Learning Curve

Azim Premji Foundation

A newsletter from Azim Premji Foundation

Issue IV, November 2004

(For Private Circulation only)

From **Azim Premji Foundation**

This is the fourth issue of the Learning Curve, which is a quarterly and we complete one year of its publication. We have received a lot of encouragement as well as suggestions for improving the newsletter. One of the visible signs of support is the 'Guest Column' that comes so promptly from the authors whenever we approach them. This time we have three guest columns!

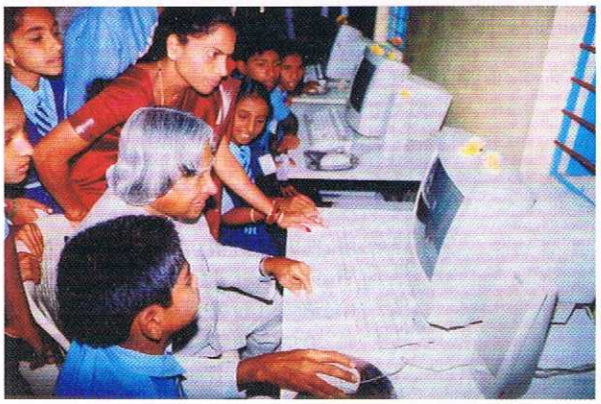
Constructive advocacy can be effective if abiding partnerships are forged among key stakeholders. The "National Conference on Enhancing Learning in Elementary Schools" held in Bangalore in July 2004 was one such attempt which assembled many leading academicians and educationists, practitioners from NGOs and decision makers from State Governments in a single forum. President Dr. Kalam's stirring inaugural address became a rallying point as the distinguished delegates discussed issues and opportunities related to enhancing quality of learning in our elementary schools. We carry a few quotes from the President's address and snapshots from the Conference for the benefit of those who could not attend.

This issue also provides readers with an update on the programmes of Azim Premji Foundation. Your suggestions and feedback on the form and content of the newsletter will be invaluable.

S Giridhar
Head-Advocacy and Research

Children at Nagasandra Cherish President's visit

July 23, 2004 was probably the biggest day for 600 children in Government Higher Primary School, Nagasandra, near Bangalore. They received a distinguished visitor. He was none other than the President of India himself.



The moment to cherish... President Kalam with kids

The school is one of the 225 schools that has the Computer Aided Learning Programme initiated by Azim Premji Foundation in partnership with State Government and the local community for rural elementary school children.

For the students it was a rare opportunity of interacting with the President of India. After interacting with the students and observing the child centered content in the CDs, the President enquired about the role of the teachers in the CALC. He appreciated the integration process of the curriculum and the content in the CD by the teachers.

"Dr. Kalam asked us questions and he was very happy with our answers. 'What do you want to become', he asked us and we said doctor, engineer, teacher etc," recall Chitra, Pavithra, Gayathri, Madhu and Kumar. "We never thought we would get such an opportunity in our lives," was the refrain of the teachers and the students.

From Nagasandra the President drove to the NIAS campus to inaugurate the "National Conference on Enhancing Learning in Elementary Schools" and set the tone for a three-day deliberation.

Quotes from the "National Conference on Enhancing Learning in Elementary Schools": July 23-25, 2004

Do you know from class one to 10+2 how many hours the students are on the campus? 25,000 hours. I believe even up to the age of 17, you can keep the child smiling if the education system keeps the focus on creativity.

You know a child gets a kick of happiness when it achieves. A teacher who can bring out the creativity of children is the real teacher....

Every school is responsible to create enlightened citizens.

Only three people can end corruption - father, mother and the primary school teacher.

Dr. A P J Abdul Kalam, President of India

We need to stop looking at schools as factories churning out students equipped to merely memorise the text.

It is imperative that our schools and educational institutions create an environment in which the required intellectual, physical, social and moral attributes can be developed, cherished and nurtured. Schools must be viewed as places that have the potential to transform the future of child and the nation.

One of the pre-requisites for children becoming proactive and responsible citizens is the availability of enough role models inside and outside the school.

Mr. Azim Premji, Chairman, Azim Premji Foundation

Does education provide for the means and skills to develop a sense of purpose? The answer lies in looking at curriculum not as an organization of knowledge but as an organization of experiences.

Mahatma Gandhi and Rabindranath Tagore both found their own answers to the challenge of modernity and they gave us ideas for curriculum organization around experience and activity, which we in a way dis-heard or heard without paying enough attention.

Primary education addresses that part of childhood when the child needs hands-on experience. Nobody's message or teaching, how so ever well transmitted, can make learning come alive for the child as the word of a teacher ....

Prof. Krishna Kumar, Central Institute of Education, University of Delhi

Designing of curriculum and preparation of textbooks is the key to good learning.

When we talk of the educational needs of the last child in the last row we have to ask this question: Does this curriculum or textbooks fulfill her requirement?

Should we not consider some flexibility in curriculum to design textbook with worksheets where teachers can prepare lessons with locale specific topic? Both topics and language which they can speak in. Even in such a straightjacket, unitary approach we often find the textbook do not reach the students in time.

Ms. Kumud Bansal, Secretary, Elementary Education and Literacy, Ministry of Human Resources Development, Government of India.

Any discussion and solution needs to consider the following key issues in the next 15 years:

1. How do we enable 200 million children to acquire quality education?
2. How do we enable four million existing teachers and future teachers to facilitate quality learning?
3. How do we enable one million schools to provide a conducive environment?
4. How do we reorient and enable the State to bring about the ethos and the culture of openness, spontaneity, creativity and freedom required in the education system without diluting its accountability to achieve quality learning?
5. How do we involve the community in quality learning without dilution of the ultimate accountability of the State?
6. How do we sustain this accountability over time? How can academicians, NGOs and State representatives play a meaningful role in achieving the goal of quality learning in a seamless manner?

Mr. Dileep Ranjekar, CEO, Azim Premji Foundation

What can be called a school?

Dr. Hridaykant Dewan

When we consider education in India today, we can identify critical areas that are being addressed in different ways. The first area being addressed is that of access for education. In the last 60 years, schools have been made physically accessible to a large number of children. These schools may be full-fledged schools or school like structures that seek to fulfill the requirement of education being available close-by. The issue of access and universalisation is related to the kind of structures that are available to the majority of students, what goes on in them and how they present themselves to the likely students.

The second aspect is of quality. Discussions on quality have been multi-dimensional and from different directions. They have often arisen from differing and sometimes even counter posed philosophical foundations and pedagogical principles. In the last two decades, macro efforts have been made under the new education policy, formulation of the so-called Minimum Learning Levels, subsequently transformed as Expected Learning Outcomes and more recently the efforts under District Primary Education Programme which go on to become Sarva Siksha Abhiyaan to improve quality. These efforts have included curriculum redesigning, textbook re-writing, teachers' orientation and support as well as provision for teaching-learning material in the classroom. Over the last two-three decades school infrastructure, team leadership and team formation in the school have also started being considered as important aspects of school quality improvement.

It is by now evident that the issue of quality and access are not entirely separate.

It is logical to argue that a school without sufficient teachers cannot be a place where meaningful education can be imparted. School needs an attractive, clean and confident ambience to help students and teachers feel motivated. Other non-negotiables could be reasonably spacious and lit classrooms, facilities for boys and girls, basic furniture and accessories in the classroom. A school at the minimum needs apart from all this an appropriate number of teachers who are qualified and well disposed to the learnings they would have to develop. We need to really ask whether a school that does not have these can actually be counted as an institution where children can access education. Analysed in this manner the issue of access throws up serious questions regarding some of the recent models. The reason why the structures that we have begun calling schools need to be analysed is because of the expectations from them. We need to ask whether half hearted structures pretending to be schools can address the challenges of providing education in the current cultural and social context.

Community and School

Of late concern is being expressed regarding the initiative and seriousness of the community in sending their children to the school. There has been talk of community responsibility, stake and ownership. While a large number of people at the middle level of educational hierarchy have been emphasizing the need for awareness in people so that they realise the importance of educating their children, a strong alternative view - which also finds reflection in the 'Probe report' - states that people in all areas want to send their children to the school. It is simply that the school is inaccessible and inhospitable. The inaccessibility as we have seen above is not in terms of the distance from home or the terrain to be travelled to each school. It is not even a function of time. The inaccessibility is due to multiple reasons and parameters only some of which have been discussed above. It also has manifestations in terms of acceptability of the individual child to the teacher, to the friends, colleagues, neighbours that lie on the way to the school and their families. There is inaccessibility due to the message of disinterest in the eyes of the teacher, there is inaccessibility due to the textbook, nature of exercises and tasks, language used in the school, content in the materials and expectations and assessment. There is inaccessibility due to a lack of clear sense of purpose in the mind of the teacher and the school.

The lack of clarity regarding the purpose of education is not restricted to teachers, there is no evident consensus on this even among those who are concerned about and advocate universal education for children. There are many divergent, sometimes conflicting, views as to why we need to have everyone educated. And since there is no clear common view on why children need to be educated there are divergent views on what they need to be educated about, what education means and even about structural aspects of school functioning.

Two strands on why education seems to be clearly visible; the first considers education as a socializing, homogenizing and mobilizing force. In this view education is a means of developing citizens with patriotic fervour and staunch discipline. In this process the main function of the school is to make children know facts that they need to know and that are considered good for them. There are masks that this philosophy may wear that has moorings in the need for selecting the fittest and preparing children to become able to compete and win in the world even though eventually individual benefit is to be sacrificed for the nation.

The other strand that can be considered to be orthogonal to this, lays emphasis on the fact that education is a means for enlightenment, self discovery, enriching quality of life, learning to critically analyse and choose. In short become prepared for democratic citizenship. The school must provide

children the opportunity to become an independent thinker and learner. Humanness has democracy, rationality, equity, tolerance, kindness and concern built into itself. The learner should think, analyse and form judgements. She should not accept whatever she is told.

The divergence in steps emanating from these indicates the need to examine some of the terms we use and analyse our views. We also need to closely consider some of the terms mentioned above, just as we have discussed access, quality and education. It is only when we have some comparatively coherent view of some of these terms that we can meaningfully converse about and address the question what is schooling all about, what can be the purpose of schooling and what kind of structures be called a school. From these would also emerge the basic steps needed to make possible universal access to education.

Dr. Hridaykant Dewan is the Educational Advisor and Organizing Secretary, Vidya Bhawan, Udaipur which celebrates its Diamond Jubilee in 2005. This educational institution has experimented and explored many different ways of relating to educational transaction.

Case Study

An Abode of Learning

Harini Kucknoor

"Madam, you have to follow the lane system here, you can't walk in any direction. See the directions on the floor and please follow the arrow sign," says Ravichandra, the home minister of the school cabinet at Agara Higher Primary school.

Welcome to Agara, a small village on the outskirts of Bangalore, with a population of 850. It has been attracting scores of visitors from various walks of life. Agara is a welcome change for city dwellers. It is close to a teeming city but still has not lost the essence of a typical village. But Agara's chief attraction is its Government Higher Primary School. The school, which has 125 students, has been turned into a model school thanks to the dedicated band of teachers.

Step into the school housed in compound wall built by UNICEF. As you enter you see a fountain, a lawn, colorful and beaming roses, a model of a forest, river, and bird nests hung from the trees. The school has a very active School Development Monitoring Committee. All its members are very concerned about the growth of the school. But the initiation had to come from the head teacher. "Two years back, the school was not like this" recalls Ms. Kusuma, a teacher. "It was like a ruin. But Gopal sir has rejuvenated it. It is like a place of worship now," she says with a sense of pride. Mr. Gopal is the head master. A Math teacher with 25 years of teaching experience, this is Gopal's first stint as the head teacher.

It is not just the physical features that have made the school a model one. The teaching methods are impressive. Classroom practices have made it a real centre of learning. Peer learning is encouraged. Every class is organized into five groups and the learning takes place in groups. Even when the teachers are away the classrooms are abuzz with activity. There is no time to waste.

There is a wealth of innovative teaching learning aids. But they are inexpensive because the raw material is the Jowar hay.

"I remember making a kite out of Jowar sticks" recalls Gopal of his days as Math teacher. When he was bending the Jowar sticks into different shapes to make a kite it struck him that he could use them as learning material to teach geometry. Initially it was limited as a Math teaching aid. But with experience he realized that the same Jowar sticks can be used for science and language teaching too. Gopal has transferred this technology to his colleagues and students who prepare models on their own. It is a sight to behold. Learning by Play!

"I hear and I forget. I see and I remember. I do and I understand", said Confucius. Students here seem to be practicing this. The school also has a full fledged science laboratory where simple experiments are conducted by the students themselves. Experiments like use of stethoscope, air has upward pressure, and types of objects, etc. take form and shape in the school's lab. Students like Hema, Unnikrishna, Anu, Devraj and other students are not only strong in their basics but also are privileged to get such hands-on experience. Science experiments are introduced to children at the class three level itself.

A Cabinet has been formed to run the school and students from class five to seven are chosen as ministers who are given specific responsibilities. There is an Opposition Party leader too. Devraj from class seven, who is the Opposition Party Leader, is not there to find fault with the Cabinet but to oversee the role of ministers. "If any minister is absent I will ask the Chief Minister as to who will take care of that particular responsibility.... I closely monitor the functioning of the Cabinet," he says.

"It is these children who have been maintaining the school premises and the garden flawlessly. Giving such tasks has infused a sense of responsibility in the children and has given them confidence and a direction for their future," says Mr. Kantharaj, Asst teacher. Gopal adds: "The roles and responsibilities will be discharged by every minister without fail." No wonder I was pulled up by the home minister when I crossed the lane!

Coming to school is a joy for us, say the students. No one wants to miss any class and even on Sundays and other

Group work at the school

holidays one can find them in the school premises. These students have been performing well in the seventh standard public exams. Off the classroom also the students have been doing well. They have won prizes in sports and extra curricular activities too. Shields and medals displayed bear an eloquent testimony to the overall excellence of the school.

And all this has been made possible in just two years. No wonder the SDMC is ready to chip in whenever the school needs help. Today the school is a Model school. The teachers and the community willingly share their learning. Will they inspire more schools to follow?

Government Higher Primary School, Agara is one of the 225 government primary schools where Azim Premji Foundation in partnership with the local community and Government of Karnataka run Computer Aided Learning programme.

Harini Kucknoor is Member - Documentation at Azim Premji Foundation

News Updates

Computer Aided Learning docks in Andaman

From the mountains in the State of Uttaranchal to the Union Territory of Andaman and Nicobar Islands, Computer Aided Learning has reached 14,700 children. Thanks to the efforts of Mr. Uddipta Ray, Secretary to Lt. Governor (Education), children of class three to eight in 28 schools in the Union Territory will now use the content developed by Azim Premji Foundation.

Teacher training session in progress

A five day workshop for 44 teachers of the 28 schools was held in Port Blair in September 2004. Training in batches was held for teachers of Tamil, Telugu, English and Hindi medium schools.

National Advisory Council - MHRD meeting

The Ministry of Human Resources Development hosted a meeting of National Advisory Council members and invitees at Delhi on October 15, 2004. Its focus was Universalization of Elementary Education: Urgent Tasks and Long term Perspective.

The key issues discussed were:

a. Status of education today.

b. Plans, provisions and gaps in implementation.

c. Importance of execution of plans.

d. Accountability to key outcomes.

e. Need to focus on quality infrastructure.

f. Need to have a shared understanding on a number of norms and deliverables for quality education.

g. Importance of the financial commitment and political will in implementation.

h. Assessment based education reforms.

The meeting was chaired by Dr. Bhalachandra Munagekar, Member, Planning Commission, in the first half and by Ms. Kumud Bansal, Secretary Elementary Education and Literacy, in the second half.

In Oriya

On the Teachers' Day, Computer Aided Learning was launched in 600 schools in 24 of the 30 districts of Orissa, covering 176,264 children. Mr. Naveen Patnaik, Chief Minister of Orissa, released five CDs covering curricular content on the occasion.

75 master resource persons from all the districts were trained for integrating Computer Aided Learning with classroom practices. Azim Premji Foundation is now translating other CDs into Oriya.

Resource persons being trained

All set for launch in Gujarat

A five member team headed by the Additional State Project Director, Mr. M N Bhad, of the Gujarat State Education Department, participated in an exclusive workshop on Computer Aided Learning in Bangalore to evaluate the suitability of the Computer Aided Learning model used in Karnataka for the primary schools in Gujarat.

Over 150,000 children in 500 primary schools in Gujarat will soon find new fun in their learning. The State government will introduce Computer Aided Learning in these schools. Azim Premji Foundation will translate the content in Gujarati for use in these schools and facilitate the use of this content by conducting workshop for teachers in these schools.

New CDs added

Seven new CDs have been released between July 2004 and September 2004: Visit to an Orchard and Children's Day Out (Mathematics), Vitamins A, B, C (Co-curricular), How Things Work: Television (Co-curricular), Chhoo Mantar Returns (EVS), and India and her Neighbours, Rivers of India (Social Science). With these, 57 CDs are available to children.

10 Urdu CDs launched in Andhra Pradesh

Computer Aided Learning is available to 337,000 children from 2,978 schools of Andhra Pradesh.

At a function to mark the Literacy day on September 8, 2004, attended by Mrs. Rajalakshmi, Education Minister, Mr. Narasimha Reddy, Technical Education Minister, Ms. Geetha Reddy, Tourism Minister, and Mr. I V Subba Rao, Principal Secretary - Education, Government of Andhra Pradesh, 35 CDs in Telugu and 10 CDs in Urdu were released.

Telugu and Urdu CDs being released at Hyderabad
Left to Right (Geetha Reddy, I V Subba Rao, Rajalakshmi and Narasimha Reddy)

Adding the Star touch

Chhoo Mantar and Magic of Light...these CDs are now sparkling with Tamil film star MadanBob giving a special touch in his inimitable style. The comedian contributed to the script besides giving the voice over and music. This was Azim Premji Foundation's effort to bring together laughter and learning for children in Tamil Schools.

Children of Vidisha taking part in LGP

Learning Guarantee Programme - Madhya Pradesh

The Government of Madhya Pradesh and Azim Premji Foundation in partnership have launched the Learning Guarantee Programme in the State. Over 3,000 government schools will be eligible to participate in the pilot programme in Vidisha and Datia districts.

Year two in Karnataka

All the 1,447 schools have been evaluated (last year 896 schools were covered) by a team of 400 evaluators. The highlights of the second year's programme are that the evaluation process is considerably simplified and data processing is fully computerized.

Workshop on Learning Guarantee Programme

A panel of eminent educationists participated in the two day workshop organized at Bhopal in September 2004 to review the concept of the Learning Guarantee Programme and provide inputs to enrich it to meet its fullest potential.

The invitees included the Government officers from Rajya Shiksha Kendra of Madhya Pradesh, education functionaries from the districts of Datia and Vidisha, NGO representatives and members of Azim Premji Foundation. Eminent education experts such as Prof. Jalaluddin, Mr. Rohit Dhankar, Mr. S C Behar and others spoke about the role that Learning Guarantee Programme can play in curriculum, teaching - learning and assessment reforms.

A view of the workshop on LGP

Suggestions on refining the question papers of the Learning Guarantee Programme now designed to assess children on competencies instead of content (rote learning) were given. These suggestions are being incorporated in the Learning Guarantee Programme that is being launched in Madhya Pradesh.

As Prof. Jalaluddin put it, "the soul of the Learning Guarantee Programme is evaluation, it recognizes the creation of a constituency among the teachers and schools that are committed to reforms and changes to create a different learning and break the hold of rote learning."

The long term vision of the programme is to take the assessment beyond the cognitive levels and assess schools on the holistic and all round development of the child as envisaged in the National Policy of Education.

Child Friendly School Initiative in Chittoor

The Child Friendly School Initiative is being implemented in seven mandals - Madanapalli, Ramasamudram, B. Kothakota, Punganur, Vayalpadu, Nimmanapally and Kalkiri in Chittoor district of Andhra Pradesh. As part of the programme initiation activity, a pre-Base line study was conducted in 12 schools. The selection of the schools was based on socio economic indicators to ensure representation to the profile of the district.

The aim of the study was to obtain a detailed understanding of the issues related to education, learning and community involvement in the region. The study was expected to provide:

a. Insights to fine-tune the interventions planned as a part of the programme.

b. Inputs for designing a detailed Base line survey.

The study involved detailed personal interviews and focus group discussions with the various stakeholders like head teachers, other teachers, children and parents as also the village education committee members, Panchayat representatives and government education department officials at the mandal level. The interviews were designed to understand the current practices, perceptions and attitudes about education of the stakeholders.

Analysis of the findings from the study and designing of the Base line survey are in progress.

Child Friendly School Initiative in Shorapur

Azim Premji Foundation in partnership with Government of Karnataka and UNICEF is implementing the Child Friendly School (Bala Snehi Shale) concept in Shorapur block of Yadgir district in Karnataka. The programme has begun with the training of Educational Supervisors and Head Teachers in the block

A total of 22 Education Supervisors and 299 Head Teachers were trained in four batches. The first two batches consisted mostly of senior Head Teachers with about 25 years of service and the rest consisted of youngsters with 5-10 years of service. The Academics and Pedagogy team of Azim Premji Foundation developed the training package and also functioned as resource persons to train the first two batches. Training in the remaining batches were facilitated by persons identified from among the Block Resource Persons and Education Coordinators of Shorapur block.

The key elements of the training package were:

- Establish the development needs
- Historical perspective of Education in India
- Criticality of the role of the Head Teachers
- Evolving a vision for the school
- Embracing change in the current environmental realities
- Successful change implementation through effective leadership

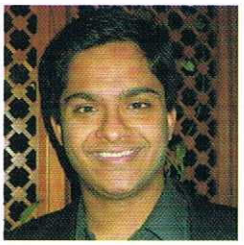
Head teachers as Students !

Teacher Absence in India

Karthik Muralidharan & Michael Kremer

Achieving universal primary education in India will require not only an increase in spending (as seen in the recent budget) but also an increase in the efficiency of the service delivery mechanism for primary education.

Results of a multi-country study conducted jointly by us and



Karthik Muralidharan

Michael Kremer

researchers from the World Bank (Nazmul Chaudhury, Jeffrey Hammer and Halsey Rogers) show that teacher absence in government-run schools in India averages 25%, which is the second highest in our sample of eight low to middle income countries (Table 1).

Table 1: Absence Rate Comparison

Peru	11
Ecuador	15
Papua New Guinea	15
Bangladesh	16
Zambia	17
Indonesia	19
India	**25**
Uganda	27

We randomly sampled over 3,700 schools across nearly 200 districts in India using a representative sample in each of the 20 States we covered (covering 98% of India's population). We observed over 16,000 teachers and made three visits to each school over a two-three month period to have nearly 50,000 observations on teacher presence. Our absence data is based on direct physical verification of the teacher's presence, rather than attendance logbooks or interviews with the head teacher. We consider a teacher to be absent if the investigator could not find the teacher in the school during regular working hours[1].

Within India, the absence rate ranged from 15% in Maharashtra to 42% in Jharkand[2] (Table 2). Absence rates are generally higher in low-income States: doubling per capita income is associated with a 6.7 percentage point lower predicted absence. While 25% of teachers are absent, another 30% were present in school but not engaged in teaching activity, and less than half the teachers on the payroll were found to be teaching. The variation among States in teaching activity is even higher with some States having only 20-25% of teachers engaged in teaching at the time of the visit. We also find that teaching activity even among teachers who are present is lower in States and schools that have high teacher absence. Absence rates are considerably higher than could be accounted for by non-official teaching duties, such as staffing polling stations during elections or conducting public health campaigns, which are sometimes cited as important causes of absence. Based on the responses of each school's head teacher or primary respondent, official non-teaching duties account for only about four per cent of total absences. In other words, on any given day, only about one per cent of primary teachers are absent because they are carrying out official non-teaching-related duties[3]. Preliminary calculations by the authors suggest that 8-10 percentage points of absence could potentially be attributed to annual leave, medical leave and other officially sanctioned reasons. This implies that variation across States in unauthorized absence may be considerably greater than variation in the raw absence rates.

We also investigate some of the main hypotheses that have been offered regarding teacher absence. These include suggestions that teachers are not paid well; that their working conditions are poor; that there is inadequate monitoring and supervision of schools and that there need be to greater ties between the schools and the community in which they are located.

Higher teacher salaries do not seem to be associated with lower

Table 2: Teacher Absence & Teaching Activity in Public Schools by State

State	Teacher Absence*(%)	Present Teaching*(%)	Present Not Teaching*(%)
Maharashtra	14.6	26.1	59.3
Gujarat	17.0	26.0	56.9
Madhya Pradesh	17.6	31.3	51.2
Kerala	21.2	22.3	56.5
Himachal Pradesh	21.2	35.6	43.2
Tamil Nadu	21.3	29.1	49.6
Haryana	21.7	34.7	43.6
Karnataka	21.7	22.2	56.1
Orissa	23.4	32.8	43.8
Rajasthan	23.7	39.7	36.6
West Bengal	24.7	29.2	46.2
Andhra Pradesh	25.3	31.7	43.1
Uttar Pradesh	26.3	29.1	44.7
Chhatisgarh	30.6	50.1	19.3
Uttaranchal	32.8	26.6	40.6
Assam	33.8	30.7	35.5
Punjab	34.4	33.5	32.2
Bihar	37.8	35.8	26.4
Jharkhand	41.9	33.4	24.7
Delh	-	-	-
Weighted Average+	24.8	30.5	44.7

* Note: Please see full paper for detailed definitions

teacher absence[4]. We did not directly collect data on individual teacher salaries, but in every Indian State salaries increase with education, experience and rank. Teachers with a college degree are 2-2.5 percentage points more likely to be absent. Being 10 years older increases the probability of absence by around 1.0-1.5 percentage points, and head-teachers are four - five percentage points more likely to be absent than regular teachers (even after controlling for age and education). Since absence increases with all three of these variables, it is likely that better-paid teachers are more absent. Similarly, although regular teachers are typically paid much higher salaries than contract teachers, there is no significant difference in absence between the two groups. One interpretation of these results is that more powerful teachers (older, more educated, more senior, and male) are more absent.

While salary level does not appear to matter, we find that better working conditions are associated with lower rates of teacher absence. Teacher absence is considerably lower in schools with better infrastructure, a potentially important element of working conditions. We compute an infrastructure index that assigns one point each for the existence of toilets for the teachers, an electricity connection, a library, covered classrooms, and non-mud floors. Under this specification, each point on the index is associated with a 1.0 to 1.5 percentage point reduction in the probability of absence so that moving from zero to five on the index reduces the predicted absence rate by 5.0 to 7.5 points. Our data also show that teachers in schools that are far from a paved road are nearly four percentage points less likely to be in school than those closest to a road. Teachers in schools that practice multi-grade teaching, which can be taxing for teachers, have a slightly higher rate of absence than those in schools without multi-grade teaching.

Although school inspectors in India don't have much power, teachers in schools that had been inspected in the three months prior to the visit were about two percentage points less likely to be absent, suggesting that the role of formal monitoring and supervision may be important.

We find very limited evidence that attempting to strengthen local ties will reduce teacher absence. Teachers from the local community do not have lower absence rates than teachers from outside the community in the controlled regression. The duration of a teacher's posting at the school has no significant relationship with absence. Absence rates in non-formal schools, which are staffed by teachers from the community, are higher than in regular government schools (28% versus 25%). Schools with and without Parent-Teacher Associations (PTAs) have similar absence rates.

On the other hand, variables representing community capacity such as level of parental education and the activity level of the PTA are associated with lower teacher absence. This suggests that a supply-side policy move of 'creating PTAs' might not have the desired impact in the absence of the capacity/desire to use the PTAs effectively. Of course, reforms that give PTAs more power might be effective, but we cannot test that and are only able to show that PTAs in their current form have limited impact.

While our results show that the government education system is broken in many parts of India, they can provide only tentative guidance as to how it may be fixed. One way of interpreting our findings is that overall teacher compensation has little effect on absence, since attendance rates do not affect compensation. On the other hand, factors that influence the daily costs and benefits of attending school have a much larger influence on absence rates. For example, better infrastructure provides a stronger incentive to attend school on a particular day. Similarly, improving monitoring increases the cost of teacher absence. While we find that inspections are associated with lower absence in some specifications, we find little evidence to suggest that greater local ties are associated with lower absence. Teachers in private schools and contract teachers, who face very different incentives, have similar or lower absence rates while being paid a fraction of government teachers' salaries.

The study suggests that it may be worth exploring a variety of potential reforms. These range in political difficulty from improving school infrastructure; to increasing the frequency of inspections; to experimenting with new, potentially more effective forms of local control or contracting with teachers based on student learning outcomes; to such fundamental reforms as increased use of private schools. However, in order to assess the impact of any of these reforms rigorous randomized evaluations should be put in place. Such evaluations should monitor a range of educational outcomes to ensure that these reforms not only increase the educational input of teacher attendance, but also the fundamental objective of student learning.

Michael Kremer is the Gates Professor of Developing Societies at Harvard University, Senior Fellow at the Brookings Institution, and non-resident Fellow at the Center for Global Development.

Karthik Muralidharan is a doctoral candidate in Economics at Harvard University and a Fellow of the programme in Justice, Welfare and Economics.

1 The measured absence rates exclude part-time and volunteer teachers; those who are reported by the respondent to have been transferred, worked in a different shift, retired/resigned, or died; and teachers at schools reportedly closed due to a scheduled holiday, extreme weather (such as rain or heat waves), school building construction or repair, and official school functions (such as exams and picnics). For details on survey methodology and absence definitions, please see the full paper, a working draft of which can be downloaded at http://econ.worldbank.org/programs/public_services/library/doc?id=36660

2 The discussion here is restricted to government-run schools.

3 While stated reasons for absence cannot be verified, there does not appear to be any reason for head teachers to understate this cause of absence.

4 The discussion from here on is based on regression analysis of teacher absence on various teacher, school and policy variables. See the full paper for tables and details.

Accelerated Learning Programme: End line evaluation study

D D Karopady

Background

The Accelerated Learning Programme (ALP) launched in August 2002 in Raichur, Bellary, Koppal, Yadgir, Gulbarga and Bijapur districts of North East Karnataka has concluded at the end of two years.

The programme aimed at:

1) bridging the competency gap of 'out of school' children enrolled through short- term bridge courses and enrolment drives, and
2) improving the learning levels of underachieving children in regular class.

ALP volunteer teaching children

The programme provides relevant innovative academic / pedagogic inputs to achieve this. It also stresses that every child in the formal system has the ability to learn, despite being 'out of school' for a year or more. It also facilitates retention and learning.

The Government of Karnataka addresses the issue of bringing back out of school and drop out children through 'Chinnara Angala' programme and other programmes such as 'Baa Marali Shaalege' and 'Coolie Inda Shalege'. While these bridge courses have been successful in bringing large numbers of children back to school, once mainstreamed these children tend to lag behind the others in their class in terms of acquiring competencies meant for that class due to their earlier absence from school. Hence, they become vulnerable to dropping out again. The Accelerated Learning Programme seeks to address this issue. The programme was operational in 1,029 schools covering 68,000 children during its second year from July 2003 to April 2004 in 16 blocks of North East Karnataka.

The programme is designed to provide individualised attention to each child to ensure that all competencies commensurate with his/ her age and class are mastered by the child. The Accelerated Learning Programme at each centre is carried out by a volunteer belonging to the local community selected after a rigorous process. The volunteer is trained by Azim Premji Foundation to use the specifically developed pedagogical package. The programme is run within the school, during school hours with the active support of the head teacher. The competencies for both Kannada and Mathematics are grouped for each class as per the targets - the expected attainment levels that the child was supposed to achieve at the end of the previous year.

A research study to assess the effectiveness of the programme was carried out jointly by the Rashtriya Vidyalaya Educational Consortium (RVEC) and Azim Premji Foundation. A summary of the report is presented here.

Research objectives

The objectives of the research study were as follows:

1. Measure the impact of the programme in terms of the learning achievement of the children.
2. To determine if the attendance of the children has any correlation with learning achievements.

Methodology

The learning achievement levels were determined with the help of competency-based tests (which included both written and oral measurements) for Kannada and Mathematics. The Base line tests were conducted at the beginning of the programme during July-August 2003. Children identified by the respective head teachers were administered the tests. Similar tests were administered towards the end of the programme during March 2004 to the same children.

The sample size for the study comprised 71 schools selected at random from all the 16 blocks where the programme was operational. In addition to the tests, qualitative inputs were collected from a sub sample of 24 schools. A total of 3,347 children were tested in Kannada and 3,413 in Mathematics

Findings

The End line achievement levels of the children measured in terms of number of competencies achieved and the proportion reaching their targeted levels is given in Table 1. The achievement has to be seen in the context of the target levels.

The data shows that the end line performance increases steadily by class, as is to be expected. However, the proportion reaching their target is higher in the lower classes. This is because the gap in competencies that needs to be bridged is narrower in lower classes.

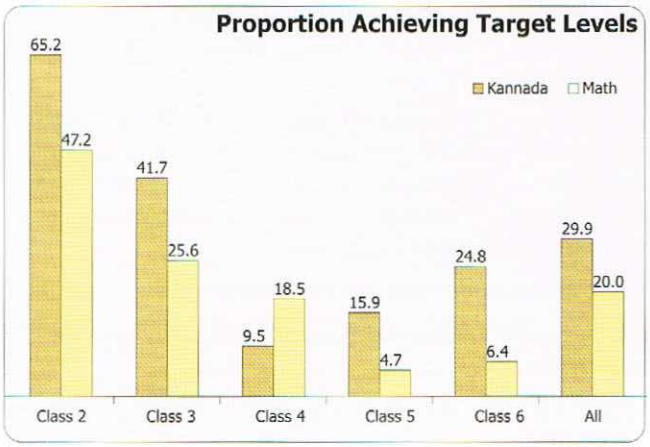
Table 1

	KANNADA			MATH		
Class	**Target Level**	**Avg.Endline Level**	**% of Children achieving target**	**Target Level**	**Avg Endline Level**	**% of Children achieving target**
Class 2	31	31.2	65.2%	5	6.1	47.2%
Class 3	59	38.2	41.7%	12	7.8	25.6%
Class 4	73	44.2	9.5%	21	11.3	18.5%
Class 5	73	50.3	15.9%	31	13.6	4.7%
Class 6	73	55.8	24.8%	31	15.1	6.4%
All		43.7	29.9%		10.7	20.0%

On a total sample basis, about 30% of the children achieved (or exceeded) their target competency levels in Kannada. A further 39% were able to reach beyond 50% of their target. Similarly, in Mathematics, 20% of the children were able to achieve their targeted levels of competencies and a further 18% could reach beyond 50% of the target. The performance in Kannada is markedly better than the performance in Mathematics

The analysis of attendance data of the children in their regular classes shows that there is no correlation between learning achievement levels and their attendance.

An analysis of data by gender of the child shows that the performance of boys and girls is similar both in Kannada and Mathematics and follows the overall trend for all children put together. In other words, this data does not show any significant difference in acquisition of competencies by boys and girls.



The volunteers maintained a record (Pragati Nota) of the progress of each child in each subject on a continuous basis. The data indicates that there is almost no match between the Pragati Nota final markings and the End line test measurement. The Pragati Nota is perhaps an indication of the inputs provided by the volunteers but does not necessarily reflect that mastery of the competencies acquired by the children.

The children in any given class are typically of different age levels. The age difference ranges between two and three years. The test achievement data was analysed by age within a class to determine patterns, if any. It indicates that children of higher age in a class were able to achieve mastery over more competencies than their younger class mates.

The findings from the intensive study carried out in a few centers and other qualitative observations indicate that:

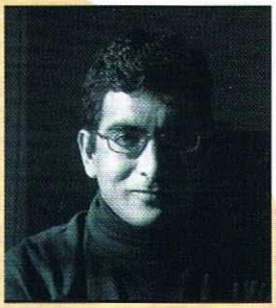
1. Higher competencies like use of consonant words, writing without spelling mistakes, comprehension and sentence structures are not easily learnt in Kannada.
2. In Mathematics, learning of the verbal problems and division as well as fractions was found to be difficult in the final test.
3. The competencies and the teaching learning process in Mathematics need to be reviewed.
4. Learning seems pressurized and forced in a way.
5. Children tend to depend on volunteers and they reach the level to which volunteers can guide them.
6. Pupil interaction with teacher is not adequate.
7. Plateaus in learning Mathematics are observable.
8. The training provided to the volunteers, the overall design of the package and the evaluation process needs to be reviewed to make it more child friendly.

Thus, while the programme has achieved reasonable success in many ways, there are still areas where improvements can be made to make it even more effective.

D D Karopady leads the Research team in Azim Premji Foundation

Aiming for the goal: Lessons from Chinese Mathematics classrooms

Sujai Kumar



How does a Chinese Math classroom look like?

Classroom videos suggest that the classes are highly traditional with students sitting still in rows, responding only when asked to by the teacher, and with very bare walls devoid of the colorful posters and charts that we often associate with good primary education. In addition, teachers seemed to be standing at the front of the classrooms the entire time in 'lecture' mode. All of these classroom indicators had fairly negative connotations in my opinion.

I then assumed that the Chinese teachers had different goals in mind for their students; they gave much more importance to students getting procedures right, doing well in exams, and seeing the logical structure of abstract Mathematics as something to be mastered for its own sake.

But what were the goals and views of these teachers?

When they were interviewed (Correa, 2004) they said they wanted children to

1. Learn concepts that they can apply rather than rote procedures.
2. Enjoy and be interested in Mathematics.
3. See how Mathematics is relevant in our everyday lives.

These goals were no different from those expressed by American and Indian teachers whom I have talked to personally.

During a recent study conducted at the University of Illinois at Urbana-Champaign we started looking at the Chinese classrooms in detail. Analyzing every minute of the video recordings, we found several interesting features that were not obvious at first glance. The Chinese classrooms were significantly better than the American classrooms on several indicators including level of student engagement, length and quality of teacher explanations, length and quality of student responses, level of conceptual clarity demanded by teachers, students' ability to understand and solve complex conceptual problems and so on.

Out of all these, the most interesting was that deep conceptual understanding seemed to be taking place even in a very didactic, teacher-driven environment. One main reason for this kind of learning being possible was that the teacher made very explicit connections with the students' prior knowledge and made sure that they had all understood the previous concept perfectly before going on to the new material of the day.

In the American classrooms that we observed, teachers rarely spent more than a minute or two reviewing prior concepts, and even then it was almost always at the level of "Do you remember what we did last week? Good". The Chinese teachers, on the other hand, always asked for detailed explanations and ensured a deep conceptual understanding of the material taught in the previous classes by asking "Why is that true" or "How do you know" types of questions repeatedly.

In fact, this repeated questioning at a conceptual level was the other major difference we noticed in the Mathematics teaching-learning discourse. Where an American teacher would be satisfied with the correct answer to a question and move on to the next question or the next problem, Chinese teachers would almost always follow up even correct answers with more questions about the same problem. Here is a sample transcript of the dialogue that took place in a Chinese classroom:

A Chinese Math classroom

T:Yes, think it over. How do you solve the problem of the addition or the subtraction of fractions with the same denominator? Chang Fan, please.

S1:The addition or the subtraction of fractions with the same denominator refers to adding their numerators together.

T:Apart from this, there is another important law. Who knows it? Deng Wen, Please.

S2:When we add or subtract fractions with the same denominator, we need only add or subtract the numerators and keep the denominators unchanged.

T:Very nice! But why not change the denominators? Song Yang, please.

S3:Because when they are added together, their numbers are added.

T:Right? Why not change the denominators? Who knows? Ok, this one, please.

S4: Because the denominators are the units of fractions, they may be added or subtracted.

T:Are the denominators the units of fractions? Think it over, Xu Rujuan.

S5:Because the unit of fractions is the same, we may directly add or subtract the numerator.

T:Very good! Then, what does that mean? Xu Zuo, please.

S6:It means to add or subtract the number of units.

T:Right! It seems that you have mastered what you've learnt well.

Note that along with the deeper conceptual questions being asked, the teacher is also making sure that many different students get a chance to answer the same question, even if it just means reiterating a previously stated answer in their own words. In contrast, here is a sample US lesson:

T:Sam. How about, let's take this mixed number and make it into an improper fraction. Do you remember how?

S1:I know you take the denominator 1 times 4.

T:Okay

S1:And then add 4 to 1.

T:Okay, so what would my improper fraction be?

S1:Five.

T:Five what?

S1:Fourths.

T:Okay, great. Does everyone remember how to do that?

S(some):Yes.

T:Okay now we're gonna take it from an improper fraction into a mixed number. How do I do that?

The teacher reviewed an older concept (converting a mixed number into an improper fraction) by asking only one child about the steps involved, and then moved on to the next topic. There was no repeated questioning about the reason why the steps work and thus the students are likely to only remember the procedural aspects of what was done, instead of having a sound conceptual base on which they could build new concepts.

There may be many reasons why this type of complex conceptual learning is possible in elementary Chinese Mathematics classrooms, including, but not limited to, teacher preparation and specialization, student motivation, parental and peer pressure, as well as societal norms and expectations. The point of cross-cultural comparative studies is not to identify a single factor responsible for differences in achievement or understanding which can then be blindly duplicated by advocacy or coercion. Instead, the true value of these studies lies in their ability to uncover implicit assumptions about how learning can take place.

My own assumption is that a classroom that is teacher driven in an authoritarian environment, does not use project based learning, and does not give students freedom to choose what they want to learn, cannot be a successful classroom. However, after studying the Chinese videos in detail, I would now argue that the Chinese teachers met their stated goals admirably and ensured that their students had a deeper understanding of Mathematics than their American counterparts.

In India, educationists often talk about child centeredness, hands on learning, project based learning, giving children freedom to choose what they want to learn about, and playing games to make learning fun. I think the point we sometimes miss is that all of these are methods, and methods are different from goals. These methods are all admirable in their own right, but are not necessarily a guarantee of success of the goals of ensuring deeper conceptual learning and interest in the subject. In fact, American classrooms where these methods are carried out regularly can sometimes look very ineffective because the methods take on a life of their own and become a priority for their own sake while the goals are forgotten.

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Sujai Kumar is a senior researcher at NEEV, a charitable public trust, actively engaged in promoting educational change through innovation, research and training.

Visit to a winning school

M K Venkatesh

We do not want to be famous but a dedicated lot, says the head teacher of this school that was a winner in the Learning Guarantee Programme of Azim Premji Foundation

It is noon and the sun is scorching. As we drive towards Mundargi off National Highway 63, greenery starts disappearing and we are in a drought prone area. It is a single lane road and for about 10 km ours is the only vehicle. It takes us another 30 minutes to reach Kampli. Tucked away behind the police station we see a school with some children relishing the mid-day meal. This is the Government Lower Primary School at Kampli.

We are greeted by the head teacher, Mr. Venkatesh Joshi, and the assistant teachers, Ms. Jayalakshmi and Ms. Bharathi. For Joshi, a postgraduate, this is his first posting. He has been serving here since 1992. Same is the case with Jayalakshmi who joined in 1999 and Bharathi who joined in 2002.

Kampli school children: Learning Guaranteed

The school has four rooms of which three are being used as there are only three teachers for five grades in which 67 children are enrolled. All the children were present in school when we took a count. The head teacher told us there were no children in the village in the 6-11 age group who were not in school. Around 80 per cent of the parents are literate and take an active interest in sending their children to school.

All the children have been provided uniforms and textbooks. The teachers take an active role in cooking and serving the midday meal to all the children. The school building has been brightly painted with the Indian Tricolors and the classrooms are painted with the numbers, alphabets, and portraits of famous personalities and elements of nature.

There is no greenery outside but a garden is being developed by the teachers and children. There is a water tank but no toilet. Thanks to the benevolence of the community and the School Development Monitoring Committee (SDMC) members, the school has power supply. The school has no compound wall. In the classrooms many of the paintings and writings have been done by the head teacher and teachers.

Asked what has been the teachers' effort in making the school a Learning Guarantee School, Mr. Joshi smiled confidently and said: "We have put in a sincere effort to teach the children. We love our school and want to do good work here. There is no fear among the children and they are free with their teachers. They are also keen on learning. We do not want to become a famous school, but want to do dedicated work and facilitate their learning. There is good rapport between the teachers and students which is why we are a centre of learning and the results are seen in Learning Guarantee Programme. This is our differentiator."

The school has an active SDMC and its President takes personal interest in the development of the school, says Mr. Joshi. SDMC meetings are held regularly and 90 per cent of the members attend the meeting and discuss issues related to the school functioning and improvements to be taken up. Also during the meetings children are called at random and their competencies are tested and for children who perform well prizes are given. The SDMC supported the school in its decision to apply for the Learning Guarantee Programme and from time to time reviewed the progress at the SDMC meetings. The SDMC President encourages the teachers to assess the performance of children in class and has sponsored prizes for those who excel. Also the SDMC has been able to acquire tables, chairs, school furniture from the community and from the Police. The neighboring Police Station lends them a helping hand in their activities and cultural programmes whenever required.

The head teacher has enormous pride in working in this school. He stood first in the exams for the position of Block Resource Person but did not take up the assignment as it would have kept him away from the school. There is a good rapport among the staff. The students are encouraged to ask questions. The students take keen interest in keeping the school environment clean. The children are regular in attendance and come 15 minutes before the school starts. Even if the teachers are delayed because of the bus the children themselves go ahead with the morning assembly and prayers. Children are encouraged to take part in extra curricular activities and have won prizes in Taluk level competitions. They are eager to participate in quiz competitions and sports and want to be the best school in their cluster. The environment in the school thus encourages them to be creative and active and in the process also brings parents and community into the school network and makes them appreciate the efforts of the school.

Every week there are some activities for children and they are asked to speak and perform on stage in an effort to build their

confidence. The school is a multigrade school and the teachers feel they are able to manage the situation well since they make a detailed plan for the week in their weekly meetings and execute accordingly. Even after the school ends the students want to stay on and have to be persuaded to go home. When the teachers take leave the children make anxious enquiries. We went to a classroom and talked to some students. They were interested in knowing from us where we came from and what kind of schools we had in our city and asked if they were as good as their school.

For the Learning Guarantee Programme the teachers planned and accordingly gave assignments to the children. A competitive spirit is now emerging among the children and desire to perform well. Also the teachers have strived to provide attention to each child in the class and fulfill the needs. There are plenty of teaching aids prepared by the teachers and children which are used in the classroom to teach effectively. There is a sense of elation in the village after their school qualified as a winning school.

Now Venkatesh Joshi has set fresh goals for his school. Raising the bar, as they say!

M K Venkatesh is heading the Child Friendly School Initiative of Azim Premji Foundation in Andhra Pradesh

Research

Involving the community in elementary education: Role of School Development and Monitoring Committee

Vaijayanti K

Several studies have suggested that lack of parent teacher interaction was a serious impediment to the effective functioning of the school. The only effective strategy for sustained improvement was the introduction of a system to facilitate parents' involvement in the school management.

Given this background, a task force appointed by the Karnataka Government in 2001 on quality improvement of elementary education, recommended the setting up of School Development and Monitoring Committees (SDMC) for each school. The SDMC includes nine parent representatives elected from among the parents whose children are presently studying in the school.

The task force - headed by Dr. Raja Ramanna - suggested three-year tenure for these SDMCs. Karnataka State has been one of the pioneers in setting up these SDMCs which replaced the village education committees.

These SDMCs have just completed their three-year tenure. How have these committees fared in involving the community in school education? A study towards this objective was the broad objective behind a study conducted by the Policy Planning Unit (PPU). The PPU is a joint collaboration of the Government of Karnataka and Azim Premji Foundation. The unit has been envisaged as a 'think tank' which can contribute in developing education policy with a responsibility to provide inputs for policy and programmes in three aspects administrative, academic and community mobilization, towards achieving quality universal elementary education in Karnataka.

The other objective of the SDMC study was to identify the strengths and weaknesses of the SDMCs with a view to strengthening their working.

Scope of the study

A) General facilities available in the village to ensure Universalization of Elementary Education;

B) Facilities available in the school to impart quality education;

C) Level of awareness of the members about the various aspects of the SDMC and their socio-economic status and their degree of participation in school activities;

D) Availability of information about SDMCs and

E) Procedure and process adopted for their formation; and the perception of government functionaries on the functioning of SDMCs.

Sample and design

To collate data for this study the study team fanned out to visit 469 schools and collected information from 4,500 stakeholders in eight districts of Karnataka.

Recommendations

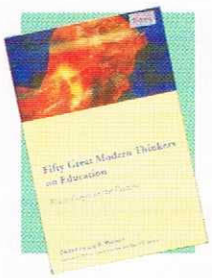
- SDMCs should be continued and their autonomy protected by insulating them against political interference -both in their formation and day-to-day functioning.
- There is ambiguity and confusion in the prevailing Government circular on the formation of SDMCs. Modifications suggested while retaining the content and spirit of the first executive order.

A SDMC member digs a well for the school

- Circulars that negate the democratic procedure outlined in the first circular be withdrawn.
- Widen community participation by including
  - Teachers as ex-officio members and the President / Secretary of the Self-Help Group / Stree Shakti as a nominated member;
  - At least two student representatives, preferably class representatives, from class four onwards;
- Integrate all on-going efforts being made by National / State Child Labour Project (Labour Department), Children's Home (Women and Child Welfare) and other institutions to mainstream children back to school;
- Create post of vice-president to ensure smooth functioning in the absence of the President; one of these posts be reserved for the woman;
- Constitute new SDMCs within two months of issue of the modified new circular. Cluster Resource Person be made responsible for constituting SDMCs with the help of Education Coordinators.
- Further decentralize the SDMC structure and to ensure this expert committee be constituted.
- Give powers to SDMCs to decide school timings and vacations; to collect education cess to build a corpus fund.
- Involve SDMC members with reasonable qualifications (SSLC and above) in curriculum construction, teacher training and other academic issues; a register be maintained to record the visits and the suggestions made by members.
- Encourage all schools to maintain a list of alumni to collect contributions from them for the corpus fund. The list to be prepared in consultation with SDMC members.
- The head teacher cum secretary to bring to the notice of the SDMC, any income/expenditure exceeding Rs. 1,000 and take its approval to maintain financial transparency.
- Create a platform to share 'Best Practices' among the SDMCs at cluster level and arrange exposure visits for the members to schools where SDMCs are functioning effectively.
- Arrange periodic meetings by SDMC presidents in a block / cluster to share their experience.
- SDMC President and Vice-President be made permanent invitees to the Gram Sabha / Gram Panchayat meetings to discuss school issues.

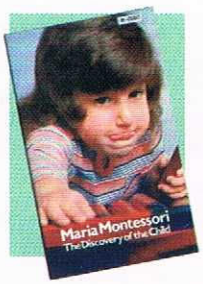
Vaijayanti K is Member, Policy Planning Unit, Azim Premji Foundation. She was the project leader for the above study.

Book Case



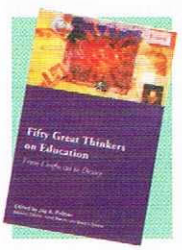
Fifty Great Modern Thinkers on Education: Joy A. Palmer From Piaget to the Present

This book provides a unique history of educational thinking. Each essay gives key biographical information, an outline of the individual's principal achievements and activities, an assessment of their impact and influence, a list of their major writings and suggested further readings.



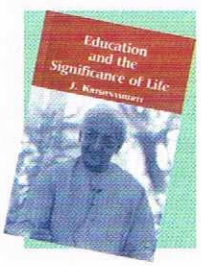
The Discovery of the Child: Maria Montessori

Maria Montessori went beyond the conventions of the day to seek a new way of knowing and loving a child. She describes the nature of the child and her method of working more fully with the child's urge to learn. This revised edition is one of the basic books on Montessori education.



Fifty Great Thinkers on Education: Joy A. Palmer From Confucius to Dewey

Concise, accessible summaries of the great educators of the past. Covering a time-span from 500 B C to the early twentieth century, the book includes profiles of Augustine, Dewey, Erasmus, Gandhi, Kant, Montessori, Plato, Rousseau.



Education and the Significance of Life: J. Krishnamurti

Focusing on the central vision that life has a wider and deeper significance, and that it is the concern of education to come upon it, J Krishnamurti explores various other connected themes - authority versus freedom, discipline, intelligence, the nature of creativity, and the role of religion in education.

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