Elementary		
• Primary	I-V	Language(s), Mathematics, Environmental Studies, Arts Education, Physical and Health Education
• Upper primary	VI-VIII	Language(s), Mathematics, Science, Social Science, Arts Education, Physical and Health Education
Secondary	IX-X	Language(s), Mathematics, Science, Social Science, Arts Education, Physical and Health Education

Sr. Secondary	XI-XII	Different Streams such as Science, Arts and Humanities, Commerce etc. Science stream has subjects of Physics, Chemistry, Biology, Mathematics, Language.
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### ***Types of Teacher Education Programmes***

District Institutes of Education (DIETs) offer two years Diploma in Elementary Education (D.El.Ed.) that prepares teachers to teach Classes I-VIII. Students with Senior School certificate or higher secondary qualification are eligible for admission to this diploma.

Delhi University offers four years Bachelor of Elementary Education (B.El.Ed.) degree course that prepares teachers to teach Classes I-VIII. Students with Senior School certificate or higher secondary qualification are eligible for this degree course. NCERT is developing a new degree course of four years that will prepare teachers for preschool and primary stage.

The general perception in primary schools is that B.El.Ed. degree holders are better teachers compared to diploma (D.El.Ed.) holders. In B.El.Ed. course, students revisit school curriculum and also learn content of higher level (degree level). However, many universities do not recognise B.El.Ed. course as equivalent to their B.Sc. or B.A. courses for admission to post graduate courses. For this reason of non-equivalence, there were not many takers of B.El.Ed. course when RIE, Mysore started this course.

Bachelor of Education (B.Ed.) programme offered by most teacher training institutes prepares teachers to teach Classes VI-XII. Graduates and Post Graduates are eligible for this course. Teachers with B.Sc. B.Ed. or B.A.Ed. qualifications are employed as (Trained Graduate Teachers) to teach Class VI-X and Teachers with M.Sc. B.Ed. and M.A. B.Ed. are employed as (Post Graduate Teachers) to teach Classes XI and XII. NCERT offers an integrated course of four years B.Sc. B.Ed. and B.A. B.Ed. that prepares teachers to teach Classes VI-X.

### ***Recruitment of Teachers at the Elementary Stage***

Teachers for the Elementary stage are recruited as Primary Teachers (PRTs) and Trained Graduate Teachers (TGTs). The primary teachers are required to teach all the subjects to Classes I-V. For upper primary stage (Classes VI-VIII), subject specific teachers are recruited such as Science Teacher (TGT Science), Mathematics Teacher (TGT Mathematics), English teacher (TGT English) and so on. Diploma holders (D.El.Ed.) and B.El.Ed. degree holders are both employed as Primary Teachers (PRTs). Chandigarh has started to pay TGT scale to B.El.Ed. degree holders teaching Classes VI-VIII. In general, the eligibility condition for TGTs is graduation in concerned

subject and B.Ed. B.Sc B.Ed. from both consecutive and concurrent courses are treated as equivalent and employed as TGTs.

### ***What are the issues in planning teacher education programmes?***

- The anomaly in school structure and curriculum, and teacher education programmes needs to be addressed.
- The anomaly in teacher preparation and recruitment needs to be addressed.
- *NCF-2005, NCFTE-2009* and scheme of restructuring teacher education programmes recommend that all teacher education programmes should be with the universities with a minimum of graduation degree. What is the plan and strategy for bringing elementary teacher education programmes in the main stream academic life of universities?
- NCTE recommended increasing the duration of B.Ed. course to 2 years. Will this require increase in duration of integrated four years courses, B.Sc B.Ed. and B.A.B.Ed. also?
- Should undergraduate colleges with a department of Education be encouraged to start integrated B.Sc B.Ed. and B.A. B.Ed. courses? There is criticism that teacher training colleges work in isolation and that better co-ordination between subject teachers and pedagogy teachers is required.

### ***Restructuring teacher education programmes***

There should be three kinds of courses:

1. **Preschool and Primary teachers**  
This can bring in continuity from preschool to primary and can also meet the system's need of trained preschool teachers. At present preschool teacher training is mainly with the private sector.
2. **Upper primary and secondary teachers (Classes VI-X)**  
This is the present practice and is justified because subject specific teachers are required at these stages. The curricular areas at upper primary and secondary stage are same and there is continuity. Moreover, the pedagogy of primary and upper primary is different.
3. **Senior Secondary (Class XI-XII).**  
**Vision for teaching:** After having discussed about the structure of teacher education programmes, next a vision for teaching needs to be developed so that curriculum and assessment procedures can be designed to realise this vision. Vision indicates a philosophy and approaches to teaching. A comprehensive philosophy or body of theoretical knowledge is essential for effective teaching. The vision should also reflect the image of practice and the commitment of teachers. Teachers should be aware of the full range of goals and processes of teaching. The vision of teaching presented in *NCF-2005* suggests the following principles:

- Teacher creates learner-centered and inclusive classroom
- Uses learner-centered teaching-learning process where child is the constructor of her own knowledge and teacher is a facilitator in the process of learning
- Gives primacy to the child's experiences and voices
- Relates learning to the social and cultural context of the learners and makes learning relevant for children
- Ensures that learning shifts away from rote methods
- Connects knowledge to life outside school
- Provides enriching curriculum for all round development of children rather than remaining textbook centric.
- Makes Assessment an integral part of the teaching-learning process.

This vision indicates a philosophical change. Traditional methods consider knowledge as “fixed”

which can be transmitted from teacher to the learner. The new vision views knowledge as evolving and incomplete. The learners learn only when they are active participants in the process of knowledge construction. The teacher is merely a facilitator in the process of learning and role of teacher is to provide learning experiences and learning situations to the learners. Learners construct knowledge using their prior learning and the experiences in the social and cultural context in which they are situated.

This changing perception about learner, learning and teaching is presented in the following table.

### **Changing School Context**

The vision also reflects the changing social and political context. RTE Act, 2009 makes ‘free and compulsory education’ a fundamental right for all children in the age group of 6-14 years. With implementation of RTE Act, 2009, neighbourhood schools

### **Changing Perception about Learner, Learning and Teaching**

<i>From Behaviourist</i>	<i>To Constructivist</i>
Learning is a passive receptive process.	Learning is an active meaning making process required to solve meaningful problems.
Teacher transmits knowledge and skills to passive learners.	Teacher provides children opportunities/ learning experiences to construct knowledge.
Learner is a passive receiver of knowledge.	Learner selects and transforms knowledge, constructs hypothesis and makes choices.

Teacher transfers knowledge that she has acquired, to the learner. Learners' beliefs and learning dispositions are generally not taken into consideration.	Teacher uses learners' existing knowledge, beliefs, attitudes and cognitive predisposition as resource(s).
Learning implies change in behaviour.	Learning implies reorganisation of prior conceptual schemes.
Learning depends on teaching and systematic reinforcement of correct behaviour.	Knowledge is constructed gradually through experience, interaction and adult support.
Teacher addresses specific objectives or learning outcomes.	Teacher addresses the process of learning and development of thinking.
Draws directly on existing subject knowledge in a logical, linear manner.	Uses direct experience and allows children to explore in their own way at their own pace.
Difficult to adapt structure of subject matter to varied pupil needs.	Anticipates individual differences and responsible autonomy from children.
Teacher follows rigid lesson plans.	Flexible lesson plan that develops on pupils' responses.
Teacher evaluates learner's achievement using norm-referenced standardised tests.	Assessment is an integral part of teaching-learning process. Teacher and pupil both assess learning progress with the help of student's record of work.
Evaluates students' responses as 'right or wrong'.	Accepts students' responses as alternate ways of thinking.
Stresses mastery of small bits of knowledge.	Takes 'holistic' view of knowledge.

will have children from all sections of the society– middle and poor class; socially disadvantaged groups–SC/ST, girls and ethnic minorities. Also the first generation school goers have just begun going to school– a phenomenon that was not there earlier. RTE Act also suggests that a child can take entry in the school at any point of time in an academic year. In this scenario, children in the same class will have different prior learning levels/experiences. The new

challenge for teachers would be to teach in inclusive classrooms with a heterogeneous class setting. This requires a shift from 'one method for all' to a variety of learning situations for diverse learners. In the changed situation, teachers will require competence and capabilities to develop a variety of learning experiences/ situations to suit diverse learners. Similarly, a flexible curriculum to meet the needs of diverse learners would be required, that is, a shift from

'rigid content or teacher-centered' to 'flexible, contextualised, learner-centered' curriculum according to needs of individual learners. Teachers will require capabilities for curricular adaptation according to the needs of each individual child. Another challenge for teachers will be to teach in multilingual classrooms. As per RTE Act, the medium of instructions, shall, as far as practicable, be in the child's mother tongue. This has implications for preparing teachers to teach in multilingual situations.

***What must a teacher know and do in the changed scenario?***

- Cares for children, and love to be with them.
- Understands children within social, cultural and political contexts.
- Designs activities/learning tasks that will both engage and challenge all learners in a heterogeneous setting.
- Creates enabling learning environment.
- Analyses curriculum and participates in curriculum development process.
- Assesses students' achievement in ways that move learning forward.
- Works effectively with diverse others.
- Inquires into her own teaching and learning. Questions old assumptions.
- Views learning as a search for meaning out of personal experience,

and knowledge generation as a continuously evolving process of reflective learning.

- Views knowledge not as an external reality embedded in textbooks, but as constructed in the shared context of teaching-learning and personal experience.

***Designing Teacher Education Curriculum***

A close examination of D.El.Ed. and B.Ed. curriculum of different states reveals that there is hardly any difference between the two. Further the syllabus of D.El.Ed. and B.Ed. (in many institutions/universities) has not been changed for past several decades. The theory papers include Philosophy of Education, Psychology of Education, and Teaching of various curricular areas. In the 'Philosophy of Education' paper the philosophies of John Dewey, Maria Montessori etc., are taught. In the 'Psychology of Education' paper learning theories (Thorndike, Skinner, Gestalt), theories of personality, growth and development, theories of intelligence etc., are taught. These theories are not perceived by teacher educators to be related to school practices. The papers on the teaching of various subjects discuss objectives and methods of teaching such as lecture-cum-demonstration or lecture-cum-discussion, project method, inductive and deductive methods etc. The methods are prescriptive where the teacher educator discusses the steps in each method, merits and limitations of the method. The

Psychology teacher teaches psychology and the methodology teacher teaches methods of teaching. The teacher educators do not relate 'philosophy and psychology of education' to the methods of teaching or other school practices. During teaching practice, rigid lesson plans are prepared and delivered. Pupil teachers in B.Ed. are required to deliver 40 lessons, twenty in each teaching subject. In D.El.Ed. the number of lessons per subject decreases further.

In view of the changing perception about learner, learning and teaching, the teacher education curriculum needs to be redesigned. In D.El.Ed. courses the focus should be on 'childhood-understanding childhood-growth and development, how children learn, life of children, their social and cultural context etc. Child-centered pedagogy, assessment and child, friendly schools should be the focus. There is a need to integrate theory and practice. The changing school context with heterogeneous class setting, first generation learners and multilingual classrooms, poses new challenges to the teacher.

The Teacher Education curriculum proposed by NCTE emphasises understanding childhood, social and cultural context of learners and relating school education to lives of children.

#### **Recommendations of NCFTE-2009**

- Pre-service teacher education programmes should provide

sustained engagement with children in school situations, experiences of teaching children and observing them, and regular teachers in classrooms.

- Student-teachers should be encouraged to keep observational records, to analyse their observations and interpret reality within varying theoretical and experiential frameworks.
- Theory and practice should be integrated in a manner that allows an easy flow of movement from experience to theory and theory to field experiences.
- Longer duration of internship (minimum of 12-20 weeks) – the intern would get the opportunity to learn to set realistic goals in term of children's learning, curricular content and pedagogic practice.

#### **Curricular Areas (Preschool and primary stage recommended by NCFTE-2009)**

Area 1: Foundations of Education

- I. Basics in Education: conceptual and contextual understanding of education; nature and forms of knowledge; aims and values in education.
- II. Childhood, child development, understanding children within social and cultural contexts.
- III. Learning and cognition.
- IV. Schooling, socialisation and identity.
- V. Vision of Indian education.



Area 2: Curriculum and pedagogical theory (What to teach; how to teach and how to assess). In this paper child centered curriculum and pedagogies must be emphasised.

- Pedagogy of Language(s).
- Pedagogy of Mathematics.
- Environmental Studies.
- Pedagogy of Arts and Aesthetics.
- Pedagogy of Health and Physical Education.

Area 3: Making teachers culturally sensitive and socially responsible

- Understanding and appreciation of cultural diversities of marginalised communities (SC/ST).
- Addressing the diverse educational needs of children, particularly first generation school-goers.
- Developing sensitivity towards gender issues.
- Developing the pedagogical skills required in inclusive classrooms (special needs children).
- Understanding and appreciation of 'Education for Peace'.
- Developing sensitivity towards environmental issues (conservation and regeneration).

Area 4: Experiences for Teacher Enrichment

- Strengthening Language Proficiency.
- Use of Information and Communication Technologies for Effective Learning.
- Health and Well-being (through Yoga).
- Arts and Aesthetics.

- Exploring Library and other Learning Resources.

*Internship:* Internship should be of longer duration, 12-20 weeks.

There is a need to change the present practice of training teachers to prepare and deliver rigid lesson plans in standardised formats based on textbooks as 'given'. Instead of being provided training to teaching through a set of traditional methods, pupil teachers should be allowed to examine and reflect on their own experiences and practices as part of classroom discourse and enquiry. Innovative teaching strategies by pupil teachers should be encouraged.

### ***What kind of pedagogical changes are required in Teacher Education***

In teacher education programmes too, the role of teacher educator is that of a facilitator. The teacher educators need to design learning experiences and situations. Pupil-teachers must reflect upon the existing practices and evolve their own strategies based on their school experiences. Instead of using prescribed methods step by step, they need to analyse students' responses and their lessons should build on these responses.

Pupil-teachers must be provided opportunities to share what they have learned so that knowledge is seen as something constructed by themselves rather than something coming to them from outside. Pupil-teachers

must learn how to provide the very opportunities to their own students so that they too would learn how to identify and solve authentic problems, designing solutions, and viewing themselves as active producers of knowledge.

Pupil-teachers should be provided opportunities to explore authentic problems rather than the mastery of de-contextualised content and skills. Learning needs to be contextualised by linking theory and practice where the aim is to build reflective practitioners. To function as facilitators, teacher educators should have good understanding of subject and also the capacity to make subject accessible to diverse learners. Teacher-educators must relate content to real life experiences of pupil-teachers and the school context. Content must be seen from learners' perspective. School practice needs to be the core of teachers' professional preparation. Teacher-educators should also teach in schools at least 12 hours per year to understand what works and what does not work. The methods should not be prescriptive, taught in a theoretical manner. In-service teachers, pupil-teachers and teacher educators should all work as a team learning from each other and sharing their experiences.

### ***Assessment in Teacher Education***

When teaching methods change, assessment procedures must change accordingly. Assessment is an integral

part of teaching-learning process. The purpose of assessment is to provide constructive feedback to pupil-teachers. During school experience programme, pupil-teachers should develop reflective diaries and use these reflections to develop their ideas. Record of pupil teacher's work including reflective diaries should be considered for assessment. The assessment needs to be evidence based. Qualitative indicators specific to each area of assessment need to be drawn up. The tools for assessment may include:

- Pupil-teachers' record of observations, field notes, reflective diaries.
- Teaching-learning activities, materials and resources developed by pupil-teachers.
- Observation schedule for classroom interaction, communication skills, ability to engage children, time management.
- Participation in discussions, analysis and reflections.
- Pupil-teachers' portfolios.
- Teacher educators' record of observations.
- Assignments, projects, journal of reflections, action research reports.

The assessment may be in terms of qualitative remarks. Constructive feedback should be provided to the pupil-teachers. Teacher educators should use feedback from assessment to improve their own teaching-learning. The ultimate purpose of assessment is to improve teaching-learning.

Learning is a continuous lifelong-process. The teacher educators and teachers must continue to learn. A good teacher is one who is always learning.

A reform in teacher education is the key element for improving quality of school learning and enhancing learning achievement of learners.



Educate her, as She will Spread the Light of Knowledge

## Training of Teachers – Search for Appropriate Instructional Strategy

S.K. Mishra\*

Presently the training of teachers, both prospective and practicing, is very weak. One of the main factors contributing to this situation is that teachers are trained in a way that students in schools are taught. This is based on the premise that learning behaviour of both adults and students is the same. This is an erroneous assumption. There are researches which now reflect that children and adults learn in fundamentally different ways. There are now two sciences – Pedagogy and Andragogy. The former is the art and science of helping children to learn and the latter stands for art and science of helping adults to learn. Malcolm Knowles, an American practitioner and theorist of adult education is the pioneer of andragogy.

For an effective training of both prospective and practicing teachers, andragogy needs to be used, failing which the human and material resources invested would not result in expected dividends. Adults' training

needs to be based on six principles. Teacher educators should adhere to these principles while training teachers. One of these principles is that training of teachers should be problem-centered rather than subject centered. This is based on the fact that adults possess vast knowledge and experience when they come to the training situation. They want to invest these experiences in the teaching-learning process. Further, adults want to work in groups in order to solve problems or to learn something new. If they are subjected to lecturing, they hardly take interest in the learning experiences.

Further like children, adults also learn in number of ways rather than in one way. Howard Gardner has mentioned that human beings learn in eight different ways since there are eight intelligences rather than one general intelligence (g). Adults also need physical comfort in the learning situation. The relationship between

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an adult learner and adult trainer has to be different from that of a student and teacher in a school. Adult trainer needs to be very courteous and friendly to the adult learner.

### **1. How Do Human Beings Learn?**

How does an individual learn, nobody is certain? This is because the learning process is invisible. It is possible to assess the learning, that is, the learning achievement of an individual. In the pre-service teacher education programmes, prospective teachers are exposed to learning theories such as trial and error, operant conditioning, learning through insight, constructivism and 'sit and get' approach. Learning theories describe how the information is perceived, processed and retained by an individual learner. Prospective teachers are equipped with different instructional strategies, methods, approaches and techniques constituting pedagogy – the art and science of helping children to learn.

### **2. Do Children and Adults Learn in the Same Way?**

Earlier, it was visualised that children and adults learn in the same way. As a consequence, pedagogical methods, approaches and techniques which were used for helping children to learn, have been or are even being used presently in the training of prospective and in-service teachers. Practising teachers undergoing professional development programmes often report overtly that pedagogic techniques used

by resource persons for transacting the training content are not suitable at all. As a result, the quality of learning experiences in the professional development programmes is affected adversely. It is now recognized that adults and children do not learn in the same way. There is no learning theory appropriate to all ages. There is, therefore, a need to search for an appropriate theory for teaching adults.

### **3. Children and Adults Learn in Fundamentally Different Ways**

Presently, there is thinking among scholars and educational researchers that children and adults learn in fundamentally different ways. The ways in which adults learn has been an area of interest to scholars and educators. This is because, once the way in which adults learn is determined, the quality of training of pre-service and in-service teachers can be improved upon substantially. It would be possible to optimise teachers' (both pre-service and in-service) learning potential. Malcom Knowles has done a lot of work in the area as to how adults learn. If we look into the history as to when the theory of adult learning was developed, we find that andragogy as a study of adult learning originated in Europe in 1950s and was then pioneered as a theory and model of adult learning from the 1970s by Malcolm Knowles – an American practitioner and theorist of adult education, who defined andragogy as "the art and science of helping adults to learn" (Zmeyov, 1998; Fidishun, 2000).

## 4. Principles of Adult Learning

Malcom Knowles identified six principles of adult learning.

- Adults are self-directed;
- Adult learn through collegial problem solving;
- Learning is facilitated when new information is connected to the vast background of knowledge and experience that adult learner brings to the learning situation;
- Information is received and processed in more than one way;
- Trainees are provided ample opportunities to reflect on gained experiences; and
- Experiential learning.

### **4.1 Adults are Self-directed**

Adult learners resist learning when they feel others are imposing ideas/ action(s) on them (Fidishun, 2000). A teacher educator in a college of education should not impose information on their learners. She/ he should rather foster among them internal motivation to learn. She/ he should encourage them to use resources such as library, journals and internet. According to Knowles, while children are dependent, adults see themselves as self-directing. Children have questions which they want to be answered by someone else. On the contrary, adults perceive themselves as capable of answering a part of their questions. Children expect to be told as to what they need to do; adults have their own notions and viewpoints as to what they want

to do and learn. Children put a low value on their experience.

### **4.2 Learning through Collegial Problem Solving**

According to Knowles, adult learning occurs through problem solving. Most of the adults engage in learning activities with the hope of solving a problem rather than with the intention of learning a particular subject. The training of both pre-service and in-service teachers must therefore, be problem-centered rather than subject centered.

Knowles further mentions that adults learn most effectively when engaged collaboratively with peers. Therefore, collaboration is the key for effective training of both pre-service and in-service teachers. Adults learning styles need to be recognised. Teaching/training strategies of adults must match their learning style.

### **4.3 Learning is facilitated when new information is connected to the vast background of knowledge and experience that adult learner brings to the learning situation**

Adults bring with them vast background of knowledge and experience. The knowledge possessed by an adult is a valuable asset to the learning environment. But a group of adults is more heterogeneous than a group of young students. Adults want their teacher to connect new information to what they already know. Adults want to invest their

knowledge and experience into the teaching-learning process. They therefore, like to be given opportunities to use their existing foundation of knowledge and experiences gained from life experience, and apply it to their new learning experiences.

On the other hand, teachers' earlier experiences are also a double edged sword. It can be rich resource or an impenetrable defence against new learning. Trainers therefore, need to focus on goals, to use effective questioning and counselling skills and to maintain a facilitative relationship with learners. Otherwise, learners may use their experience in defensive ways.

#### ***4.4 Information is received and processed in more than one way***

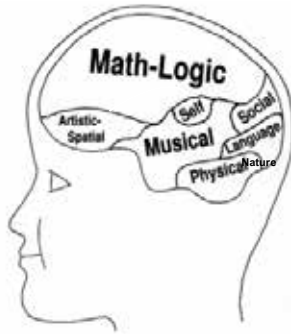
All over the world, teachers teach in such a way that students, who are endowed with highly developed linguistic and logical mathematical intelligences learn the best. Those who are endowed with less developed linguistic and logical intelligences do not learn properly. These students are often labelled as 'learning disabled'. This is based on the premise that students learn in one way only.

Earlier intelligence was believed to be a unitary concept (g) as advocated by Binet (1914). Now psychologists believe that a human being is bestowed with eight intelligences (8gs) instead of one general intelligence 'g'. 'Human

beings therefore, possess eight distinct units of mental functioning. Gardner labels these units as intelligences. They spring from different areas of the brain' (Gardner, 1983). Based on these units, there are eight pathways to learning. As such, human beings learn in eight different ways rather than in one way. This is based on the theory of multiple intelligences developed in 1983 by Howard Gardner – Professor of Education, Harvard University in USA. Gardner highlights that these intelligences are Linguistic, Logical Mathematical, Spatial, Bodily Kinesthetic, Musical, Interpersonal, Intrapersonal Intelligence and Naturalist.

#### **5. Eight Pathways to Learning**

Everyone is born with all the eight intelligences. But all these are not equally developed in an individual. This means that different individuals may be strong in two or three different intelligences and weak in other intelligences. Given below are sketches of brains of two different persons. 'This manifests clearly that each person's brain is different' (Huggins and Others, 1997). Sketch-1 manifests that the person is strong in Logical Mathematical and Musical intelligences and weak in other intelligences. Similarly Sketch-2 manifests that the person is strong in Spatial Logical Mathematical and Social (Interpersonal) intelligences and weak in other intelligences.



**Sketch - 1**

Gardner claims that these eight intelligences rarely operate independently. Rather these intelligences are used concurrently and typically complement each other as individuals solve problems. For undertaking operations, a surgeon requires at least three highly developed intelligences– Bodily kinesthetic, Spatial and Interpersonal to undertake the operations. Similarly a dancer uses three highly developed intelligences–Bodily kinesthetic, Musical and Interpersonal.

Each individual has different set of developed intelligences. Thus an individual has unique set of intellectual strengths and weaknesses. This is commonly referred to as learning style of an individual. Different strong intelligences of an individual determine his/her learning style. Therefore, individuals with many learning styles are in a learning situation. These sets of intelligences determine how easy or difficult it is for an individual to learn new information when it is presented in a particular manner.



**Sketch - 2**

According to Gardner, there are eight potential pathways to learning. Students do not learn only through traditional linguistic or logical ways of instruction. They also learn through pictures, music, physical experience, social experience, self-reflection and experience in the natural world.

### **6. Trainees Must be Provided Ample Opportunities to Reflect on their Experiences**

During the period of training, trainees need to be provided adequate time to reflect on the gained experiences. Each day in the beginning, trainees need to be asked as to what they learnt on the previous day. Reflection throws the light on our experiences, back into minds to consider what the experience was and what it meant. It facilitates internalisation of the experiences. There should be a cycle of experience and reflection. The continuous interplay between the learner and what is being learnt by him/her hardly needs any emphasis.



## 7. Experiential Learning

Experiential learning means learning through experience. Experiential learning can be defined as a process whereby knowledge is created through transformation of experience. According to the theory of experiential learning, teachers need to be provided tasks and assignments and engaged in activities through which they should gain the necessary knowledge.

### Implications of Andragogy for Training of Teachers

- Training of both pre-service and in-service teachers needs to be based on the principles of andragogy and not on pedagogic principles. Andragogic techniques include discussion, field experiences, simulation exercises and problem solving.
- Andragogy needs to be included in the curricula of M. Ed. and M. Phil. courses;
- Skill building is an important aspect of teacher education programme. Training that provides practice, feedback, and reinforcement is more effective in skill building than training that does not provide these opportunities;
- An adult learner needs physical comfort in the learning situation;
- Early activities in a training programme need to allow maximum participation by learners so that they can invest their experiences and values in the learning process; and
- At the school level, the relationship between a teacher and her/his students is that of a dominant teacher and the dependent learner. Such a relationship is not workable between an adult learner and the adult trainer. The adult trainer is required to be friendly and courteous to the adult learner.

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# 3

## Systemic Challenges for Primary Teachers

Sanjeev Kumar Jha\*

### Abstract

*The quality of primary education is the most criticised and debatable issue in educational discourse. The teachers are the pillars of the education system. Often, they are blamed for poor quality of education. However, they are at the lowest position in the academic hierarchy. They have to perform several non-teaching works. It develops a dilemma in the mind of teacher, whether to perform teaching work or non-teaching works. Though, both the works are important but their main work is teaching. The article is an attempt to elucidate the problems of primary teachers. It can be concluded that the primary teachers have a dilemma whether they are teachers who have to perform some non-teaching work or they are administrative staff who have to do some teaching work.*

### Introduction

SSA interventions have undoubtedly improved the access and retention of school education, in general and primary education, in particular. Now, India has total 719257 government primary schools and 2009713 teachers, including 53% female teachers to cater to 28671045 total enrolled students, including 48% girls (DISE, 2012-2013). Moreover, we have 112087 private primary schools. So we have a comprehensive primary school system. Still, the

quality of primary education is one of the most criticised and debatable issues in educational discourse. Often, teachers are blamed for the poor quality of education. Common man and the media squarely blame the teachers – citing absenteeism, bad behaviour, and politicisation of teachers' unions and, most importantly, lack of professional ethics (Ramachandran, 2005). However, primary teachers are at lowest position in the academic hierarchy. The lowest position does not mean they are not

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responsible for the status of education. Definitely, they are responsible, but responsibility of other members of the academic hierarchy can't be discarded. Teachers work within a system and health of this system also needs to be checked.

Education is the subject of the concurrent list in Indian Constitution. It makes education as the joint responsibility of central, state and local government. Central, state and local governments have joint responsibility to organise the quality education for children irrespective of caste, gender, religion, race and place of birth. School system is governed by the government. So, only teachers cannot be blamed for the poor quality of primary education.

### **Quality of Primary Education**

The government is a major education provider at primary level in India. Expansion of primary education in India is unprecedented in last decade. But quality needs improvement.

The national average instructional days in primary schools are 224 which is higher than the norms prescribed by RTE Act-2009, RTE Act recommends 220 instructional days for these schools annually. It varies from state to state. Nagaland reported 192 instructional days whereas Jharkhand reported 253 instructional days. Instructional hours are less than RTE Act-2009 norms in 16 out of 36 States/UTs (DISE, 2012-2013).

Karnataka State Quality Assessment and Accreditation Council (KSQAAC) in Karnataka, *Pratibha*

*Parva* in Madhya Pradesh, *Gunotsav* in Gujarat, *Sambalan* in Rajasthan, and *Shamiksha* in Odhisa are school quality assessment programmes. All of these programmes consider learning as an indicator of school quality. Thus, learning is the most important indicator of quality school education. Even after five years of primary education, less than 50% students could correctly respond to various questions in Language, Mathematics and Environmental Science in National Achievement Survey Class V (NCERT, 2012). Furthermore, reading and arithmetic skills of students are poorly developed (ASER, 2013). As well as student learning levels and trajectories are disturbingly low (Muralidharan, 2013). The quality of primary education is considerably low. A question arises here, who is responsible for this poor quality of education? However, teachers are blamed for this low quality. But they do have several unaddressed problems. In this paper I have discussed the problems of primary teachers.

### **Systemic Challenges**

The teachers are the pillars of the education system. We require strong pillars for strong building. Teaching is challenging job especially at primary level. The system should equip the teachers to handle the challenges of this job. Teachers and consequently, teaching has to face political pressure (Ramachandran, 2005; Pitroda, 2009). There is need to develop a supportive

social system for them. However, primary teachers are trying to educate their students well. But they are required to spend time on non-teaching duties also (Pitroda, 2009; Raghavan, 2013).

The role of primary teacher becomes vital as they teach one class for the one academic year. Primary teachers in government schools are teachers of first generation learners. It is evidenced from the fact that 94 per cent parents' have qualification equal to or less than secondary education, including 16 per cent illiterate and 41 per cent just literate or with primary education (NCERT, 2012). This situation makes job of primary teachers more challenging. They need more time and support to interact with students so that they can become more helpful resource for their students.

Teaching and non-teaching are two important and complementary jobs in the school system. Non-teaching job facilitates the teaching job. Teachers have to choose between two i.e., teaching and non-teaching works. Quite often they have no choice but have to choose the later one, i.e., non-teaching jobs. But, frequently they are in a conflicting situation. It contracts interaction time between teachers and students. Furthermore, primary school teachers in India have no source of academic support whatsoever (Ramachandran and Bhattacharjea, 2009). Another challenge which primary teachers have in schools is heterogeneous students.

The heterogeneity is of higher degree in schools of cities like Delhi. The problems faced by primary teachers include non-teaching assignments, lack of academic support, first generation learners, political influence and heterogeneity.

The problems can be classified as i) Additional Duties, ii) No Administrative Staff, iii) Lack of Infrastructural Facilities, iv) Academic Support, v) First Generation Learners, and vi) Distribution of Midday Meal/ Welfare Schemes.

### **Additional Duties**

The teachers have to do several additional jobs apart from their routine teaching job like election duties, census, etc. Average days for non-teaching assignments for a teacher are 16, it varies from six in Mizoram to 46 in Madhya Pradesh (DISE, 2012-2013) provided there is no Lok Sabha election during this specific period. So, on an average seven per cent of instructional days, teachers have to do non-teaching assignments (analysis of DISE data, 2012-2013). Such additional duties are time-consuming and keep teachers out of school. Consequently, students are out of the learning even though they are present in schools.

### **No Administrative Staff**

Administrative support is minimum in primary schools. Even, municipal corporation, Delhi has no provision of administrative staff in its primary schools. So, teachers have to do all

the clerical/administrative jobs of the schools.

### Lack of Infrastructural Facilities

Schools are lacking, even with basic infrastructure. Drinking water and sanitation facilities are in pathetic condition in schools. Nine per cent of schools have single classroom, whereas 14 per cent of schools have single teachers; 59 per cent of schools have a playground and 39 per cent schools do not have boundary wall; 15 per cent of girls' and 38 per cent of boys' school don't have toilets and 53 per cent of schools don't have electricity (DISE, 2012-2013). Schools still lack in these basic facilities.

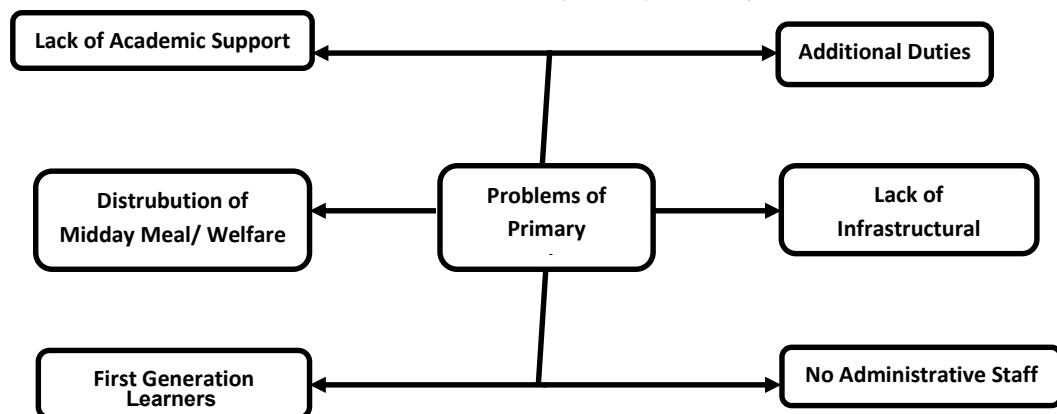
### Lack of Academic support

Primary teachers lack academic support. Primary school teachers in India have no source of academic support whatsoever (Ramachandran and Bhattacharjea, 2009). The quality of teacher training in India is not upto the mark (Blum and Diwan, 2007; Pitroda, 2009; Kidwai *et al.*,

2013). It seems training programmes are merely a formality by the department. The problems faced by teachers in multi-grade situations, where teacher-pupil ratios are high, are rarely covered in training programmes (Ramachandran, 2005). There is a gap between actual problems faced by teachers and training programmes.

### First generation learners

Most of the students are first generation learners in Municipal Corporation schools of Delhi. Dealing with first generation learners is a difficult task as they rarely get any academic support from the family. Many first generation learners live in environments that do not encourage them to learn and continue their education (Create, 2009). The schools and their teachers are not equipped to cope with children who are first generation learners in their families or the children of families which are first generation urban residents (Banerji, 2000).



**Figure 1: Problems faced by primary teachers**

## **Distribution of Mid Day Meal/ Welfare Schemes**

There are various students' welfare schemes in the school. No doubt every teacher accepts, these are very important and have a positive effect on primary education in relation to enrolment at least. But the engagement of teachers has no rationale. Teachers are forced to ensure midday meal (Raghavan, 2013). It wastes teaching and learning time.

## **Conclusion**

It can be concluded that teachers too have problems with the system such as additional duties, no administrative staff, lack of academic support, lack of infrastructural facilities, first generation learners and distribution of mid day meal. Non-teaching jobs demotivate teachers. The non-teaching jobs keep teachers away from classrooms (Ramachandran, 2005; Pitroda, 2009). This adversely affects the teaching-learning process in the schools. If teachers are really motivated to teach, than they can teach well with all their secondary responsibilities.

They have a dilemma whether they are teachers who have to perform some non-teaching work or they are administrative staff who have to perform some teaching work. In spite of the dilemma, they can still perform well on teaching job and are performing well but they require systemic reforms,

more academic support and training on actual field-based problem.

## **Recommendations**

Non-teaching works such as election and census can be given to teachers, but there must be some concern about school routine and examination schedules.

For small schools (enrolment less than 100) there should be at least one administrative staff and for comparatively big schools (enrolment more than 100) one welfare officer additionally in each school. The administrative staff should do all administrative activities of the schools as well as deliver all the students' welfare schemes, including mid day meal for small schools. For big schools administrative staff should deal with administration and welfare officer should provide his services for students' welfare schemes. Although they can work as a team and head of the school can distribute work accordingly. Role of teachers should be minimum in administrative works, so that they can dissolve their dilemma and maximize their efforts to uplift the quality of primary education.

Infrastructure should be strengthened in the schools to facilitate teaching and learning.

The academic support should be extended to teachers, so that they can better deal with the heterogeneity of the class, first generation learners, high pupil-teacher ratio, etc.

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# 4

## Transformations: teaching-learning Process in the 21st Century

Sapna Yadav\*

### Abstract

*The purpose of this paper is to examine the effectiveness of latest techniques in teaching-learning process. We think of the effective teachers we have had over the years with a sense of recognition, but those who have touched our humanity we remember with a deep sense of gratitude. Basically, teaching must include two major components sending and receiving information. Teaching in classroom using chalk and talk is “one way flow” of information. Teachers often continuously talk for an hour without knowing students response and feedback. The material presented in class is only based on lecturer notes and textbooks; there is insufficient interaction with students in classroom. Moreover, emphasis has been given on theory without any practical and real life time situations. So, any communication methods that resolve the purpose without destroying the objective could be considered as innovative methods of teaching. The use of innovative methods in educational institutions has the potential not only to improve education, but also to empower people, strengthen governance and galvanise the effort to achieve the human development goal for the country.*

*Confucius has correctly phrased in this regard:*

*I hear and I forgot.*

*I see and I believe.*

*I do and I understand.*

### Introduction

Education is a light that shows mankind the right direction to surge. If education fails to inculcate self-discipline and

commitment to achieve in the minds of student, it is not their fault. We have to convert education into a sport and learning process has to generate

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interest in the students and motivate them to stay back in the institution than to run away from it. Education should become a fun and thrill to them rather than burden and boredom. It is an integral part of their growth and helps them become good citizens.

Education is an engine for the growth and progress of any society. It not only imparts knowledge, skills and inculcates values, but is also responsible for building human capital which breeds, drives and sets technological innovation and economic growth. In today's era, information and knowledge stand out as very important and critical input for growth and survival. Rather than, looking at education simply as a means of achieving social upliftment, the society must view education also as an engine of advancement in an information era propelled by its wheels of knowledge and research leading to development.

The general statement is that the reasons behind the innovative teaching and learning methods and approach are the failures and weaknesses of the traditional methods. Traditional methods are not enough to promote adequate level and quality of student learning whereas technology has the potential to remove barriers for students and educators all over the world. Powerful software and the internet are changing our access to knowledge. Innovative ways to teach and learn are redefining the classroom experience and there are new expectations for students, beyond basic skills, they need proficiency

in collaboration, communication and information management – all 21st century skills and access to the learning tools that put these skills within reach.

Today, e-learning has become the key to a profound revolution in learning. This is because e-learning can offer what is possibly the most flexible and effective learning approach. With this technique, students can study at their own pace, anytime and anywhere. It enhances students' learning experience by allowing a better interactive communication with instructors. This is enabled by providing a mixture of synchronous and asynchronous learning activities administered through a well-designed environment. High quality learning content, presented with good teaching methodologies and instructional models can render a positive impact on the students' learning outcome.

### **Recent Movements in Teaching and Learning**

Increasingly, we are seeing the following trends, directions and movements:

- 'Research' and 'Teaching' are perceived as mutually enhancing each other rather than antithetical.
- Course time is devoted to discovery-based (inquiry-based, resource-based, project-based and active) learning over traditional lecture modes of transmitting knowledge.
- Teaching emphasis has moved away from memorising facts towards finding, evaluating and using information.

- Instructors are realising what they teach is not the same as what students learn and re-scoping the curriculum accordingly ('teach less, learn more').
- New teaching and learning styles incorporate collaborative work in diverse teams or groups.
- Course content is interdisciplinary, interdepartmental and team work.
- Course content is publicly accessible and shared beyond the members of an individual course.
- Teaching and learning extend beyond the classroom, into the campus and community.
- The instructor is perceived as a partner in a learning community (with librarians, with other academic support partners, and with undergraduates themselves) rather than as a sole entrepreneur.
- The audience for student work is expanding from the individual instructor to communities of discourse that include peer feedback and exchange.
- Assessment is multi-level and complex incorporating both formative and summative types and involving reciprocal evaluation of how well teachers teach and how well students learn.
- Today's students have grown up with technology as the air they breathe, are used to being wired 24/7, are comfortable multi-tasking in multi-media and bring very different expectations to the classroom as a result.
- Today's employers prize transferrable skills (e.g. problem-solving, creativity, interdisciplinary teamwork) over encyclopaedic knowledge.

### **Innovative Tools**

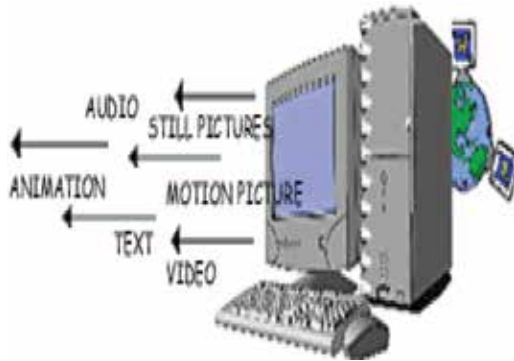
Some of the Innovative tools are as follows:

#### **(a) Multimedia Learning Process**

Multimedia, is the combination of various digital media types such as text, images, audio, video, animation and motion picture into an integrated multi-sensory interactive application or presentation to convey information to an audience. Traditional educational approaches have resulted in a mismatch between what is taught to the students and what the industry needs. As such, many institutions are moving towards problem-based learning as a solution to producing graduates who are creative; think critically and analytically, to solve problems. In this paper, we focus on using multimedia technology as an innovative teaching and learning strategy in a problem-based learning environment by giving the students a multimedia project to train them in this skill set.

#### **(b) Other Innovative Tools Suggested**

The researchers suggest some of the methods can be applied by the modern teachers. Researchers feel that the core objective of teaching



should never be deviated by the use of an innovative method. The following suggested methods are an extension to the traditional methods of teaching.

(i) *Mnemonics Words Approach*

Here the teacher is not supposed to talk on a particular concept for a long time. To make it clear to the students, she/he can just go on saying mnemonics or its associated meaning in words. Here, teacher says only words instead of sentence and once they come to a basic understanding of the meaning of a particular concept then the teacher will explain in sentences. For example in teaching language courses this technique can be used as an effective medium by the teacher to develop word power. The advantages of this method are:

- Encourages use of dictionary
- Word power increases
- Teacher also gets to know many words pertaining to a particular concept.

(ii) *Brain Storming*

The brainstorming method consists of processing students' spontaneous

ideas about a pre-set theme, or problem which has been determined without qualitative comments from the trainer. The most unusual views can be included, in order to provoke diverse and original problem-solving ideas.

The following comments deal with the conceptual rules of brainstorming:

- The thoughts expressed should be creative (not self-critical)
- Neither criticisms about the ideas of others nor explications of one's own ideas should be admitted (all ideas should be registered, including repetitions).
- Quantity takes preference over quality – the more ideas expressed the better.
- Each student should be encouraged to express her or his ideas freely and spontaneously.

(iii) *Role Playing – Simulation*

This is a game where social conflicts and group interest decision-making are simulated. The subject/conflict and the roles/situations are pre-set and the game's outcome is left open. During the role play simulation games, students have to take decisions based on real or hypothetical model situations, defined by a set of rules that govern their fictitious reality. This strategy is especially valid for social learning centered around not only knowledge acquirement but also on the development of skills and attitudes that can enable students to make the step from theory to practice through real life application of the

simulated situations. The following procedures are to be followed for role playing:

- Presentation of the content and rules of the simulation game.
- Allocation of the roles to be assumed by each group.
- Presentation of the initial situation, written description of the characteristics of the groups participating in the game and, if necessary the allocation of roles within each group.
- The game commences applying the assigned roles.

(iv) *Group Work*

Focussed as it is on both participants and tasks, group work within a small group framework can be an ideal way of including a social element in learning themes. By means of an orientation session involving all the students, a large group can be divided into several small ones. This is known as the “closed stage” and includes the designing of a general plan, the identification of objectives and sub-themes, as well as the creation of work groups. Once the authentic group work (known as the “open stage”) is completed and events data and contextual associations have been analysed, another full session, or “closed stage” can be implemented, in which areas such as group information, comparison, evaluation and summary of partial results are discussed prior to the formulation of a final result.

**Preparation for group work**

Full session for the preparation of group work (closed stage)

- Group work tasks should be explained, using precise terms backed up by any combination of visual and memorisation aids – such as a whiteboard or flipchart or group work hand-outs.
- The way that groups are to be formed should be explained.
- What is expected in the full group presentation of results session should be discussed.
- The length of the group work process and where it is to be carried out should be indicated.
- Any unclear points should be cleared up by means of a question and answer session.
- Group work (open stage)
- The participants carry out tasks while the moderator ensures that the group does not lose sight of the objective. If necessary the moderator can offer encouragement and additional information as well as suggesting ideas.
- If necessary, the moderator can encourage groups to make use of available resources, such as markers, transparencies, cards, etc.

(v) *Games*

The use of games technology in education is not a new phenomenon. Even back in the days of 286 processors, PCs were used in some schools along with (what looks like

now) primitive simulation software to teach a range of different skills and techniques – from basic programming using Logo (the turtle style car with a pen at the back that could be used to draw on the floor, always a good way of attracting the attention of school kids) up to quite sophisticated replications of physical problems, such as working out the trajectory of a missile to blow up an enemies' tank. So why are games not more widely used in education? The use of a game to aid learning and improve achievement is suggested because traditional methods of engagement are currently failing on some levels.

(vi) *Z to A Approach*

This approach attempts to explain the application part of a particular concept first:

- It makes concept clear.
- Students develop interest to know exactly the concept.
- Creates long lasting memory of a concept.

## **Conclusion**

In summary an innovative teaching and learning method is not panacea. It cannot replace traditional methods in education. Across the world, information technology is dramatically altering the way students', faculty and staff learn and work. Internet-ready phones, handheld computers, digital cameras and MP3 players are revolutionising the college life. As the demand for technology continues to rise, colleges and universities are

moving all sorts of student services, from laundry monitoring to snack delivery online. Technology is also changing the classroom experience. For instance, the room is wired with cameras for photographing whiteboards, so students can receive the images as digital files. In addition, tablet PCs, compact computers that allow you to write notes directly onto the screen with a special pen, replace the archaic projector. The tablet technology allows professors to make notes on charts and spread sheets and sends them directly to their students' PCs and teacher gets feedback from each student.

From the above, we can make out that the Information and Communication technology has made many innovations in the field of teaching and also made a drastic change from the old paradigm of teaching and learning. In the new paradigm of learning, the role of student is more important than teachers. The concept of paperless and penless classroom is emerging as an alternative to the old teaching learning method. Now a days there is democratisation of knowledge and the role of the teacher is changing to that of facilitator. We need to have interactive teaching and this changing role of education is inevitable with the introduction of multimedia technology and the spawning of a technologically-savvy generation of youths.

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### **Deeper Learning through Constructivism – A Case Study with Primary Children on Number Concept**

Dr P.K. Chaurasia\*

#### **Abstract**

*“Deeper Learning” simply refers to “process of learning for transfer,” meaning it allows a child to take what’s learned in one situation and apply it to another. To elaborate the definition of deeper learning further, let us recall the three domains of competence– cognitive, intrapersonal and interpersonal. Cognitive refers to reasoning and problem solving; intrapersonal refers to self-management, self-directedness and conscientiousness; and interpersonal refers to expressing ideas and communicating, and working with others.*

*These three broad competencies are related to each other. If deeper learning is the ultimate goal, can it be taught? To a certain degree, yes. On the same pitch, in constructivism, the central idea is that learning is an active process in which learners construct new ideas or concepts based upon their current and prior knowledge. In this article the author has experimented with 20 children of Class II on how constructivism and assessment for learning within formative assessment, can support to achieve deeper learning. The entire discussion and activities for this experiment were based on number concepts. The author has realised that if students are encouraged with number patterns within inductive reasoning, they build the basic concepts of numbers like place value, increasing and decreasing numbers etc. Children also developed the number sense which helped them to build up an attitude to work on operation of numbers. In fact, the assessment and remedial positive teaching was planned during the discussions and activities. Children’s own mistakes have been used as a tool to construct the concept. The author has realised that constructivism where children construct knowledge on their own, and assessment for learning within the lesson plan affects all the three domains – cognitive, intrapersonal and interpersonal, leading towards deeper learning.*

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## 1. Introduction

Mathematics is perhaps the most demanding subject in its need for in-depth subject knowledge, even at primary level. In early grades, it is important that teachers working with children have a genuine understanding of mathematical concepts and language as they guide children's thinking and motivate exploration of patterns, shape, spaces and problem-solving. The central theme to effective mathematical pedagogy in the early years is fostering children's natural interest in numeracy, problem solving, reasoning in pattern recognition, shapes and measures. There are two kinds of reasoning that feature prominently in doing mathematics. Inductive reasoning is the kind of thinking involved in recognising patterns, similarities and equivalences, and using these to predict further results and to formulate generalisations. Deductive reasoning is the formulation of a valid, logical argument to explain, demonstrate or convince others that a solution to a problem is correct, or that a mathematical theorem is proved beyond doubt. Brownell claimed that 'meaning in mathematics is to be sought in the structure, the organisation and the inner relationship of the subject itself'. The structures, organisation and relationships within mathematics are obviously visible in the form of patterns. As a subject, mathematics expresses itself through patterns. Mathematics is full of patterns and relationships. In fact,

Mathematics is known as a subject of patterns. In queries about the attributes of things, children apply inductive reasoning to answer what is next? Not with a number but with a description. Basically, it may always be a nice tool to initiate mind action in an interesting way. In our observation, we realised that if a child appreciates the involved pattern through visual and written forms of expressions, she/he can connect language and mathematics to develop skills for thinking clearly, strategically, critically and creatively.

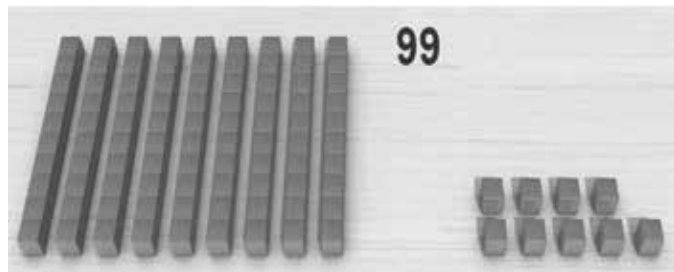
## 2. Recognising Pattern

In general, it is not easy to define what we mean by "pattern", even in Mathematics. One of the difficulties is that the word has different meanings. On the one hand, "pattern" can be used in relation to a particular arrangement of numbers, shapes, colours or sounds with no obvious regularity. Indeed, sometimes the arrangement might form a recognisable representation or picture. On the other hand, it might be required that the arrangement possesses some kind of clear regularity or repetition in some sequence. In the world of music, an attractive melody written in a predictable rhythm is an arrangement of sounds in a regular pattern, which is somehow more memorable and appealing than most random sequences of noises. When we involve or appeal to pattern in teaching mathematics, it is usually because we are trying to help children to extract deeper meaning or enjoyment,



or both, from the experience or learning environment with which they are occupied, and perhaps also to facilitate memorisation. In all walks of life, it seems we are attracted to regularity, and often try to interpret situations by looking at, or even imposing, pattern. Gestalt's psychology embraces the view that it is a human quality that we constantly seek to "interpret incoming sensations and experiences as an organised whole and not as a collection of separate units of data" Orton suggests that it would be positively helpful to children if they are encouraged to perceive, comprehend and then use patterns whenever possible in Mathematics. Mathematicians and educationists have long been enthusiastic about the importance of patterns in mathematics. Sawyer claimed that "Mathematics is the classification and study of all possible patterns". Williams and Shuard suggested that "the search for order and pattern is one of the driving forces of all mathematical work with children". Biggs and Shaw wrote: "Mathematics can be thought of as a search for patterns and relationships". In fact, such views of mathematics have been perpetuated by repetition and reformulation. Keeping these experiences of Mathematicians at central focus, our primary task was to generate a pattern at the beginning of counting numbers itself. In accordance

with the number grid, we started concrete representation of number grid by putting unit cubes one by one and after having ten unit cubes, it was replaced with a column. The expectation was that the concrete exercise will help children to realise a pattern in the development of numbers. The classroom process and discussion was to set the number grid in the 'concrete number modelling'. This was done by the children themselves. In terms of inductive reasoning, the objective was that children should be able to recognise simple patterns and relationships and make predictions about their understanding; investigate general statements; search for pattern in their results.



*Figure 1. Number Modelling*

### **3. The Classroom Practical**

At the start of new session during the 2012 summers, we were with Class II children of Government Primary School, Muthiyani, Gautam Buddh Nagar, U.P., for a period of 3 months from July to September. We began by using several mathematical kit items like beads, colour counters, unit's cube, ten's rod (having 10 unit cubes)

and hundred's plate (having 10 ten's rod or equivalently 100 unit cubes) among the children. There were many children who seemed to be highly interested to play/work with these mathematical apparatus, and it was almost inevitable that, while doing so, they would notice and create patterns. We started with basic counting and during the classroom we played with straws, cubes, wooden sticks etc. We focussed on making collections of particular items for certain numbers. For example, a child named Vikas was asked to collect 24 straws and Ajay was asked to collect 17 cubes etc. They were also putting the things either in random manner or just keeping all the things in pocket. Children often choose to work with other play materials like wooden sticks, pieces of stones along with these kit items. To provide opportunities for pattern-making, the next step was to ask them to arrange the items as they wanted. Sometimes the activity was conducted in groups so that children notice each other's patterns. For the arrangement activity, we could discuss different designs for arrangements. Arrangements in different designs were the first step to motivate towards the word "pattern". During the whole class discussion, we also provided several graphics to recognise patterns. Also, these graphic activities helped to develop pattern-related thinking among the children. In the beginning weeks, these children only occasionally tried to verbalise their pattern-related perceptions and intentions during such activities. For

about three weeks, children's thinking about patterns was shown only by what they did. For example, Ritesh was putting different coloured straws in an order as 1, 2, 3 etc., and was saying that he was putting the things in a pattern. On the other hand, Vikas was putting the straws like.. 1 straw, 2 straws, 1 straw, 3 straws, 1 straw, 4 straws. He was not verbalising any pattern. Hari Om said, 'it appealed to him as something beautiful'. Our emphasis was that children explore and create patterns using kit and other items. This may be seen as a significant feature of successful early mathematical learning. They started taking patterns as something that should be in some systematic order as per their own understanding. Now our next point of action was to connect this pattern understanding of children with the development of numbers in the number grid.

#### **4. Constructivism**

We all agree that the central idea of constructivism in learning is active participation of learners where they construct new ideas or concepts based upon their current and prior knowledge. Behaviourist theories of transmitting knowledge to learners failed. As compared to our day-to-day experiences of classroom practices, it has become clear that when we teach or tell learners something, we cannot assume that they will make sense of it in the way we intend. Each learner internalises the knowledge and makes sense of it in an individual way. In

the classroom we think that we have taught or covered the syllabus, while children's mistakes reveal that they have not understood the concept. To be most effective, we need to understand how children learn. Constructivism focuses attention on the children's learning rather than on the teacher's teaching. We can talk about a constructivist view of learning, but not constructivist teaching in isolation as this is a contradiction. Rather than thinking about perfect definitions or explanations of concepts and skills, the challenge for us is to create experiences that engage children and make mathematical learning meaningful, which can be applied or transferred to other situations. Constructivism, as a theory of learning, is more than simply 'learning by doing' or 'experiential learning'. Although practical activities may go some way towards helping children to build up knowledge, activity kits are not sufficient as they do not embody a concept. Children may manipulate kit items in the prescribed way but may not be learning, or they might not be able to transfer their knowledge to more formal representations or to other contexts. What is also needed is reflection on the activity. This might be individual reflection but will more often be promoted through discussion with the teacher or with peers. In practical terms, then, what does this mean for the mathematics classroom?

If the implication of constructivism is that there is more to teaching than just telling or trying to transmit knowledge to children, then how can teachers foster the development of mathematical knowledge? Carpenter and Lehrer adopting a constructivist model, identified five forms of mental activity that promote mathematical understanding. The teacher's role is to ensure that pupils engage in such mental activities such as:

- constructing relationships;
- extending and applying mathematical knowledge;
- reflecting about the experience;
- articulating what one knows;
- making mathematical knowledge one's own.

## 5. Pedagogical Interventions

Being motivated with this theory and to experience it practically, with the objective of recognising an interesting pattern in number grid, we used concrete materials. Children were encouraged to model the number grid by unit cubes and tens' rod. We tried to build the numbers by putting cubes one after other exactly in the same pattern of number grid. In-fact, the following 100 counting grid is written on the wall of most primary classrooms. We realised that it may provide a wealth of opportunities for children to observe and explore patterns in number.

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

*Figure 2. 100 counting grid*

During modelling of 1 to 100 number grid, it was expected that children will realise the pattern by themselves as per the requirement of constructivist approach of learning. In the beginning children were encouraged to model numbers 1 to 30. A discussion was held while replacing 10 unit cubes by one tens' rod. Children were convinced that 10 cubes and a tens' rod are representing the similar number. It was easily grasped by children and they were replacing ten separate unit cubes by a tens' rod while modelling of number 10 after the number 9. To move further, after a few discussions on number grid table, children started the modelling. In fact few children were repeatedly observing the number grid table after every step of their construction. While modelling numbers 11 onwards, after having one tens rod and putting cube one by one, they realised that it is something

like the previous work for numbers 1 to 10. The learning of pattern was reflected in modelling 20 after 19 (replacing ten cubes with a tens' rod) and 21 after 20. We discussed enough about replacing 10 unit cubes by a tens rod and 8 out of 20 children completed the step of 20 after 19 by themselves. A brief discussion was held for rest of the class. This is the point where children were expected to connect their pattern exposure to move forward with confidence. Out of 20, ten children could get the pattern comfortably. Rest needed support to recognise the pattern. Less than a week's practice with some mixed and different approaches like choosing any number on the number grid and making its model or vice versa, gave clarity of patterns involved in number grid. Children were ready to model the entire number grid of 1 to 100.

While motivating children to recognise pattern during the modelling, we realised that we were on the track of the requirement of mental activity that could promote mathematical understanding. We found that while modelling of number 100 after 99, few enthusiastic children replaced entire unit cubes and ten's rod by the plate of hundred by themselves. They were reflecting at the moment, and this is their own mathematics, because they got an appreciation on the work which they had done themselves without taking help from us. The number pattern recognition activity through modelling was performed for one and half weeks. Children also

worked on reverse approach i.e., by looking on the model while noting down the number. In fact, this was started by Ritesh when asked to check the work of Vikas. Vikas had tried to model the number 53 with units cube and tens rods. But while modelling he has taken 3 tens rod and 5 unit cubes. Ritesh's model had 3 tens rods, Vikas said that the number of this model would lie in the column of numbers having 3 at left in number grid. And on further questioning, he explored that it will be in fourth column. It made everyone look at the activity in both ways from numbers to model and vice-versa. Through modelling activity, they also started feeling about the size of the number. During discussion, one of them reflected that since in 73, we are using more kit materials as compared to 43, so the size of number 73 is bigger. Probably this was an indication of number sense among the children. We realised that once children had got the basic pattern of number system, they reached to a series of the following pattern in an interesting way.

### 5.1. Patterns in counting grids

The simplest pattern involves the numbers along a column, as they increase from top to bottom by 1, and decrease by 1 from down to up.

41
42
43
44
45
46
47
48
49
50

Figure 3. Column from the counting grid

The numbers in a row have the same unit digit and the tens digits increase by 1; thus the numbers increase by 10 from cell to bottom of a row, as shown in figure 4.

<span style="float: left;">→</span> Increase by 10 <span style="float: right;">←</span>									
7	17	27	37	47	57	67	77	87	97
<span style="float: left;">→</span> Decrease by 10 <span style="float: right;">←</span>									

Figure 4. Row from the counting grid

These are the two basic patterns resulting from the structure of the number system, base 10, and having ten numbers in each column. There are many others, a few of which are illustrated in figures 5 to 8 by shading numbers in the 100 grid which students realised themselves while performing skip counting activities. For example, for skip counting of 3, they

verbalise the pattern starting from 3 and encircling every 3rd. Although the encircling/shading of the numbers produces interesting visual patterns, it is important that children consider the structure which has created the visual patterns. Each pattern is produced because of the relationship between the 3rd number. Although the encircling/shading of the numbers produces interesting visual patterns, it is important that children consider the structure which has created the visual pattern. Each pattern is produced because of the relationship between the 'skip counting' pattern. For example, the 'skip counting of 5' is shown in figure 5. Children were asked to explain why they think this pattern occurs and to predict with justification, whether it continues if the grid is extended with numbers 101 to 200 and beyond.

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Figure 5. Counting of 5

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Figure 6. Counting of 9

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Figure 7. Counting of 3

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Figure 8. Skip Counting of 4

Working with patterns on the counting grid that resulted during different ‘skip counting’ numbers is an essential prerequisite for searching the patterns in the multiplication tables. Many of these apparently are simple patterns helped to explore place value and its representation in symbols. Some of these facts are mentioned here.

1=1	10-1=9
10+1=11	100-1=99
100+10+1=1111	10000-1=9999
9+1=10	10=10
90+10	10×10=100
900+100	9000+1000=10000

Figure 9. Set up of Number Grid

Observing such patterns is only the beginning of children’s understanding of what lies behind the patterns i.e., the principle of grouping by tens. After working in such environment for few weeks continuously, children are able to recognise a pattern and also to extend it, without understanding why should the pattern exist and the mathematical structure which brings about its existence. The importance of children talking about describing and giving their reasons for a pattern cannot be over-emphasised, as this encourages them to find a meaning for the pattern and consequently develops their understanding of mathematics.

In fact, this constructive way of learning mathematics based on number pattern reflects an attitude of deeper learning. Simply defined, “deeper learning” is the “process of learning for transfer,” meaning it allows a student to take what’s learned in one situation and apply it to another. (James Pellegrino. Pellegrino also said “You can use knowledge in ways that make it useful in new situations”. To deconstruct the definition of deeper learning further it emphasised three domains of competence: cognitive, intrapersonal and interpersonal. Cognitive refers to reasoning and problem solving; intrapersonal refers to self-management, self-directedness, and conscientiousness; and interpersonal refers to expressing

ideas and communicating, and working with others. These three broad competencies are related to each other". There is good evidence that shows learners can lead to success not only in education, but also in career and health. In fact, conscientiousness is most highly correlated with successful outcomes.

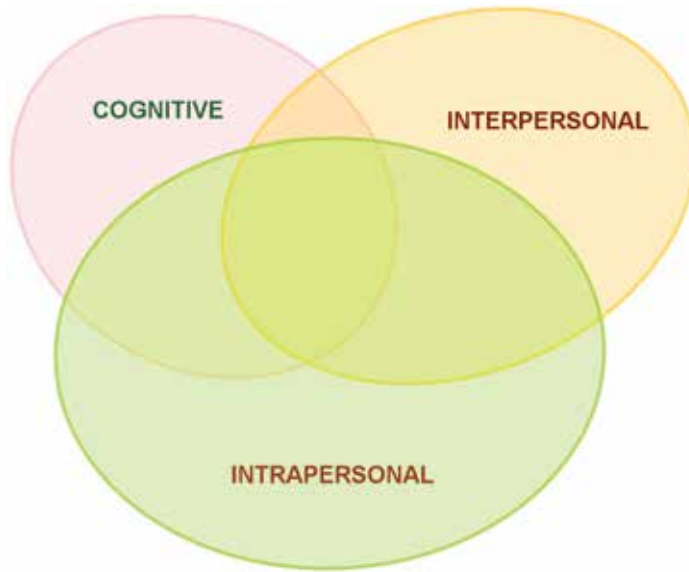


Figure 10. Inter-relation

If deeper learning is the ultimate goal, can it be taught? To a certain degree, yes. But for educators to engage in deeper learning with students, researchers say that they must begin with clear goals and let students know what is expected of them. They must provide multiple and different kinds of ideas and tasks. They must encourage questioning and discussion, challenge them and offer support and guidance. They must use

carefully selected curriculum and use formative assessments to measure and support students' progress. Regarding assessment, Pellegrino said "Students can't learn in the absence of feedback". "It's not just assessing, but providing feedback that's actionable on the part of students". Since children realised patterns as a tool to handle the numbers, they could also think of the other tools. While checking each others' work they were also able to communicate mathematically.

In fact one incident was very interesting which also made us realise that constructivism promotes deeper learning. While discussing the central concept of place value, we asked one child to write the number name of "one hundred thirty two" on blackboard. A child named Hariom wrote it as 10032. We did not correct it. We asked him how you get 10 after 9. He replied, it is one more unit. When asked if you add one more unit to it? He thought a little bit and replied 11. This led to same discussion on what happens from 99 to 100 and 100 to 101. Hariom realised on his own that there is some error in earlier response and corrected it as 132. While discussing, Hariom told that he tried to connect the number with unit cube, tens rod and hundred



plate modelling of numbers and then Constructivism works and it promotes  
could understand what was the error. the intrapersonal skills for deeper  
An inspiring moment for us too. learning.

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# 6

## Content Knowledge of Elementary School Teachers in Mathematics

P. Ponnusamy\*

### Abstract

*The basic aim of Mathematics education is to develop logical reasoning and problem solving capacity. To make the best teaching and learning processes in the classroom at school, content knowledge of the teacher in Mathematics is an important aspect. In this context, the present study was undertaken by the investigator. Main finding of the study reveals that the elementary school teachers have good content knowledge in Mathematics.*

**Key words:** *Elementary school, subject knowledge, Mathematics content, achievement*

Elementary schools play an important role in the life of an individual in laying a sound foundation of learning. The success or failure of an individual is mostly determined at this stage. So, teaching and learning processes at this stage must be planned as per the learners' needs and capabilities. The teaching process in the elementary school setting is far more complex than the transfer of knowledge from a teacher to learners. Dewey (1902) pointed out that teachers should psychologise the subject matter knowledge. Teachers should understand learners, and to

understand learners is prerequisite to learning. Hence what concerns a teacher, is the ways in which that subject may become part of experience; what are child's experiences, that are useable with reference to learning the subject; how such elements are to be used; how his own knowledge of the subject-matter may assist in interpreting the child's needs and actions. Teachers' knowledge is defined as knowledge exclusively applied to teaching (Shulman 1985), and it is believed to play a decisive role for effective teaching (Grossman

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1990). Shulman points out that “to be a teacher requires extensive and highly organised bodies of knowledge”. Earlier it was believed that if someone knew a subject he was well qualified as a teacher to teach the subject. The study of teachers’ knowledge has occupied a significant position in the research of teacher education for the last three decades. It is indispensable to teacher professionalism and crucial to curriculum implementation and educational reforms. In this background, the investigator selected the present study under the topic ‘Content Profundity of Elementary School Teachers in Mathematics’.

### **Objectives of the Study**

The objectives of the study are as follows:

1. To study the content knowledge of the elementary school teachers in Mathematics, and
2. To study the impact of variables—gender, educational qualification, teaching experience and type of school on the content knowledge of the teachers in mathematics

### **Methodology**

#### **Sample**

A sample of 128 elementary school teachers was selected randomly from 20 government and 20 self-financing private schools in Coimbatore and

Tirupur districts of Tamil Nadu. Among them, 64 were male and remaining were female teachers.

#### **Tool Used**

The investigator prepared the Mathematics Knowledge Test and administered to the teacher in sample selected to collect the required data. The tool consisted of 25 items to bring out the in-depth knowledge of the teachers in Mathematics. Each question carries one mark and therefore, the maximum score of this tool is 25. A score of 8 and below indicates poor Mathematics knowledge, between 8 and 16 indicates moderate level of Mathematics knowledge and above 16 indicates good Mathematics knowledge.

#### **Tool Reliability**

Reliability of the tool was found by using test and re-test method. Ten elementary school teachers participated in the test of reliability and reliability of test was 0.642.

#### **Tool Validity**

The tool was presented to five teacher educators, two research scholars in the field of education and five elementary school teachers. All the members of the juries carefully read each item of the tool and they assured that the tool had face validity and content validity.

## Findings

**Table 1 : Mean score of teachers in Content Knowledge Test**

<i>Teachers</i>	<i>N</i>	<i>Mean</i>
Govt. School	64	20.075
Private School	64	19.238
Male	64	19.1
Female	64	20.213
Diploma Holder	64	19.408
Degree Holder	64	19.905
Below 10 Years Teaching Experience	64	19.17
Above 10 Years Teaching Experience	64	20.15
<b>Total</b>	<b>128</b>	<b>19.656</b>

- Table 1 shows that:
- The teachers have good content knowledge in Mathematics.
  - Meanscore (20.075) of Government school teachers is better than the mean score (19.238) of private school teachers.
  - Mean score (19.1) of elementary school male teachers is less than the mean score (20.213) of elementary school female teachers.
  - Mean score (19.408) of elementary school teachers with Diploma qualification is less than the mean score (19.905) of elementary school teachers with Degree qualification.
  - Mean score (19.17) of elementary school teachers with below 10 years of teaching experience is less than the mean score (20.15) of elementary school teachers with above 10 years of teaching experience.

**Table 2: Comparison of Mean scores of teachers in Content Knowledge Test**

<i>Teachers</i>	<i>N</i>	<i>Mean</i>	<i>S.D</i>	<i>t</i>
Govt. School	64	20.075	1.926	2.246
Private School	64	19.238	2.275	
Male	64	19.1	2.301	2.977
Female	64	20.213	1.911	
Diploma Holder	64	19.408	2.189	1.3
Degree Holder	64	19.905	2.135	
Below 10 Years Teaching Experience	64	19.17	2.328	2.592
Above 10 Years Teaching Experience	64	20.15	1.932	

Table 2 shows that:

- there is a significant difference between the content knowledge of Government and Self-financed Private elementary school teachers in Mathematics.
- there is a significant difference between the content knowledge of elementary school male and female teachers in Mathematics.
- there is no significant difference between the Mathematics content knowledge of elementary school teachers with diploma and degree qualifications.
- there is a significant difference between the Mathematics content knowledge of elementary school teachers with below 10 years and above 10 years of teaching experiences.

### **Conclusion**

Main findings of the present study reveal that most of the elementary

school teachers have good mathematics knowledge to teach at elementary stage of school system. They should concentrate on developing the problem solving skills among the students instead of concentrating only on the examinations. The teachers have to concentrate more on exercises or practicing solving problems which will help the students to develop enough knowledge in the subject. Students should not emphasise on rote learning but emphasise on activity oriented learning. The continuous evaluation on such activities will definitely motivate the students to do something concrete in their learning process. So, teachers at elementary level should plan their work schedule well in advance and adopt useful and necessary mathematical activities in the classroom for the betterment of the students' achievement level as well as for increasing interest among the students to learn Mathematics.

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## Connecting Children to Nature

Shefali\*

### Abstract

*Teaching children about the environment is vital for the future of children and society. In an increasingly urban society adults need to create opportunities to help young children connect with environment and learn about the nature. There are many positive benefits when nature learning becomes a part of the child's life. The children who have more enriching experiences in the environment are more likely to become adults who are better informed; they develop a better understanding towards the creatures i.e., they build a sense of care and responsibility towards earth.*

Children grow healthier and wiser when they are connected with the natural environment throughout their childhood, may be in educational or recreational setting. This will benefit their future well-being.

A child's experience of nature can be as small as sitting under a tree or listening to the birds but even these small experiences help to improve life and learning in many new ways. Now-a-days children have limited opportunities to interact with the natural environment; they spend more time on television screens and

playing video games on computers as compared to being physically active outside. These changes have led to an epidemic of obesity in children which leads to serious health threats for them including diabetes, sleep apnea, social and psychological problems.

It's the need of the time to take action to strengthen children's connections with nature because children's academic, social, psychological and physical health is impacted positively when they make contact with nature in their life on daily basis. A child's experience with nature such as sitting

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under a tree, plucking a flower or listening to the sound of a bird helps in learning in many ways and plays a very important role in improving life. Young children learn many things when they interact with natural environment and early years of a child's life are very important. So what they learn at this age will help them to grow into adults who care about the environment.

### **Positive Impacts that Nature Creates**

- Nature helps in development of children in every aspect such as intellectual, emotional, social, spiritual and physical.
- For developing capacities such as creativity, problem-solving and intellectual development, nature plays an important role.
- Natural experiences help in increasing children's ability to focus and play a major role in enhancing cognitive abilities.
- When children play outdoors, they get opportunity to play with others, which helps in their social and emotional development.
- When they are involved with nature they understand their responsibility towards environment and become more disciplined.

The factors which play a role in increasing the interaction of children with nature are:

- The feelings or the reactions of the parents of children to environmental problems.

- Exposure of children to the discussion of threats of environmental change.
- Peer group influence – how their friends and adults respond to environmental issues.

Teaching young children about the environment is essential for their future. In addition to this, we need to provide opportunities to help children connect with nature and learn about the environment.

### **Essential Steps for Educating Children About the Nature**

#### ***1. Let children spend time with nature***

These days children have limited opportunities to interact with the natural environment. They spend more time on television and computer screens as compared to being physically active outdoors. It's the need of the time to take action to strengthen children's connection with nature. This can be done by:

- organising picnics in a local park.
- involving children in planting a seed in a pot and watering it daily and watch it grow.
- involve nature in daily life of children as it impacts positively on their social, psychological and physical health.

#### ***2. Involve children in doing something positive for the environment***

Young children learn a lot by watching adults. The small actions of the children

make a difference to the environment. Adults must involve children with simple tasks such as:

- throwing waste in bin.
- sorting of papers to put in the recycle bin.
- to dig in the garden with the help of spade.
- parents must involve children in positive things such as taking “paper bag” for shopping or catching public transport to school.

Natural experiences help in increasing young children’s ability to focus on environmental issues, which will help them to grow into adults who care about environment.

### ***3. Listen to the concerns of children about nature***

Young children are curious about the nature and during the early years they develop their thinking abilities. They might have concerns about the climatic changes and need help to deal with the events; this can lead to questioning everything in detail. Adults should listen patiently to them what they are saying and try to understand her/his point of view.

### ***4. Understand the child’s feeling about the surroundings***

Young children are unable to express their emotions directly; adults can look for the clues to their feelings through



their play, drawings, behaviour and conversations.

Adults should ask children how they feel about the nature and keep their responses appropriate to the child’s age and level of understanding.

### ***5. Find out what children know about the nature***

In order to find out whether the children have misconceptions about environment, adults must talk to children and correct their misconceptions.

Young children do not have psychological maturity to make sense of the complexity of the environmental problems and to manage the information (e.g. according to them if the planet earth is getting hotter, we all get burnt). Adults should provide them? rather overloading them with the information.

### ***6. Adults should be aware how and what they talk to children***

Adults have to be conscious about their conversations because it is



not good for children to hear about worrying environmental problems. So we should be aware, how we are reacting to news about natural problems in front of children. If our reactions are too strong, children get confused and upset so we must find ways of talking positively. We should not burden children with our concerns, rather we need to provide opportunities to children to express their feelings about climate change and other environmental problems.

### ***7. Adults must keep check on children how they are being exposed to stories of media in relation to environmental problems***

Parents need to monitor what their children are watching because exposure of media plays a significant role in contributing to their thinking. Children may ask questions about the environment related problems, as they watch or listen to media. Media sometimes presents things in a very sensational and in dramatic manner and often focus on negative portion rather than the positive side. There are many good stories about people who are saving the environment.

### ***8. Give children hope and reassure them***

Adults must reassure children that millions of people are dedicating their lives for researching ways to save the environment. We must tell pre-schoolers about the good

stories related to environment and help children to find examples of environment related problems being solved or improved and must reassure children that it is their job to look after their well-being; the children do not have to worry about that.

### ***9. Certain Activities can be planned for children of early years to connect with nature***

- Ask them to draw organisms such as bird which they see in their daily life and are related to nature
- Take children for nature walk and let them explore the sounds of nature and tell them to mimic the sounds.
- Give children time for unstructured play with peers in outdoors; this will help in promoting their observations, creativity and imagination.
- Let children experience the land, water and living things in their surroundings. This will help them to develop attachment and understanding toward the nature.
- Provide children access to outdoors everyday that will help them to develop their natural affinity with nature directly (e.g. learning about birds in the neighbourhood rather than those in a far off jungle)
- Plan activities which are related to learning about the nature every day.
- Sorting different types of leaves.
- Give them masks of different animals and ask them to mimic

horses-neigh, cow-moo, dog bow-wow etc.

- Provide them worksheets for matching the things that are provided by nature.
- Let them colour the worksheets containing the animal pictures.
- Regularly plan nature walk which would provide young children to explore and play outdoors.
- Involve children in planting a seed, let them water the seed and nurture it.

Natural experiences help children to engage with nature and they will understand their responsibility towards environment and become more disciplined. As adults we should



make a commitment to increase the children's interaction with nature as these small experiences in early age help to improve their life and learning in many ways and in future they will grow into adults who care about the environment.

## Celebrating Teachers' Day

Vandana Mishra\*

*The end-product of education should be a free, creative individual, who can battle against historical circumstances and adversities of nature.*

**Sarvepalli Radhakrishnan**

### Abstract

*A jewel in the treasure of India, Dr Radhakrishnan was born in a remote village near Madras. He emerged as a spark from the masses and achieved great heights leaving remarkable footprints as a student, teacher and politician. His creative mind and style of speech played a major contribution in his success. He was a great teacher of humanity who gave message of humanity to the masses through his valuable writings and speeches. He can be marked honestly as a genuine representative of India. His views on education and vision of human destiny will always be appreciated all over the world. A remarkable theme is always seen in his speeches that made his audience speechless or spell bound. His birthday in our country is celebrated as "Teachers' Day" on 5th September.*



*This paper is a tribute to the great soul with a focus on some of his contributions. This paper includes some parts of his life, philosophy and his vision for education that proves him- a great teacher.*

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## Introduction

Sarvepalli Radhakrishnan, the great teacher was known as the philosopher king for he was one of those who fulfilled Plato's requirement for being a head of the state. Radhakrishnan was a multifaceted personality as he was a teacher, speaker of par excellence, a politician of compassion and a versatile diplomat. During his life, he achieved great heights with his scholarship and public service. His contribution to education is remembered and will be remembered for his path breaking ideas and vision in the University Education Commission, the first commission on education set in the independent India. The Commission set 'understanding the meaning of life' as one of the aims of higher education. His works and life stand as testimony of new thinking in the new independent India where every citizen of the country was recognised – 'the maker of the nation'.

## Life of Dr Radhakrishnan

Born on 8th September 1888, in a remote village of Thiruttani near Madras in a traditional Indian Telugu Brahmin family. He completed his schooling in Tirupati and then was sent to Vellore for higher education where he completed graduation and obtained a master's degree in Philosophy. His father did not want his son to learn English, instead he wanted him to be a priest. Radhakrishnan was highly talented and he came out as an outstanding performer in the studies. He was awarded many

scholarships in his academic life. He was extremely popular among his students. He also served as India's Ambassador to USSR from 1949 to 1952. He was also the Vice-Chancellor of the Andhra University and Banaras Hindu University. He was the Vice-President of India from 1952-1962 and became the President of India from 1962-1967.

He achieved great heights during his life. His versatility was the most striking element that attracted everyone to work with him. His powerful mind, power and style of speech, dedication to work contributed greatly to his success in life. His warm heartedness and ability to draw out people made him even more popular. He always wrote for the well-being and upliftment of the society. His life's journey was continuous and uniform setting new examples and standards for the masses. He was a positivist/optimist. He believed in goodness of the future. He believed that true knowledge is to know one's own ignorance. He was a very humane person. Whether being on the position of the Ambassador, Vice-President or President, he always remained a teacher all over his life. Teaching profession was his first love and whoever studied under him can never forget him. Everyone remembers him with gratitude as a teacher.

In *Kalki* or *The Future of Civilisation*, he says:

"Democracy has become confused with ignorance, lack of discipline,

and low tastes.....  
Though educational facilities are within the reach of large numbers, the level of culture is not high. It has become more easy to get into a college and more difficult to get educated. We are taught to read but not trained to think.....Those who know better are afraid to speak out but keep step with the average mind. Uncivilized mass-impulses, crowd emotions and class-resentments have taken the place of authority and tradition.”

Pandit Jawaharlal Nehru wrote about him- “He has served his country in many capacities. But above all, he is a great teacher from whom all of us have learnt much and will continue to learn. It was India’s peculiar privilege to have a great philosopher, a great educationist and a great humanist like him. That in itself shows the kind of men we honour and respect.”- (Public Information Bureau)

Pandit Jawaharlal Nehru described Dr Sarvepalli Radhakrishnan as “the symbol of India”. Nehru and Ambedkar are known as the architects of the political institutions of our country, Dr Radhakrishnan is the architect of our social institutions. He had a great understanding of philosophy of religion and education. He had an extraordinary ability to convert the contradictory thoughts into complementary ones. His great soul left for heaven on 17 April 1975.

## **His vision for Education and Philosophy**

Many Great thinkers and philosophers of contemporary India have given their theories on the basic principles of education. He was one of the most brilliant man and played a significant role in the field of philosophy and education. He was not only a philosopher but also a writer, a great thinker, a scholar with par-excellence, an educationist, a man with immense creativity, a genius. As a philosopher, he marked excellence in both Western and Eastern thoughts. Among the modern thinkers he is an example of a great educationist in the modern world on religion, culture and philosophy.

The first book written by him was “The Ethics of the Vedanta and its Material Presupposition” in 1908. Thereafter he wrote many world renowned books which are popular all over the world. At Mysore, he wrote his two important books – “The Philosophy of Rabindranath Tagore” in 1918 and the “Reign of Religion in Contemporary Philosophy” in 1920. In 1923, the first volume of a book ‘Indian Philosophy’ was presented by him. This book gave new recognition to Indian thought and philosophy in the western world. This book was one of his best creations and made him famous in the world of Philosophy. In this book, there are surveys of the philosophy of Vedas and the *Upanishads*, *Bhagavadgita*, Realism of the Jainism, Idealism of the Buddha and Buddhistic philosophy.

The second volume of this book was published in 1927, in which he has described the six systems of *Nyaya, Vaisheshika, Samkhya Yoga, Mimansa, Vedanta, Vaishnava, Shaiva* and *Shakta* systems of theism.

He delivered a series of lectures on philosophy in many foreign countries. These lectures were published under the title "The Hindu View of Life". He was also a recipient of *Bharat Ratna* in 1954, which is the highest civilian award in India. Simultaneously he also wrote many classical writings. In true sense, he was a versatile personality. His vast philosophical knowledge, ideas and thoughts built a bridge between India and the West. He had uncountable admirers throughout his life. Dr Radhakrishnan's views on an "ideal teacher" are contrary to many of the common teaching practices today. He warned against idolising teachers as *gurus* and becoming a congregation of faithful without openness of mind. He said that students are greatly influenced by the teacher and they can't evade their responsibility to their teaching profession. Dr Radhakrishnan gave teaching the status of a 'profession'. He said that education is not only important for knowledge and skill, but it helps us to live with others." Radhakrishnan wanted to establish a classless society through education so that there would be equality between the masses. He wanted to have universal brotherhood all over the society.

Radhakrishnan gave great importance to observations, experi-

ments and the relationship of nature and society in the method of teaching. He said that real and living examples should be used for the teaching of moral values. He wanted that the students should come close to society and nature for their better understanding. He said that through regular practice of Yoga and Meditation, man gets a lot of help in achieving his goal. He defined education as an important tool for social, economic and cultural change in the society. Radhakrishnan said that the education's quality was determined by the quality of teacher in itself. He wanted that students should study many subjects such as philosophy, literature, science, ethics, politics, theology, geography, history, agriculture, natural science, economics, human science and civics. In the curriculum for women, Radhakrishnan wanted that they must be taught subjects like home science, cooking, fine arts, ethics and religion so that these would be helpful in their duties also. He wanted that curriculum must be related to one's life so that one could learn by the daily experiences.

He was the chairman of the first '*University Education Commission*' also known as the '*Radhakrishnan Commission*' (1948-49) which came out as a masterpiece of education policy. He argued that the teaching institutions must focus on teaching democratic principles like liberty, fraternity, equality and social justice. He truly explained the impact of these principles in the society. He argued

that any education is incomplete without the knowledge of all the three streams: Science and Technology; Social studies including History; Humanities including language and literature, fine arts, ethics, philosophy and religion.

“The process of education becomes dull and boring if we are unable to interest the live minds of the students. What they learn unwillingly becomes dead knowledge which is worse than ignorance. Learning is an activity of thought. It is not stuffing the mind with facts. We must be able to use what we learn, test it, throw it into fresh combinations. It must become vibrant with power, radiant with light”

– (*First University Education Commission Report, 1948*)

Radhakrishnan has laid the foundation for a Universal Religion that satisfies the demands of reason and the needs of humanity. He has searched the hearts of all religions and the writings of all the mystics of the East and the West. He pleads for a global outlook and an integrated approach to the problems of the world. He said that it is not enough for us to listen to the voices of Plato, Aristotle, Kant, Hegel, Shakespeare, and Mill, but we must also listen to Sankara, Buddha, Krishna, Gandhi. His work in the field of comparative religion, and his earnest endeavour to restore the true conception of religion are truly the permanent testimony to his greatness.

## **Remembering the Great Soul on His Birth Anniversary**

A life of strenuous endeavour for human betterment is not possible, if we are not persuaded that life has a meaning. Many of our popular writers today seem to be possessed by the one desire to escape from the world of meaning and teach us the essential purposelessness of life. They make us believe, with a good deal of cleverness and sophistry, that life is infinitely complicated and totally inexplicable. Many of our students are taught to assume that free-will and personal responsibility are illusions, that human beings are conditioned almost wholly by their physical make-up and the society in which they live, and that the only sense that the religious statements make is emotional and subjective. This is a generation which knows how to doubt but not how to admire, much less to believe. This aimlessness, this indifference to basic issues, is to no small extent, responsible for the decline of standards, for the fading of ideals, for the defeat of human endeavour”.

– (*First University Education Commission Report, 1948*)

Dr Radhakrishnan always had a dream for world democracy. His is no more with us, but his great ideas and messages for the whole world make him immortal. The future generations will always get inspired through his life and ideas dedicated to learning and service of humanity. He will always

live in our hearts, and his thoughts will always work as an instrument for the upliftment of the society.

### ***Celebrating Teachers Day***

Sarvepalli Radhakrishnan, was a philosopher and a teacher with par excellence. He made a great contribution towards Indian education system. Dr Radhakrishnan believed that “teachers should be the best minds in the country”. On 5th September i.e., the Teachers Day, we gratefully remember the great educationist, apart from honouring all the teachers that have made our life much more knowledgeable and fulfilled, as serving as our beacons of light. He will always be missed as a great teacher.



*Radhakrishnan's picture by:  
K. Sudhanjini, Class VI,  
Sai Baba Central School, (A.P.)*

Teachers' Day has a great importance for everyone in India. The teachers act as the roots for creating

responsible citizens and good human beings. Without teachers, it is not possible for a human being to decide and walk on the correct path of life. They are the real guides of our future.



*Source: www.ndtv.com*

They act as the shapers of our future. The teachers can never be thanked for whatever they have taught us in our life. They have a great contribution in making our life. Celebration of Teacher's Day is only a way to show our respect towards them. Schools all over India celebrate Teacher's Day by allowing the senior students to act as teachers for a day. Many fun activities are enjoyed by both the acting teachers and junior students. Students also



bring gifts for their teachers. It is a special day for the students and the teachers as well. This is a day to honour our teachers, who play such an important role in our lives.

This year on the occasion of Teachers' Day, Honourable Prime Minister of India, Shri Narendra Modi interacted live with millions of young students and teachers across the nation. Children heard his speech with great enthusiasm. The students got the opportunity to ask questions directly from the honourable Prime Minister. He encouraged girls' education and said that an educated girl further educates at least two more families. He also reminded that all of us need to ensure that all schools must have

toilet facilities for girl students. Modi also asked teachers to make best use of technology in teaching and emphasised more learning rather than teaching. He also said that teaching must be done without any discrimination among the students. For a teacher all students are equal irrespective of their abilities. Teacher needs to identify the potentials of each student and help them realise their potentials.

The Prime Minister said, "Teaching is not just another profession. It is a divine responsibility to guide and enlighten the young minds." He addressed the teachers saying that their determination and sincerity will shape the destiny of the nation.

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## Teaching English Language in Early Grades

Padma Yadav\*

### Abstract

*Language learning is very important for children since it provides the foundation for all later learning. This paper supports children learning English as a second language in early years. It has a particular focus on children in three to six years age group and supports children's transition in school. This paper is an outcome of learning that happened during the three months of field visit in rural Anganwadi centres and government primary school of Haryana State, India. The study provides information about second language learning among young children from three to six years and children in early grades. It was found that children can learn new language easily say English with support, encouragement and by providing the print rich and spoken environment.*

Language plays an important role in communication, exchange of information, development of reading skills, reading with comprehension, and, in later years, academic success.

*“Language and other forms of expression provide the basis for meaning making, and sharing with others. They create possibilities of development of understanding and knowledge, providing the ability to symbolise, codify, and to remember and record. Development of language for a child is synonymous with development*

*of understanding and identity, and also the capability of relating with others. It is not only verbal languages with scripts, but also languages without scripts, sign languages, scripts such as Braille and the performing arts, that provide the bases for making meaning and the expression.” – National Curriculum Framework-2005.*

**The foundations for meaningful reading and writing are laid in the first few years of life**

The Emergent Literacy perspective emphasises that it is through exposure

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to a variety of informal reading and writing experiences at home that young children begin to experience and make meaningful relationships with different forms of reading and writing much before they enter school (Teale and Sulzby 1986). These experiences may take the form of imitating a grown up reading a newspaper or book; recognising some familiar written words or alphabets on hoardings, labels or television; pretending to read or write letters or messages; making pretend lists or listening to read aloud stories and so on. Experiences of this nature help very young children to make natural and meaningful connections with written words while participating in daily life social interactions (Jayaram, 2010).

Research shows that children, who have had exposure to reading and writing in their early childhood years, come better equipped with the knowledge and skills required to deal with school learning, than their other counterparts who interact with print for the first time when they enter school classrooms. Yet little attention is being paid to language activities and experiences at early childhood and primary stage.

### **Language Teaching in Multilingual Country**

Teaching through the child's first language, or mother tongue, is internationally recognised as the most appropriate way of working with children in the early years of concept formation.

*'Children who attend preschool programmes conducted in their own mother tongue face fewer problems of comprehension as compared to children whose mother tongue is different from the medium of instruction.'*

– (Position paper on ECCE, NCERT)

Language teaching is a complex issue in a multilingual country like ours, where teachers may be required to cope with a number of languages at the same time in a classroom. Any Indian language used as a medium of instruction in preschools, especially in towns and cities, poses problems for children coming from different language backgrounds and dialects. To these children, it is like learning a foreign language, and it is also a challenge for the ECCE worker. Hence, the teacher's sensitivity and training are both essential to help the child overcome the gap between the home language/dialect and the school language.

On the other hand, it is well known that young children can learn new languages easily. Indeed, research shows that the years before age seven are probably the best to learn new languages, and observation supports the view that young children learn new languages much faster than adults.

The period 2–5 years may even be the best for learning multiple languages. India being a multilingual country, people are familiar with more than one languages, not including English. Much of this is learnt out of school, through informal learning of languages in the environment. So it

is obviously not difficult for ordinary people without much education to learn additional Indian languages. It can also be observed that large number of children comfortably study in schools in the 'regional-language' medium even though they use a different language at home.

Multilingualism and children's learning abilities are, therefore, not the issues here, but rather the ability of the educational system to address these issues and find the appropriate solutions.

### **Language Issue in Tribal Areas**

Children in tribal areas enter directly into a primary school that uses the state language and face great difficulty resulting in their inability to read the state language with comprehension even after Class V.

The early childhood years before the child enters primary school are obviously the best time to familiarise him/her with the regional/school language. At preschool stage listening and speaking are the major activities in the classroom, along with rhymes, free play, storytelling etc. So it is easier at this stage to learn language. ECCE pedagogy may be helpful in introducing the new language through oral means alone (listening and speaking) at the preschool stage, before going on to reading and writing at the primary stage. If ECCE cannot be introduced in tribal areas, then the first year of primary school, should

be utilised for learning the regional language through such informal means like preschool methodology. A sympathetic attitude, some knowledge of the tribal language or dialect on the part of the teacher, or the employment of a teacher belonging to that language group, and orientation of the teacher would go a long way to help children learn language(s).

### **Demand for English**

There is a growing demand for English in the society. Majority of parents of all classes, occupations and regions like their children to know English. It is seen as the path to upward mobility. Unfortunately, most people confuse learning English with the so-called 'English medium', and hence the growing popularity of so-called 'English-medium' schools has become closely linked to the rapidly increasing privatisation of education at the primary and preschool levels. English has become the line dividing the privileged from the rest, and the base of the continuing dual track in our educational system. These are issues of class, power, and social inclusion rather than of pedagogy, and hence are required to be paid attention to.

Whatever is the ideal age for the introduction of a second language from an academic standpoint, from the point of view of socio-political realities it has to be introduced early, either in Class I, as several states have already done, or at the preschool level. Academicians then

have to find the best methodologies for teaching it.

### **Position Paper on ECCE, Focus Group report of NCERT 2006, raised two important Questions**

#### **The Questions are**

How can we teach English to children through teachers who do not know English, especially if it involves teaching children from homes where the parents do not know it either?

How can the methodology of ECCE be applied to the learning of English?

#### **Field Experience**

*The investigator works in area of ECCE at NCERT. All the faculty members of NCERT were required to go for field visit in rural areas and teach for three months in any one of the government schools. This paper is an outcome of learning happened out of experience in NCERT in the area of ECCE and exposure to field visit in an Anganwadi centre and in Class I of government primary school, Sikanderpur ghosi village, Haryana. Cooperation of Anganwadi centre and primary school is duly acknowledged. During the field visit the investigator helped children in learning simple English vocabulary through picture cards, picture books, English rhymes and provided them ample opportunities to listen to simple English words during free and guided conversation.*

*For Class I children and others there was a provision of viewing T.V. programme in English (action songs,*

*rhymes, stories, art and craft work etc.), especially telecasted for primary students between 9 a.m. to 11 a.m. The programme was well designed – class wise, it was according to the age of the children and themes of the programme were very simple. It included simple English conversation, introduction of body parts in English, activities on different themes, some simple rhymes, language games, stories, role play, dramatisation etc. After viewing the programme for one hour the investigator used to repeat these simple activities again in class whenever there was time by giving chance to children to recall what they had observed, listened and used to encourage them to speak without hesitation.*

*Sound recognition, associating sound with Alphabets, making words from sound, taking up project on water, fruits, vegetables, colours, shapes etc. were common activities of Class I.*

*In anganwadi centre children from four to five years age group were encouraged by the investigator to say ‘thank you’, ‘please’, ‘may I come in’, ‘may I go out’, ‘colours name in English’, ‘body parts name’, ‘fruits name’, ‘vegetable name’ etc., in both Hindi and English language simultaneously.*

*Investigator adopted play-way, activity-based methodology as used in preschools. Theme-based approach was used. Activities related to themes were organised incorporating activities for developing listening skill, speaking skill, reading and writing skill. Activities for listening skill included activities*

*such as conversation; rhymes, stories etc. For speaking skills activities like 'show and tell', reciting poem, building words etc., were conducted. For reading, readiness activities such as match sound with picture, identification of alphabets, words with sound and letters etc., were organised and for developing writing skill fine motor development activities along with making simple patterns, writing alphabets, words etc., were organised.*

*Investigator used the teaching learning material available in school with Class I teacher, whereas some of the items like dominoes, picture cards, picture reading chart etc., were also developed by the investigator.*

*It was found that children had started understanding spoken English. They had started reading by joining letters. They were able to draw face with eye, nose, ear, mouth, hair etc., and label. They were able to speak two to three lines on selected object of their choice like pen, pencil, chalk, table, chair, teacher, blackboard etc., with little support. It was heartening to see them using words like thank you, please, come, go, I want, take, give, call, bell, water, food, tiffin, mother, father, friend, etc., while talking to their classmates.*

### **Answers to above questions are**

#### **Using ECCE pedagogy, teaching of English is possible**

ECCE perspective, or a developmental pedagogy, suggests that language may be learnt by processes in the following

order: 'Listen–speak–read–write.' This is the exact opposite of what is observed in most schools, where language in the early years (whether English or any Indian language) is taught by first requiring children to write, then read, sometimes to listen, and almost never to talk! In the early years, the focus is on listening and speaking as the major activities in the classroom. Speech and listening, reading and writing, are all generalised skills, and children's mastery over them becomes the key factor affecting success at school. All of these skills need to be used together recommends NCF-2005. Input-rich communicational environments are a pre-requisite for language learning, whether Hindi or English or any language. All teachers who teach English should have basic proficiency in English. A variety of materials should be available to provide an input-rich curriculum, which focuses on meaning.

#### **Teacher's sensitivity and training is required**

Primary Teachers, especially Class I and II should be given training in usage of ECCE methodology in a mission mode. They should learn to come down to the level of children. They should sing, dance and play with young children. Drawing simple pictures with free hand drawing of common words used in English are helpful in learning English language. Example: kite, balloon, pencil, pen, eraser, pencil box, car, tree etc.

### **Important Principles to be followed while teaching English could be**

- I.** It is important to create a non-threatening and encouraging environment for learning English. For this it is important to have a bilingual approach to facilitate transition from Hindi to English. Introduce English in a spontaneous and smooth manner and not adopt a formal structured approach since children should 'pick-up' the language rather than be taught. Do not force or penalise children but encourage them to speak in English along with Hindi. If children make mistakes they should not be immediately corrected because they do not like repeating the corrected form of sentences.
- II.** It is important to expose children to a lot of spoken English through activities, audio-video programmes, games etc., and provide them opportunity to use the language.

### **Curricular Objectives for Preschool Education**

***By the time the child is ready to go to K.G. Class (i.e., approx. 4-5 years), curricular expectations could be***

- The child follows short and simple instructions in English e.g., 'sit down', 'come here', 'put away your toys', etc.

- The child communicates simple needs in English, such as 'may I go to toilet', 'may I go to drink water', etc.
- The child expresses her/his thoughts in simple short sentences.
- The child understands short stories and recites short rhymes with action.
- The child says 'good morning', 'thank you' etc.

### **Activities that can be Conducted at ECCE Centers During this period**

- Simple instructions to be given with actions to facilitate children's comprehension
- Recitation of simple rhymes in English with actions, initially in groups and by end of session individually
- Role play
- Puppet play
- Story-telling with expression and actions
- Picture reading with short sentences
- Simple free conversation and informal instructions with children during free play, meal time etc.
- Exposure to print through labeling

### **By the Time the Child is Ready to go to Grade I (5-6 Years), Curricular Expectations could be**

- The child follows more complex (two step) instructions in English, e.g., 'bring that toy and give it to your friend'; 'Who will help me

in distributing these plates raise your hand.' etc.

- The child communicates her/his needs and expresses her/his thoughts/ideas in simple English, e.g., what does she/he likes and why does she like it? What is she doing? What has she drawn?
- The child narrates incidents or tells stories in short and simple sentences.
- The child carries out simple conversation in English.
- The child recites longer rhymes with action, clear articulation and expression.
- The child uses words like please, thank you etc., and they should become a regular habit with children.
- The child recognises alphabets.

### **Activities that can be Conducted in the ECCE Centres**

- Informal interaction and conversation with children or guided conversation
- Role-play and dramatisation
- Rhymes
- Story-telling by children and teachers with help of story cards/pictures, etc.
- Using English vocabulary to become a regular habit with children
- Aaz Ki Taza Khabar (Today's News, free conversation)
- Language games
- Rhyming games
- Alphabets/words matching

### **Teaching-Learning Materials**

- Picture books in English
- Audio-Video Tapes for Rhymes and Stories in English
- Alphabets/Picture-word matching cards
- Action Words Picture Cards
- Dominoes
- Print rich environment

### **Do's**

- Children should be allowed to express themselves in their home language while they gradually acquire the regional/school language or second language, say, English through exposure.
- Teachers should also attempt to learn a few words and phrases of the child's home language.
- In a multilingual classroom, children should be encouraged to express themselves in their own language and to pay attention to and learn from each other. This is a natural and easy process in play situations.
- Convince the public and parents that all education, both in the private and the public sectors, must be in the medium of the child's home language, or, failing that, in the most familiar language or regional language. This requires the cooperation of the private sector; there must be a kind of regulation.
- Introducing second language, which could be English, as early as may be in the early childhood years.



- Teaching of English through the Mass Media  
A massive public campaign to teach English to teachers (or indeed to all adults) is needed, which would involve spoken English classes on:
    - Radio (AIR, community and FM);
    - Television (Doordarshan, satellite channels);
    - Distance education (open universities and schools);
    - New educational satellite networks; and
    - All other possible media.
    - Involving cooperation between the educational sector and the mass media and ICT, and requiring a new use of educational technology.
  - Extending ECCE Methodology to Early Grades.
  - ECCE methodology can make major contribution to the learning of language, particularly in the early years of primary school.
  - Lessons from the experiences of other countries can also be studied.
- Don'ts**
- Do not expect the children to sit quietly and listen to teacher all the time.
  - Do not snub or correct a child abruptly if he/she speaks incorrectly. Just repeat the correct form back to him/her.
  - Do not compare children.

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**Padhe Bharat Badhe Bharat**

**1. Background**

In the school curriculum reading and writing continues to be confined to textbooks to a large extent, despite the giving effect of *National Curriculum Framework-2005* under RTE Act, 2009. An overwhelming majority of teachers believe that completing the prescribed course material is their main and only professional concern. Thus reading remained passive in school curriculum. Reading to construct or derive meaning as a means of language acquisition and of communication and of sharing of information and ideas often gets neglected and the child fails to become a competent reader. The Yashpal Committee in its report on Learning without Burden (1993) had highlighted the meaningful and joyless nature of school based learning in India and strongly raised the issue of non-comprehension in the classroom.

Reading is essentially a process of meaningful making i.e., comprehension.

Reading is an interaction between the text and the reader which is hoped by the context—the reader’s prior knowledge, experience, attitude and language of community which is culturally and socially situated. The reading process requires continuous practice, development and refinement. In addition, reading requires creativity and critical analysis.

Though reading has always been recognised as a key component of a sound educational programme, existing plans of many school system do not ensure children’s acquisition and proficiency over reading skills and to make them motivated readers and writers. The NCERT Mathura study and results of National Achievement Surveys on the reading, writing and comprehension (Class III) clearly suggest revisiting the existing language development– listening, speaking, reading and writing with comprehension. Thus a nationwide programme can be launched to

\* Source: [www.mhrd.gov.in](http://www.mhrd.gov.in)

improve language development to create an enduring interest in reading and writing with comprehension as a lifelong activity. It is based on the premise that children need meaningful and socially relevant engagement with books, along with various opportunities to actively and purposefully engage with a variety of print based reading and writing activities.

Except for some urban and rural localities endowed with pre-primary classes, the primary schools are the first to introduce literacy to children and thus making the reading and writing relevant, interesting and meaningful to their lives, has been a challenge of our school system.

Classes I and II are important stages for developing the important skill of reading with comprehension and writing with a purpose. It is important to create enabling environment and opportunities for reading and writing. Children who fail to learn to read in the first two grades of schools are likely to fall being and have difficulty in learning other subjects as well. Poor readers cannot develop proper writing skills and are vulnerable to drop-out of the education system undermining the quality of life and productivity of human resources.

The *National Curriculum Framework-2005* has clearly pointed out “A majority of children have a sense of fear and failure regarding Mathematics. Hence, they give up early on, and drop-out of serious

mathematical learning.” Far too many abstractions are introduced at once with scant attention to well-known facts about development of mathematical thinking in children. Many a time, the tendency embedded in teaching is to accelerate children’s mathematical skills by teaching them mechanical rules at the expense of understanding and intelligent application. Therefore, there is a need to help the children learn mathematics in a way that develops liking and understanding of the mathematics during the early years of schooling, particularly in Classes I and II.

A nationwide sub-programme to the *Sarva Shiksha Abhiyan (SSA) ‘Padhe Bharat Badhe Bharat’* is planned a twin track approach: (i) to improve language development by creating an enduring interest in reading and writing with comprehension; and (ii) to create a natural and positive interest in mathematics related to the physical and social world.

The two track of *Padhe Bharat Badhe Bharat* are:

1. Early Reading and Writing with Comprehension
2. Early Mathematics.

## **2. Objectives**

1. To enable children to become motivated, independent and engaged readers and writers with comprehension possessing sustainable and lasting reading and writing skills and achieve

learning level appropriate to the class of study.

2. To make the children understand the reasoning in the domains of number, measurement and shapes; and enable them to become independent in problem-solving by way of numeracy and spatial understanding skills.
3. To associate reading and writing with the experience of joy and real life situation.
4. To recognise social perspective of home-school transition and the role of children's literature in the process of building independent and engaged readers and writers.

#### **By**

1. Initiating a dialogue with Teachers, Head Teachers, Parents, Educational Administrators and Policy makers and attention on the pedagogy of reading and writing; and early mathematics.
2. Creating sensitisation about the needs of children of Classes I and II with reference to meaningful processes of reading and writing and early mathematics.
3. Creating a cadre of resource groups and teachers well acquainted with pedagogy of reading and writing; and early mathematics.
4. Creating classroom and school environment conducive and vibrant to early reading and writing experiences; and early mathematics.

### **3. Components of (i) Early Reading and Writing with Comprehension, and (ii) Early Mathematics Programme**

Three factors a) the text; b) the reader, and c) the context i.e., both the setting where the reading, writing and oral language actively happens and also the manner in which these are transacted are critical to make any reading/ writing/ speaking a meaningful or meaningless experience. Similarly the context of problem-solving exposed by the reader provides better appreciation of numbers and spatial understanding. Considering these factors the programmes are composed of the following components towards implementation.

#### **3. (a) System-level Components**

1. Design, Curriculum and material development of (i) Early Reading and Writing with comprehension, and (ii) Early Mathematics by Academic Authority (NCERT and SCERT) as per Section 29 of RTE Act.
2. State Policy level clarity on medium of instruction.
3. Early Reading and Writing with comprehension and Early Mathematics component in Pre- and In-Service Teacher Training Programmes.
4. Capacity building of Teacher Educators– SCERT, DIETs and RPs.
5. Capacity building of Educational Administrators– Director (EE), DEOs, BEOs etc.

6. Capacity building of Head teachers on leadership in Early reading and writing with comprehension and early mathematics.
7. Capacity building of SMCs.
8. Development of simple, region specific, interesting and graded children literature in local languages and resources in mathematics.
9. Research and Evaluation in the area of Early Reading and Writing with comprehension and Early Mathematics at regular intervals and review of the programme on a cycle approach.

### **3. (b) School-Classroom Level Components**

1. Learning environment:
  - 1.1 Teaching-learning time
  - 1.2 Teachers
  - 1.3 Students
  - 1.4 Teachers capacity building
  - 1.5 Teacher mentoring and support system
  - 1.6 Classroom condition
    - 1.6.1 Physical condition
    - 1.6.2 Print-rich environment

### **3. (c) Positive School Social Environment**

1. Enabling Classroom transaction
2. Connecting classroom with community
3. Assessment as learning
4. Monitoring system

The School-Classroom components are explained below while the System level components are part of overall

implementation of *Sarva Shiksha Abhiyan*.

## **School-Classroom Components**

### **1. Learning Environment**

#### **1.1. Teaching-learning hours**

- 200 school working days.
- 800 instructional hours (in 200 days) in an academic year with a break up of 500 instructional hours for language and 300 hours for Early Mathematics.
- Out of 4 instructional hours/day, 2½ hours could be earmarked to reading, writing and language and 1½ hours for Early Mathematics.

#### **1.2 Teachers**

- Pupil-Teacher Ratio (PTR) 30:1
- Earmarking one teacher for Classes I and II
- Regularity of teacher attendance (95%)
- Teacher working hours per week (45 hours for teaching and preparation).

#### **1.3 Students**

- Enabling minimum 75% attendance by children
- Should get opportunity to develop self-confidence and a positive self-image through experiences of Acknowledgment.

#### **1.4 Teachers capacity building (Professional development) on following domains:**

*1.4.1 Training of teachers on Early reading and writing with comprehension*

- i. Progressive approach to language learning
  - Understanding of natural learning behaviour of children and their home learning environments through experiential methods.
  - To appreciate the strengths and differences between children and to make success achievable in the classroom.
- ii. Understanding of Early reading and writing and Pedagogy
  - Progressive Reading approach sensitive to the diversity of learners.
  - Understanding of the processes of reading, learning to read and comprehend and writing in early grades. Pedagogy to address comprehension, oral and written writing in early grades. Pedagogy to address comprehension, oral and written language connection, uses of literacy in everyday life, concepts about print and phonological awareness.
  - Understanding of developmental phases of reading and writing in early grades.
  - Using children experiences as resources in literacy learning.
  - Understanding that how the oral/ spoken language lays the foundation for Early reading and writing with comprehension development.
  - Understanding of children's reading and writing requirements within and outside the school.
- iii. Reading Corner
  - Children's literature: Procedure of selection of appropriate children's literature and usage in facilitating early reading and writing process.
  - Graded reading series: For self-reading of children to develop reading skills
  - Children's Magazines: reading for joy.
- iv. Home to school language transition
 

Provision of space for children home language including its transition to the language of instructions with a clear strategy spread over 2-3 years times span.
- v. Classroom planning: Flexible planning as per the classroom and children specific situations.
- vi. Assessment as learning
  - Understanding of CCE and learning indicators, child profile tracking and their adaptation to CWSN in implementing early reading and writing and early Mathematics in classrooms.
  - Observing children to record the process of learning, achievements and challenges to know students strengths, learning gaps and serve her in adapting curriculum and teaching-learning approach/ method to suit learner's needs.
  - Child observation and reflection and review of classroom

practices/ pedagogies and management techniques.

- Addressing the needs of all children especially children who lag behind, with additional support/ instructions.
- vii. Inclusion and Celebration of Diversity: Addressing the individual needs of all children and being sensitive to the classroom linguistic, social, religious and gender diversity and its celebration for unity in diversity.

#### *1.4.2 Training of teachers on Early Mathematics for Classes I and II*

- i. To make them understand the concepts of numeracy, spatial understanding and pedagogy of mathematics.
- ii. Orientation to use concrete materials conducive to the activity-based learning for enhancing mathematical skills i.e., numeracy, special understanding, data handling etc.
- iii. Teacher should address diverse and different needs of children in an inclusive manner while teaching mathematics.

### **1.5 Teacher Mentoring and Appraisal system**

#### *1.5.1 Mentoring System*

- i. Demonstration and practice opportunity: Teachers should have opportunities to observe and learn best practices and get opportunity for classroom practice

under guidance in early reading and writing with comprehension pedagogy and methodology sensitive to the diversity of learners and learning situations.

- ii. Academic support: Should have access to Resource Persons for guidance, feedback and innovation.
- iii. Cluster Meetings: Peer discussion to include learning processes, children learning behaviours; their interests, and their resources and ways in which these can be brought into the classroom for improved learning outcomes.
- iv. Are provided with resource material viz., posters, Audio-visual material, visually rich handbooks, pamphlets, videos etc., need to be designed to facilitate conceptual understanding for different contexts and disseminated widely.

#### *1.5.2 Appraisal system*

- i. Teacher appraisal process for assessing teacher performance.

### **1.6 Classroom condition**

#### *1.6.1 Physical condition*

- i. Should be conducive for reading and writing-light, seating arrangement etc.
- ii. Classroom labeling:
  - Wall blackboards or writing space allocated for children for free expression in writing.
  - Reading/ Book and Activity corner, Poem corner, Message boards (can include a meaningful and simple daily

- morning message), Word walls etc.
- iii. Reading Corner  
Children's literature (fiction and non-fiction), magazines, posters, drama, folk stories, poems, folk songs etc., as per children's level and interest.
  - iv. Barkha (NCERT) or any other graded reading series.
  - v. Easily accessible to children and prominently displayed.
  - vi. Provide facility to read at school or take books home for reading.
  - vii. Availability of stationery for children to write viz., slate, chalk etc.
  - viii. Provide translations/adaptations to make the books accessible to children.
  - ix. Get children to make books and become authors.  
Parameters of Children's literature in Reading corner:
    - x. Key features/elements of books liked by children in terms of characters, self-explanatory attractive pictures, theme, text, content simplicity and length, fun, font, relating with child experience etc.
    - xi. Are stimulating for children.
    - xii. Offer sensitivity to diversity in interests and social backgrounds and celebrates diversity.
    - xiii. Does not create superior or inferior impressions among children based on cultures and social backgrounds and non-exclusionary.
  - xiv. Provide openness to linguistic diversity – multiple languages (standard-non-standard).
  - xv. Build on home - school linkages by offering opportunity and space for sharing a variety of children's real world and home experiences in the classroom such as their culture (e.g., food, festivals and dress), language, daily life experiences etc.
  - xvi. Provide opportunity and space for various forms of engagement and expression — drawing, painting, music, drama, craft etc.
- 1.6.2. Print-rich environment*
- i. Timely distribution of all textbooks to all children at the beginning of academic session.
  - ii. Student's name chart and Attendance chart to be used by children as a literacy engagement.
  - iii. Class responsibility chart, mid day meal chart, children's birthday chart, chart of stories, poems etc., to be used by teacher and children.
  - iv. Display of children's writings, drawings, collections, variety of texts, pictures with captions, instructional material developed by teacher etc., (on walls/display boards) at the eye level of children to be changed from time to time.
- 1.6.3. Positive school social environment*
- i. Provides welcoming, caring and emotionally safe atmosphere, warm pupil-teacher relationship.



- ii. A non-threatening, non-discriminatory (irrespective of identity-gender, religion, caste, race, language, place of birth etc.) Non-exclusionary classroom environment.
- iii. Provides communicative spaces for dialogue, openness and sharing based on mutual respect, both in the form of teacher–child and child–child communications.
- iv. Celebrates diversity and sensitive to social differences – background, gender, caste, religion, class, community and literacy at home.
- v. Teacher to be sensitive to the children’s natural learning processes, to their home backgrounds, and their individual differences, diversity in classroom while fostering meaningful and purposeful ways of engagement.
- vi. Management of issues related to home to school transition viz.,
  - (a) Coping with values and belief system of the school;
  - (b) Coping with the routine schedule;
  - (c) Coping with the language of the school.
- vii. Provides a welcome space for parents and community members in classrooms.

## **2. Enabling Classroom**

### **Transaction: Sustained and Active Engagement with Every Child**

Early reading and writing with comprehension/Early Mathematics specific strategies:

#### Languages in Classrooms

- i. Teaching-learning preferably be in the mother tongue of children/child’s home language/language of school instruction related to daily life experience and socio-cultural context.
- ii. Encouraging activities like morning message (Aaj ki Baat) that bridge home-school gaps and presenting reading writing connections to young children.
- iii. Encouraging children to share their experiences in the class in their own language and use their talk as a resource in building classroom discussion richer by drawing from multilingual situation.
- iv. Encourage children to building connections between oral language and written language.
- v. Specific strategy for transition from home language to medium of instruction spread over of 3 years timeline.
- vi. Allow children to invent their own ways of using existing vocabulary to convey mathematical ideas related to numeracy and spatial understanding.
- vii. Provide opportunities to learn formal mathematical language viz., numerals, symbols for operation, terms etc.
- viii. Use simple, friendly and clear language in classroom avoiding commands.

- ix. Encouraging children to express their mathematical findings and later gently pointing out errors if any.

Children's participation in class

- i. Make activities and learning tasks more participatory in nature keeping in view of varied needs of children.
- ii. Encouraging children to participate in classroom activities through asking questions and framing of problems.
- iii. Allow freedom of mobility to children in class while working in groups and reading from reading corner.
- iv. Encourage children to develop many informal strategies in dealing with problems related to numbers and measurement.
- v. Opportunity to respond, discuss and share reading and books.

Teaching Learning Process

- i. Out of 4 instructional hours a day, 2 ½ hrs could be earmarked to language activities (viz., Oral language development, Read Aloud, Guided Reading, Word Study, Guided Writing and minimum 30 minutes of independent reading) and 1 ½ hr for early mathematics.
- ii. Reading aloud of meaningful text/story books and story-telling through gestures and expressions.
- iii. Giving space for developmental phase of reading and writing at early stages like pretend reading,

making use of predictions in reading etc., and scribbling, using invented spelling etc., in writing and encouraging instead of findings errors in pronunciation, spelling or writing.

- iv. Able to sensibility challenge children by neither talking down at children nor watering down learning opportunities.
- v. Able to elicit creative responses from the children and allow them predictions while reading a story to children.
- vi. Language and mathematical games based on the displayed print and content.
- vii. Use of local rhymes, stories and songs as print material for reading and numeracy pleasure.
- viii. Activities which allow children to draw/write and them express the meaning of what they have written/drawn.
- ix. Give opportunity to children to develop own stories individual or in groups and appreciating stories developed by them.
- x. Classroom Conversations based on classroom display, poems, texts and pictures.
- xi. Experience based and imaginative writing which support the development of listening, speaking and reading.
- xii. Teacher demonstrates multiple ways of reading and writing and interesting ways of problem solving.

- xiii. Opportunity to use and understand different genres and text types such as a) Narrative, b) Poems, c) Information books and text, d) Instructions, e) Expository texts which present or argue viewpoints.
- xiv. Help children to build a sound foundation of counting, moving on to place value and number operations.
- xv. It is essential that children understand counting and do not just rote learn the sequence of number words.
- xvi. Provide opportunities to explore 3-D and 2-D shapes found in the environment.
- xvii. Encourage children to identify various elements of an object and later relates a 3-D object with its 2-D picture/shape.

### 3. Connection Classrooms with Community

Connecting reading and writing with parents/community living, livelihood, festivals, current events and engagement with local knowledge needs viz.,

- i. Teachers asking children “Morning message” (Aaj ki baat) and writing it on the board and reading to children and doing mathematics work similarly.
- ii. Showcasing children’s accomplishments (in reading, writing, numeracy etc.) in community events.
- iii. Involvement of community viz., Parents, SMCs, PRI and women etc.,

in teaching and school activities appropriately.

- iv. Visits to fairs, post office, police station, local body, diverse religious cultural institutions to celebrate local diversity etc.

### 4. Assessment as Learning

- i. Parents are aware of the learning indicators of Classes I and II.
- ii. Teacher to have a baseline assessment of class/children at the beginning.
- iii. Teacher observation/formative assessment — qualitative indicators.
  - Are the children participant/ expressing freely
  - Are they confident
  - Are they supporting each other
  - Are they taking initiatives
  - Strategies adopted by the child for reading (for e.g. awareness of print, use of prediction, illustration, context cues etc., for meaning making and decoding)
  - Ways of expression (for example scribbling, drawing, string of letters, invented spellings etc.)
  - Feedback considering children’s developmental processes of reading.
- iv. Summative assessment of learning: Are they achieving learning milestones.
- v. Learner profile folders (portfolios) with writings/drawings viz.,

poem, drawing, short story, letter, messages, invented spellings, scribbling, activity involvement etc., of individual child.

- vi. Documentation/child learning tracking: Teacher's assessment of child's reading and writing and problem solving.
- vii. Feedback from children, parents and peer group.
- viii. Use of Continuous and Comprehensive Evaluation (CCE) to review the tracking plan and to work for improved learning performance of children in reading and writing and mathematics.

### 5. Monitoring System

- i. Block Education Officers (and their inspectors) should visit every school once in 6 months and assess all components of Early reading and

writing with comprehension and Early Mathematics programme viz., (i) Learning Environment, (ii) Enabling classroom transaction, (iii) Connecting classroom with community and (iv) Assessments and (v) Monitoring; and review the CCE results of every child in comparison to set Learning indicators.

- ii. Use of Quality Monitoring Tools (QMT) by Resource Persons.
- iii. Use of Teacher Performance Indicators by Head Teachers and Resource Persons.
- iv. SCERT to conduct sample Learning Achievement Surveys and share the results with the teachers, HTs, BEOs, BRPs, CRPs and DIETs for improving performance.
- v. NCERT to conduct NAS during 2014-15 and share the results

<i>Level</i>	<i>Programme Leadership</i>	<i>Programme Academic Support</i>
National	MHRD	National Resource Group on Early Reading and Writing and Early Mathematics at NCERT.
State	SSA State Project Director	State Resource Group on Early reading and writing with comprehension and Early Mathematics under SCERT leadership with members from SSA, Director Elementary Education, involving Educationists from diverse social, cultural and religious backgrounds, Civil Society University Education Department
	Director, SCERT	
	SSA State Programme Officer (Pedagogy)	
Director	District Edu. Officer/ DPO	DIET
Block	BEO	BRP
School level	Head Teacher	CRP and SMC
Classroom level	Teacher	CRP

with the States, teachers, Head Teachers, Education officers, Resource Persons and DIETs for improving performance.

## **6. Management Structure**

The State and UT Education Department (under the leadership of State Project Directors of SSA) are responsible for the implementation of the programme.

## **7. State Preparedness**

1. The States/ UTs in partnership with NCERT, experts and Civil Society formulates an Early Reading and Writing with comprehension and Early Mathematics Programme (ERW&EMP) with clear objectives, components and milestones for common understanding of all Stakeholders and implementation.

## My Page

### My School

Perception of people, in general, is that teaching does not take place in government schools. But our school, a government school, has changed this perception of people. Our efforts can be seen changing into reality as the students are now migrating from private schools to our government school.

The number of students enrolled in our school has increased to 160 this year, last year it was 130. A large number of students belong to scheduled castes and other backward classes, and are from low income family background. These students also work in fields for agriculture. The school management keeps contact with their families in order to maintain their

presence in class. To connect the local residents with school, many social service programmes are organised by students.

Parents feel delighted seeing their children working on computer (power point, internet) as well as reading their achievements in newspapers. Parents also show their concern for the school and its activities.

### Social Activities

The school organises social activities, where all students participate. This is important because school students who are the nation builders, should have a feeling of social service in them. Whatever students learn at this stage, remains with them all their life. The students of this school participate in all the social activities.



# यहां प्राथमिक स्कूल हैं मांटेसरी सरीखे

गीरी शंकर, बाराबंकी

यहां एक तरह का प्राथमिक विद्यालयों में पढ़ने वाले बच्चों को सी जा रही शिक्षा की गुणवत्ता को बढ़ा के पंर में तो रहते हैं। यहाँ दूसरी तरह का विद्यालय के विद्यार्थी अपने पुर्ण माध्यमिक विद्यालय में केवल एक शिक्षक द्वारा बच्चों को आधुनिक पद्धति से गुणवत्तापूर्ण शिक्षा दी जा रही है। इन विद्यालय में पढ़ने वाले छात्रों को सी जा रही शिक्षा की गुणवत्ता तथा इनका वह मांटेसरी विद्यालयों की सीखे सीखे रही है।

राजधानी विद्यालयों में पढ़ने वाले बच्चों को मिलने वाली शिक्षा की गुणवत्ता पर सभी का यही कह रहते हैं कि: यहाँ शिक्षक छात्रों में रचिन नहीं लेते। जिससे राजधानी विद्यालयों में पढ़ने वाले बच्चे पढ़ाई में कामयाब होते हैं। परंतु राजधानी विद्यालयों की इस छवि को दृष्टिकोण के विचारों के बिना पूर्ण माध्यमिक विद्यालय में सुझाव स्वीकार किया है। यहाँ माध्यमिक अध्ययन के बाद पर केवल शिक्षक आधुनिक आनंद अकादमी के प्रयास से छात्र न सिर्फ गुणवत्तापूर्ण शिक्षा प्राप्त कर रहे हैं। यहिक सामान्य ज्ञान, कंप्यूटर अदि में भी रुचि हो रही है। बच्चों को सामाजिक शिक्षा, बचत तथा दूसरों की मदद के भावों से भर देना सर्वोपरि विचार किया जा रहा है। इस विद्यालय में पढ़ने वाले सभी छात्र विश्व के सभी देशों का नाम मानचित्र में अंकित करते तथा एक से 30 तक की गिनती का मौखिक



स्कूल की दीवारों पर टीएलएम की पेंटिंग और

पूर्व माध्यमिक विद्यालय प्रिवाइज स्कूल में बच्चों द्वारा तैयार आदर्श मॉडल

- दृष्टिकोण के विद्यार्थी पूर्ण माध्यमिक विद्यालय प्रस्तुत कर रहा आदर्श
- छात्र कंप्यूटर पर विभिन्न प्रोग्रामों में कार्य करने में रुचि

वर्ण करने में निरत हैं। विद्यार्थियों को प्रत्येक के सभी शिक्षकों के नाम चुकानी पड़ती है। शिक्षक आधुनिक आनंद अकादमी के अनुसार बच्चों को कंप्यूटर को पढ़ाई के बारे में जानकारी बढ़ाने हुए बच्चों को पावर प्वाइंट, ऑडियो बॉट तथा एम्बेल अदि की जानकारी दी तथा निरंतर अभ्यास से अब ये बच्चे कंप्यूटर पर इन विषयों के बारे में परीक्षा हो चुके हैं। विद्यालय के बच्चे समय-समय पर सामाजिक

कार्यक्रम के जरूरी में ध्यान देकर सामाजिक सहभागिता की भी शिक्षा लेते हैं। विद्यालय में बच्चों को बचत के प्रति जागरूक करने के उद्देश्य से योजना संघ स्थापित है।

यहाँ बच्चे हर महीने एक रुपये का योजना बचत के रूप में करते हैं। इन पैसे का इलेक्ट्रॉनिक समय-समय पर सामाजिक सहयोग में किया जाता है। इनमें बचत के पैसे से बच्चों ने 'उत्तराखण्ड आपदा के दौरान पीड़ितों को मदद के लिए एक हजार रुपये का ट्रांसट्रिब्यूटिवोरी को मीच था। समय-समय पर बच्चे काकायत जागरूकता अधिपान, नया उपमूल्य अदि के लिए समाज, गैर दक्ष परिवार के लोगों को जागरूक करने के जरूरी में भी ध्यान लेते हैं।

विद्यालय के छात्रों को प्रभावित करत हुए एकीकरण द्वारा दिए गए नरदेशों का उपनयन करते हुए शिक्षक आधुनिक आनंद ने बच्चों को इंटरनेट का भी ज्ञान कराया है। विद्यालय में बच्चों को टैडपैडिंग को सुधारने पर विशेष ध्यान दिया जाता है तथा प्रिंटींग मैशिन का भी उपयोग होता है। अर्थात् स्तर पर आधुनिक होने वाले मैशिन प्रिंटींग में इस विद्यालय को प्रथम स्थान प्राप्त हुआ है। विद्यालय में पंचोत्सव छात्रों को कुल संख्या 127 है जिनमें प्रिंटींग उपकरण 80 प्रिंटर द्वारा उपलब्ध रहते हैं। विद्यार्थी का यह विद्यालय तथा शिक्षक आधुनिक आनंद अकादमी राजधानी विद्यालयों में पढ़ने वाले शिक्षकों के लिए आदर्श है।

Last year the students contributed a sum of ₹ 1000 to Prime Minister's fund for the people affected in the disaster at Uttarakhand. The students came forward and helped the people who suffered in a fire disaster in a nearby village named Manjhaar. A rally

was also organised to spread voting awareness among the people. The students also distribute pamphlets related to information about accident prone areas, traffic rules and reasons to follow them. The students were highly appreciated for their appeal



against the killing of the girl child. Some students have even relieved their parents from smoking.

The students of pre-secondary school, Miyaganj are also proficient in computers. They enjoy working in Microsoft word, power point, excel etc. Seeing their interest, the section education officer Mr. Santosh Tiwari provided them internet facilities for their better learning. But due to improper electricity power cuts, the students are not able to access the internet properly. The staff has also demanded for a projector from the department for better teaching- learning process.

### Teaching-Learning

The students can mark the names of the countries on a world map. They have been provided maps and students practice with the help of these. The students are given opportunity to solve questions on green board so that their writing skills can be improved and their self-confidence builds. In order to enhance their enquiry skills and curiosity, they are given opportunity to learn and practice on their own. We always try our best to solve their queries. General studies classes are organised to help them in



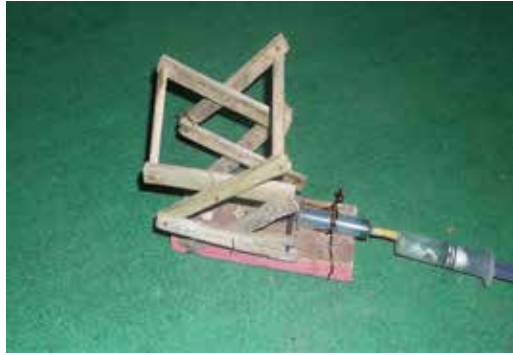


examinations. We also organise career counselling programmes which helps them to choose their career according to their interest.

### Science activities

The students have prepared many models using NCERT textbooks and Professor Arvind Gupta's website.





Models and charts of machines, hydrolic trolly, hydrolic clutcher, vibrating bell, volcano, lagoon etc., can be seen in the school.

### Cultural Activities

The students have shown excellence in performing cultural activities. The



villagers provide full support in the celebrations of the national festivals. Students for all religions participate in these programmes.

### Meena Manch

The pre-secondary school, Miyaganj has a meena manch which is organised by the students. The manch members are elected by voting.



### Students' birthdays and Farewell party



The birthday of the students is also celebrated with great enthusiasm. Class VIII students are given a farewell party

with a blessing for their bright future. They are also given general knowledge books, dictionary etc., as presents.



### Sports Activities

The students of our school are provided sports facilities. Last year, the students were ranked first in the block level rally. Special attention is given to their health and health check ups are also organised.

A teacher's goal is achieved when her/his students follow the path of success. A teacher feels extremely happy when her/his students achieve great heights. In order to achieve this goal, the teachers will always have

to be ready and come forward. Then only the future of society and country can be developed. Children are our country's future and it is the teacher's duty to inculcate good traditional values in them. Teachers may face problems in achieving these goals, but teachers will have to overcome these.

ASHUTOSH ANAND  
Deepak Jaibabaki  
Pre Secondary School,  
Miyaganj, Barabanki (U.P.)

**TRANSLATED BY:** Vandana Mishra

The Primary Teacher : October, 2014



## NATIONAL UNIVERSITY OF EDUCATIONAL PLANNING AND ADMINISTRATION (NUEPA)

(Declared by the GOI under Section 3 of the UGC Act, 1956)  
17-B Sri Aurobindo Marg, New Delhi-110016 www.nuepa.org

### ADMISSION NOTICE 2015-16

- (i) M.Phil. Programme (ii) Ph.D. Programme (iii) Part-time Ph.D. Programme

The National University of Educational Planning and Administration (NUEPA), a Deemed University fully funded by Ministry of Human Resource Development, Government of India is engaged in capacity building and research in educational policy, planning and administration.

NUEPA offers M.Phil., Ph.D. and Part-time Ph.D. programmes in educational policy, planning and administration from a broader inter-disciplinary social science perspective. The research programmes of NUEPA cover all levels and types of education from both national and international development perspectives. NUEPA invites applications from eligible candidates for admission to its M.Phil., Ph.D. and Part-time Ph.D. programmes for the year 2015-16.

#### Fellowships

All candidates selected for the M.Phil. and Ph.D. (full-time) shall be offered NUEPA fellowship. The NET qualified candidates, who have been awarded Junior Research Fellowship by the UGC and who fulfil the required qualifications, are encouraged to apply. However, part-time Ph.D. candidates are not entitled for any fellowship.

#### Eligibility Criteria

##### Full-time Programmes

(a) A candidate seeking admission to the M.Phil. and Ph.D. programmes shall have a minimum of 55% marks (50% marks for SC/ST candidates and Persons with Disabilities) or its equivalent grade in Master's Degree in social sciences and allied disciplines from a recognized university. Candidates possessing Master's Degree in other areas may also be considered if he/she has teaching experience or experience of working in the area of educational policy, planning and administration. (b) A candidate seeking admission to Ph.D. programme shall have an M.Phil. degree in an area closely related to educational planning and administration and/or exceptionally brilliant academic record coupled with publications of high quality. (c) M.Phil. graduates of NUEPA will be eligible for admission to the Ph.D. Programme after due scrutiny by a Selection/Admission Committee, if they obtain a FGPA of 6 or above on the ten point scale.

##### Part-time Programme

A candidate seeking admission to Part-time Ph.D. programme is required to meet the following criteria:

(i) Should possess the educational qualifications as mentioned in Para (a) above; (ii) Currently, should be in full-time employment; (iii) Should be a senior level educational functionary with a minimum of five years work experience in teaching/research in educational policy, planning and administration.

**It will be compulsory to attend one-year full-time course work by all part-time and full time candidates.**

#### Mode of Selection

NUEPA will follow all mandatory provisions in the reservation policy of the Government of India. Admissions to M.Phil., Ph.D. and Part-time Ph.D. programmes will be made purely on the basis of merit following the prescribed criteria of the University.

The University reserves the right to decide the number of seats to be filled in the year 2015-16; the criteria for screening of applications; and the selection procedure of candidates for admission to its M.Phil. and Ph.D. programmes. The mode of selection of candidates will be as under:

Initial short-listing of applications will be carried out on the basis of relevance and quality of the brief write-up (in the prescribed format) in the proposed area of research to be submitted along with the application form. Short-listed candidates will be required to appear for a written test and those qualifying in written test will be subjected to personal interviews to assess their motivation and potential leading to final short-listing and preparation of panel of selected candidates, in order of merit.

**Candidates must be possessing the eligibility qualification and submit marks statement at the time of written test on 20.06.2015.**

#### How to Apply

Candidates may apply in the prescribed form for admission to M.Phil. and Ph.D. programmes of the University along with three copies of the brief write-up (in the prescribed format) on the proposed research topic of a contemporary issue within the broad framework of educational policy, planning and administration. For further details, please refer to the M.Phil.-Ph.D. Prospectus, 2015-16 of the University.

The application form and the Prospectus can be obtained from NUEPA by remitting a sum of ₹ 200/- (₹ 100/- for SC/ST candidates) by demand draft in favour of Registrar, NUEPA, payable at New Delhi if required by Post or purchased in person. The Prospectus can also be downloaded from our website: www.nuepa.org by making online payment of ₹ 200/- (₹ 100/- for SC/ST candidates) and attach the receipt/confirmation slip with the application at the time of submission to NUEPA.

#### Last Date of Applications

Application should reach the Registrar, NUEPA, 17-B, Sri Aurobindo Marg, New Delhi-110016 on or before **15 May 2015**. For further details, please visit our website www.nuepa.org

– Registrar

## TO THE CONTRIBUTORS

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*'The Primary Teacher'* invites you to write articles, field notes and reports for it. We want your honest deliberations on issues that impact elementary education. You may like to focus on issues that bother you and concerns that you are sensitive to and which you feel should be shared with other teachers working at the grassroots levels.

- Use simple and non-technical language.
- Write in a friendly and communicative tone.
- Each article should be about 1500 to 3000 words.
- Keeping the clientele in mind, which is the teacher, please include information pieces that the teacher may not have access to in her/his place of location. You may include field notes and your own perceptions about issues in research, development and training in the area of elementary education.
- Send two copies of the piece along with the soft copy.
- Each article should have a short abstract along with the piece, in about 150 words.
- Try to write in a magazine/story/narrative format to make the piece user-friendly and interesting to read.
- Please send photographs and even illustrations prepared by you, if you so desire, to be incorporated in your piece.

### MY PAGE...

This column would contain your letters and feedback where you can put forward your responses, suggestions and expectations from the articles, papers and columns presented in *The Primary Teacher*. You may have issues, concerns and doubts related to teaching-learning processes, classroom practices, syllabus, textbooks, evaluation patterns, research pursuits etc. These could also reflect the concerns of many others working in this area. Please feel free to raise these issues in this column. You could also ask specific questions that would have baffled you.

You may write to me at the following address/email.

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