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Veröffentlichungsversion / Published Version
Arbeitspapier / working paper

Policy Brief

RECOUP

number 5 | September 2009

Research Consortium on Educational Outcomes & Poverty

Addressing school quality: Some policy pointers from rural north India

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This briefing identifies key issues influencing children's learning outcomes and provides policy pointers for remedial action. The study summarized here was undertaken in two states of north India whose educational challenges are comparable to or worse than those of many African and South Asian countries. Thus the findings potentially have utility not only in India but more widely.

Overview

While India's closeness to universal primary school participation is welcome news, it is now known that basic learning levels of students in primary school are very low. The 2008 Annual Status of Education Report (ASER, 2008) finds that nationally 44% of students of grade 5 cannot fluently read grade 2 level text nor do a division sum of three digits divided by one digit (ASER 2008). This is a serious problem for India in view of international evidence that learning levels matter more than 'years of schooling' for both individual-level economic and non-economic outcomes and for national economic growth (Hanushek and Woessmann, 2008).

This policy brief draws on findings from the unique SchoolTells survey to analyze why learning levels are so low, and considers what can be done to remedy the situation. The survey was carried out in two educationally challenged states of India – Bihar and Uttar Pradesh (UP) – whose schooling outcomes are often worse than those of many African and South Asian countries, as seen in Appendix Table 1. The findings thus potentially have wider implications for developing countries.

The SchoolTells survey visited 160 sample schools four times in the 2007–08 school year. Repeated unannounced visits to the same schools made it possible to observe the dynamic functioning of schools, measure *gain* in children's learning achievement over one school-year, estimate student and teacher attendance rates, test teachers' capability in teaching primary school curriculum, and collect data from families on sample children's health and home circumstances.

Our findings suggest several obstacles to the achievement of *meaningful* education for all in the sample states. They also suggest some solutions. These are summarized below.

Summary of research findings

- *Extremely low rates of school attendance among enrolled children*: Only 26% of school-enrolled children in Bihar and 44% in UP attend school regularly. With enrollment drives and expansion of school facilities, it is difficult to know how well enrollment records actually reflect who should be attending a specific school. It is interesting to note that there is low attendance despite incentives (free school meals, uniforms, scholarships, textbooks etc.) From household interviews, we find a high reported incidence of illness among children. Stable and regular attendance patterns are an essential condition for effective teaching and learning. Closer tracking of attendance needs to be a high priority for state and local governments.

- *High rates of teacher absence*: Teachers are absent more than 1 in 5 days in both states. Much of the absence is personal leave, not attributable to official non-teaching duties. We find that high teacher absence increases unplanned multi-grade teaching, reduces stability of the teacher-taught match, and sharply lowers child learning levels. Absence rates are substantially lower for teachers on annually renewable contracts i.e. who face some accountability pressures. An important policy pointer therefore is the need to institute stronger accountability measures.

- *Low learning levels and low gain in achievement over one school year*: The survey finds lamentably poor learning levels overall (shown later). We also find that grade 4 students who had very low achievement level at the start of the school year (i.e. who had not mastered even grade 2 level basic skills when they entered grade 4) had little gain in learning through the year. This highlights that 'learning delayed is learning denied' and the importance of timely learning of grade-specific skills. India's school system does not have an inbuilt mechanism for identifying who is falling behind and neither is remedial education a usual component of the school. There is clear need for a system of assessment and diagnosis and remedial action strategies. Strong early foundations of basic learning need to be built in the early grades.

- *Worrying levels of teacher competence* to teach the material in the primary school textbooks: For example, only 28% of teachers could correctly do an area problem which is usually introduced in grade 4 or 5 in these states and only 25% could do a percentage problem at the grade 5 level of difficulty. About 45% could give the correct meaning of difficult words and

meaningfully summarize text at grade 4 level of difficulty. 60% of teachers had spelling mistakes in their own write-ups when they were asked to summarize a section of text from the textbook. 80% admit to having problems with their students' maths queries. These findings have implications for teacher recruitment policy as well as for pre- and in-service teacher training/curriculum policy.

- *Problematic organization of time and staffing* : Here are some facts uncovered by the study. In Bihar, 49% of classes were always multigrade in all 4 survey visits (meaning a specific grade sitting with one or more other grades); a further 44% were sometimes monograde and sometimes multigrade; only 7% of classes were monograde throughout the school year (i.e. in all 4 survey visits). This suggests considerable instability in grade-grouping configurations within the same school year, making it difficult for the teacher to prepare teaching for a given mix of classes. Secondly, only 25% of schools have class-specific time-tables and, among those that do, only 35% were found adhering to it. This is consistent with frequent teacher absence (which necessitates that one teacher will teach another's class, and departure from any time-table). Thirdly, we found that 54% of schools opened late in all the four survey visits and that one-third of the sample schools always closed earlier than the mandated closing time. Generally, there is ad hoc-ism about the way in which time, space and staffing are organized in school, suggesting that the primary driver governing learning time is not students' learning needs but teachers' needs and absence. One obvious policy implication is the need to assign specific teachers to specific classes and ensure that a steady and stable grade-grouping arrangement lasts throughout the year. Class-specific time-tables need to be mandated, and adherence to them and to the specified opening and closing times encouraged and monitored.

- *Teacher effort, remuneration and accountability*: We find that the conventional measures of teacher quality (qualifications, training and experience) are at best not related to teacher effort, and at worst are significantly negatively related to teacher effort (presence rate, time on task). Jobs for life and pay increments – without reference to effort – can demotivate teachers who do apply effort. A system of professional development is needed which ties promotions to some notion of performance, in order to recognize and reward teacher effort.

Children's attendance in school

School enrolment rates are well over 90% in most Indian states (ASER 2008). This suggests that India is close to achieving universal primary school participation. However, our findings show a big gap between child enrolment and actual attendance. In Bihar, only 65% of enrolled children actually attend school at all (i.e. were found to be present in school in at least one of our four unannounced survey visits). Of these, only 40% attended school regularly, i.e. were found in school in at least three of the four survey visits. This leads to the dismal statistic that *just 26% of enrolled children are in regular attendance* in Bihar (0.65 x 0.40).

Regular attendance in UP (around 44% of enrolled children; 87% found in school at all, and 51% of these found in school in at least 3 of the 4 visits, i.e. 0.87x0.51) is also far from satisfactory. Governments give families incentives to enroll children – providing cash stipends, free school meals, free uniform and free textbooks. The Indian government's EFA program *Sarva Shiksha Abhiyan gives these inputs to* encourage children to enrol in school. But as we can see the incentives do not necessarily lead to attendance. Although these benefits are meant to be *attendance*-contingent, teachers told us they are loathe to argue with parents who demand these, irrespective of whether their child attends school regularly.

Why is school attendance so low? Our data from the household survey show that frequent incidence of morbidity is one important explanation. Over 40% of children reported being ill in the last three months such that they missed four or more consecutive days of school. 22% percent of children had been absent for three days or more in the last fifteen days and, of these, a third cited illness as the reason for absence. It is possible that illness keeps a child at home for longer than would be the case if the perceived returns from attending school were greater.

In any case, morbidity is only part of the story: children in Bihar spend considerably more of both time and money on private tuition than children in UP, suggesting that they may be using private tutoring as a substitute for attending school. As reported by the family, the average grade 4 child in Bihar spends approximately 36 minutes per school day in private tuition and spends about Rs. 260 per year in private tuition (high incidence of private tuition is also reported in other countries by Bray, 2003). Given that children are actively seeking tuition, it is plausible that absence from school is partly due to the low perceived benefits of attending school, rather than a lack of demand for education.

Policy points

- Close and sustained tracking of attendance patterns is needed. It is important to figure out if the low attendance is due to inflated enrollment figures or if it reflects actual absenteeism. Remedial measures need to be set in place when schools show low presence.

- Making children's attendance an important indicator of school functioning is essential. Concerted school level action is needed to track and understand chronically absent children.

- Children's frequent absence from school due to illness suggests a need for education policy to be coordinated with child health policies.

- A closer look at the links between teacher absenteeism and child absenteeism is in order. When teachers are not in school, this increases the chances of children not going to school.

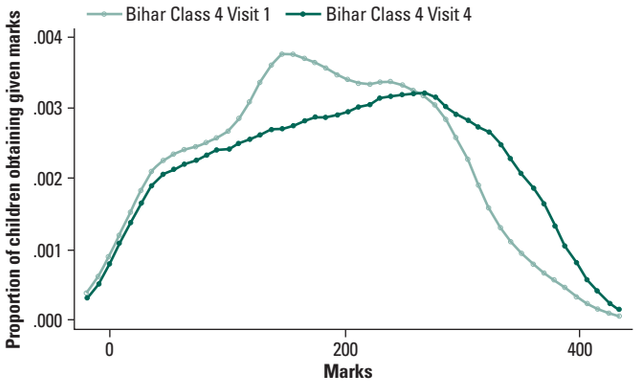
- Child school attendance is likely to increase of its own accord if school functioning is improved and learning levels rise, so that the perceived benefit of attending school rises.

Children's learning levels

Each sample child of grade 2 and 4 was tested twice, at the start and at the end of the school year. The results are sobering.

- The percentage of grade 2 children in UP who are correctly able to do a two digit numerical addition or subtraction problem by the end of the school year is 4.4%.
- Even by the end of grade 4, just 23.2% of children can do this.
- Only 20% of grade 4 pupils can read a standard grade 2 text of 100 words without stopping.
- Only 50–58% of children can write a simple sentence (with mistakes) by the end of grade 4.

Such figures suggest that the *current level of learning attainment among children is a cause for serious concern.* Equally worrying is that while children improve on average, the largest improvements are made by those who score highly in the first test, at the start of the school year (i.e. who are already quite good at the start of the school year). The Figure below shows the distribution of achievement of grade 4 students at the start of the school year (in white) and at the end of the school year (in red). The poor performers at the start of the year learn very little over the school year (there is no rightward shift in the distribution of their marks). If a child has not learned the basics early on, the chances of them picking them up later are low.



Policy points

- Children who start the school year in a given grade without the basic skills for that grade are in danger of being left behind.
- Learning delayed is learning denied; the implication for policy is the importance of focus on building strong foundations of basic skills in the first two years of school; this will involve systematic in-class assessment of learning, to identify struggling children and to help them
- Remedial education or accelerated techniques are needed on scale to help children who have been left behind to have a serious chance at catching up.

School functioning

As in many school systems around the world, primary schools in India are based on certain key assumptions, such as that children are enrolled in school at the official age; that primary school is organized in terms of classes, e.g. starting from grade 1 to grade 5; that there are textbooks for each grade, progressively increasing in the level of difficulty; that most children and teachers come to school regularly; that children sit with children in their own class and there is a teacher assigned to teach this class; that there is a timetable and lesson plans, etc.

Our study found that most assumptions regarding how schools normally operate were violated. While almost all schools were open when enumerators visited, 54% of schools opened later than the mandated opening time in every one of the four survey visits, and were on average about 30 minutes late in opening. A high proportion of all schools closed earlier than the scheduled closing time: over half of grade 4 children in UP and a third of them in Bihar were found to have left school well before the official closing time.

We found that most children in Bihar and UP sit in mixed groups – only 7% of pupils' were found sitting in a mono-grade situation in every one of the four visits. Multigrade teaching might be fine or even be the pedagogy of choice (Little, 2006) – if teachers were trained to deal with it – and especially if the mixed-class groups were consistent / stable over the school year, as teaching could adapt to the group, but groups were found to shift over time. While 49% were always in multigrade classes, 44% of classes were sometimes mono-grade and sometimes in multigrade. Nor is there consistency among teachers, with the same teacher teaching the same class over the year in only 50% of schools. Lack of stability over time in class groupings and in the teacher-taught match has important implications for teaching and learning processes. It suggests that the teacher(s) have to adjust constantly to teach different class combinations on different days. Thus, class groupings are organized not according to students' pedagogical needs but often in response to shifting staff availability and this has adverse effects on teaching strategies, and by implication on student learning.

Only 25% of schools had class-specific time-tables and, among those that do, only 35% were found adhering to it. The lack of adherence to a time-table is consistent with frequent teacher absence (which necessitates that one teacher will teach another's class, and departure from any time-table). It is also consistent with a lax attitude about the way in which time, space and staffing are organized in school.

Policy points

- Inconsistencies in class mixes over time are a product of a lack of 5 class-rooms and 5 teachers for the five primary grades, and they are exacerbated by high teacher absenteeism (average absence of more than *one in five days*).
- Reducing teacher absenteeism, increasing the number of teachers and stabilizing the pupil-teacher matches will all aid learning.

- Teachers need training and appropriate instructional materials to enable them to handle multigrade classes effectively.

- Class-specific time-tables need to be mandated and adherence to them encouraged/monitored.

Teacher attendance and time-on-task

Absence rates among teachers are high. In Bihar government schools, both regular and para teachers[1] have absence rates around 22%. In UP, absence rate is 25% among regular teachers but 12% among para teachers. A 25% absence rate implies being *absent for one day out of every four.* Most of this is due to personal absence, not due to official non-teaching duties. High teacher absence rates are of great concern since, in our data, they are associated with lower child learning achievement levels.

Why are teachers absent so much? One explanation could be regular teachers' greater travel time as they live further away from school in comparison to para-teachers, who are typically locally recruited. We find that para teachers were more locally resident than regular teachers in both UP and Bihar, so if distance to school was the main reason for absence, we should expect regular teachers' absence rate to be higher than para teachers' in both states, but this is true only in UP. Our statistical analysis suggests that a plausible explanation for regular teachers' higher absence than para teachers in UP is that regular teachers have jobs for life but para teachers (in UP) have annually renewable contracts. This exerts some accountability pressures on para teachers. This also explains why both types of teachers (regular and para) have similar absence rates in Bihar, despite para teachers being much more local than regular teachers, since Bihar para teachers have jobs for life (footnote 1).

Even when regular teachers turn up to school, they spend less time teaching than para teachers. By their own self-report, regular teachers report spending 75% and para teachers report spending 83% of their typical school day on teaching tasks. Their lower absence rate and higher time on task imply that the achievement level of children taught by para teachers is higher than the achievement level of children taught by regular teachers, within the same school. This goes against the popular perception that being taught by contract teachers condemns children to poorer quality education since para teachers are less likely to be trained. In our data, it is true that only 11% of para teachers overall (4% in UP, 15% in Bihar) have pre-service training (compared with 85% of regular teachers) and para teachers' competency scores are lower than regular teachers' – see next section. However, our results show that any negative effects of being taught by the less trained and less competent (para) teachers are counterbalanced by the positive effect of para teachers' better attendance rate and their giving greater time to the teaching task, than regular teachers.

Policy points

- Teacher absence lowers child learning and thus policy attention is sorely needed to reduce teacher absence rates.

- Children's learning outcomes are better when taught by a teacher who applies effort (is present in school and spends time teaching), even if that teacher is not trained and is less competent than a teacher who is trained and more competent but does not apply as much effort.

- Accountability appears to be a key factor since absence rates of teachers who face some accountability pressures are significantly lower. There is need to devise systems that incentivise effort and act against non attendance

Teacher competency

The SchoolTELLS study is unique in its attempt to evaluate teachers' ability to teach in India. While there is no established best practice on how to assess teachers' ability to teach, we focus on three aspects of teaching ability: teachers' own knowledge, their ability to spot mistakes and their ability to explain. The tests are aligned with standard tasks that teachers would routinely be required to do in the classroom.

We found considerable deficits in teachers' skills to tackle the material that is in the primary school textbooks. For example, only 25% of teachers could do a percentage sum and 28% an area sum of the kind found in grade 4 or 5 math textbooks. 80% of teachers admit to having difficulties in dealing with the maths queries of their students.

In language, matters are somewhat better but still very far from satisfactory: about 45% teachers could write the correct meanings of difficult words found in a grade 4 text book and about the same proportion could meaningfully summarize a grade 4 level story text. 60% of teachers had spelling mistakes (25% had three or more spelling mistakes) in their write-up of the two-sentence summary. Only 50% of teachers could find 4 or more mistakes in a passage in which we had deliberately given 6 mistakes (requesting them to circle all spelling and grammar mistakes in a given child's work).

Overall, the poor performance of teachers on simple teaching tasks is deeply troubling.

Policy points

- There is a tacit assumption in recruitment policy that applicants' education and training ensures that skilled individuals are recruited as teachers, and a further tacit assumption is that any gaps in teacher skills at the time of recruitment can be plugged later via in-service training. These assumptions are not borne out in reality as we find that qualifications, experience and training

[1] Para teachers in India have lower educational qualification requirements than regular teachers, are paid a fraction of the salary of regular teachers (see Table 1) and are typically appointed by the village local government, unlike regular teachers, who are appointed by distant district authorities. The details of para teacher schemes differ from state to state. In UP state, para teachers are appointed on an annually renewable contract. By contrast, in Bihar, para teachers have jobs for life, like regular teachers. In Bihar, para teachers were initially recruited locally, but from 2006 the criterion of being local was dropped, and preference was given to applicants who had pre-service teacher training qualifications.

are not consistently good predictors of teacher skill levels, suggesting that the criteria for teacher recruitment may need re-evaluating.

- Assessing what teachers are able to do can help the task of building future teacher capability for effective teaching. For example, skill deficits identified through assessments can guide the pre-service training curriculum in teacher training colleges, as well as provide guidance for the content of in-service teacher training programs.

- Teachers may fear and oppose testing but, sensitively done, tests could more constructively be seen as diagnostic tools for the purpose of identifying opportunities for self-improvement. They could further be linked to incentives to obtain advancement in the career structure.

- Teachers should look to assessment as an opportunity to upgrade skills and demand on-going professional development.

Teacher effort, remuneration and accountability

Measured in terms of time spent in school and in teaching, UP regular teachers have significantly lower effort than para teachers and private school teachers: they have higher absence rates and lower time on the teaching task (they report spending about 75% of their time teaching compared to approximately 83% for para teachers and 90% for private school teachers). However, despite lower effort, regular teachers are actually paid many times more than para teachers and private school teachers. In January 2008, regular teachers got an average salary of around Rs. 12000 rupees per month, compared to para-teachers who got Rs. 3,000–4,500 per month and private school teachers who got just around Rs. 1000 per month. Since the Sixth Pay Commission's recommendations were accepted in 2009, the starting salary of a regular teacher has more than doubled (increased by 115%) in Uttar Pradesh, with no increase in para teacher salaries.

When we examine the correlation of conventional measures of teacher quality (teachers' educational qualifications, training and experience) with teacher effort, we find they are at best not related to teacher effort, and at worst are significantly negatively related to teacher effort. This could be a reason why Hanushek's (2003) meta-analysis of 97 developing-country studies finds that teacher certification measures are not important in explaining child achievement levels. It begs the question – what are the implications, for teacher effort, of a salary structure that rewards training, qualifications and experience, rather than rewarding effort or performance?

Policy points

- Jobs for life and pay increments, without reference to teacher performance (e.g. in terms of regularity of attendance, time on teaching task, or child learning outcomes), are de-motivating for teachers who do apply effort and can prove counterproductive.

- A system of professional development is needed which ties promotions to performance, in order to recognize/reward teacher effort.

About the study

The SchoolTELLS (Teacher Effectiveness and Learning Level of Students) survey was carried out during the 2007/2008 school year. 160 primary schools were selected across ten districts of Uttar Pradesh (UP) and Bihar and each school was visited four times within the school year. The survey collected data from both government and private schools: 63 government schools and 17 private in UP; 72 government schools and 8 private in Bihar. The focus was on children's learning in two subjects – mathematics and reading, in grades 2 and 4. Information was gathered on how schools function. The children were then tracked home where a comprehensive household survey was administered. A unique feature of this study is the teacher assessment, which explored the instructors' own knowledge of the material in the primary school curriculum but also their ability to spot common mistakes children make, and ability to explain tasks in simple steps.

Policy points

- The approach adopted in the SchoolTELLS study for India can be useful in other country contexts too. A survey of this type is not an impact-evaluation investigation (of the impact of a given individual policy on some child outcome of interest). Rather, by building a fuller picture of school functioning than is typically available, it can potentially shed very useful light on the prima-facie obstacles to quality schooling in a country.

Table 1: Teacher's mean test scores, monthly salary, absence rate and % time-on-task

	Bihar				UP		
	Regular	Para 05	Para 06	Private	Regular	Para	Private
Maths score	54.8	49.2	40.4	48.6	51.3	44.4	40.2
Language score	64.2	62.3	57.9	65.2	74.0	68.3	62.5
Salary/month	11694	4076	4405	1199	12017	2992	940
Absence rate	22.9	21.7	21.0	13.9	24.6	12.0	17.4
% time teaching	73.3	82.9	84.3	92.7	75.3	83.3	89.0

Source: Authors' calculations from SchoolTELLS survey data.
Note: Para 05 refers to Bihar para teachers appointed upto 2005. Para 06 refers to Bihar para teachers appointed in 2006. They were appointed under somewhat different recruitment rules (see footnote 1). In UP, all para teachers are appointed on the basis of the same one recruitment policy.

References

ASER (2008) *Annual Status of Education Report 2008*. www.asercentre.org
Bray, M. (2002) "The Costs and Financing of Education: Trends and Policy Implications", Asian Development Bank, Manila.
DISE (2008) "Elementary Education in India: Analytical Report 2006–07", District Information System on Education, National University of Educational Planning and Administration (NUEPA), New Delhi.
Hanushek, E. (2003) "The Failure of Input Based Policies", *Economic Journal*, 113, p. F64–F98.
Hanushek, E. and L. Woessmann (2008) "The Role of Cognitive Skills in Economic Development", *Journal of Economic Literature* 46(3), September 2008: pp. 607-668.
Little, A. (2006) *Education for All and Multigrade Teaching: Challenges and Opportunities*, Springer.

Acknowledgments

We gratefully acknowledge the excellent help of Mr. Pranav Chaudhary and his team at Sunai Pvt. Ltd., Patna, in managing the complex and demanding SchoolTELLS survey in both UP and Bihar and producing high quality data. Other collaborators who have helped in data preparation, analysis and in other ways include: Paul Atherton, Courtney Monk, Manasa Patnam, Indrani Saran, Sudhakar Sinha, Vandana Sipahimalani-Rao and Shanshan Wu. The briefing has benefited greatly from the thoughtful comments of Colin Bangay, Senior Education Adviser at DFID. We are very grateful to the Spencer Foundation for its research grant 200700008 which enabled the SchoolTELLS survey and the associated research. We are also grateful to DFID for its grant under the RECOUP Research Programme Consortium on 'Outcomes of Education for Pro-poor Development', which funded the time of some of the researchers.

Appendix Table 1

Educational outcomes of India and selected African countries, 2000–05

	HDI Rank	Adult literacy rate (15 and older)	Youth literacy rate (15–24 year olds)	Net primary school enrolment rate	Survival rate (% of grade 1 reaching grade 5)
Bihar*	....	....	....	71	54
Uttar Pradesh*	....	....	....	82	68
India*	....	....	....	86	73
India	128	61.0	76.4	89	73
Pakistan	136	50.1	65.1	68	70
Bangladesh	140	52.5	63.6	94	65
Nepal	142	51.4	70.1	79	61
Africa					
Namibia	125	85.0	92.3	72	86
Lesotho	138	82.2	....	87	73
Swaziland	141	79.6	88.4	80	77
Kenya	148	73.6	80.3	79	83
Uganda	154	66.8	76.6	....	49
Nigeria	158	69.1	84.2	68	73
Tanzania	159	69.4	78.4	91	84
Zambia	165	68.0	69.5	89	94

Source: UNDP's Human Development Report, 2007–08 for country statistics. See http://hdrstats.undp.org/buildtables/
*Survival rate statistics on Bihar and UP states of India refer to the year 2006–07 and come from the 'Enrolment Based Indicators' Section of DISE (2008). http://www.dise.in//Downloads/AnaReport%202006-07/Enrolment%20Based%20Indicators.pdf *The net enrolment rate numbers Bihar, UP and India are authors' own calculations from the 2004–05 National Sample Survey data 61st Round. For India, Bihar and Uttar Pradesh they are 85.7, 70.6 and 81.6 percent respectively.
Note: The Report of the 8th Joint Review Mission of *Sarva Shiksha Abhiyan* (July 2008) gave India's net enrolment rate in primary education as being 84.5% in the year 2005–06.

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