Abstract

The Annual Status of Education Report (ASER) is a national citizen-led rapid assessment of children's ability to read simple text and do basic arithmetic. ASER is designed and facilitated by the Indian non government organization Pratham and has been conducted every year since 2005 by partner organizations in every rural district of India, reaching more than 600,000 children annually. The assessment differs from most other large scale learning assessments in several key respects, such as the use of household- rather than school-based sampling and the focus on simple tools and indicators that are easy to administer and understand. All ASER metrics, measures and processes are intended to put engage ordinary citizens in thinking about and acting to improve basic learning outcomes In India.

By conducting a massive national survey each year, ASER has demonstrated that it is possible to use simple, reliable and scientific methods of sampling and assessment on scale for high impact at a very low cost. Key to this aspect of ASER has been its ability to mobilize over 25,000 volunteers each year. ASER has been responsible in large measure for putting the issue of learning on the agenda in India. More recently the model has been adapted for use in several African and Asian countries. Taken together, these initiatives reached more than a million children in 2012.

The Annual Status of Education Report (ASER)

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Introduction

Children attend school in order to learn, and learning assessments are intended to measure what children know and can do and thus tell us whether learning objectives are being met. As school provisioning and enrolments have expanded across the world, so too has the range of metrics and measures developed for the assessment of student learning achievement on scale. In addition to national and regional assessments, a growing number of countries now participate in international assessments of student achievement: 64 countries/economies participated in the latest round of PISA (2012), up from 43 in the first round (2000). Similarly, 63 countries participated in the latest round of TIMSS (2011) and 49 in PIRLS (2011). Much of this growth is due to the increasing participation of low and middle income countries.

Two of India's states participated in PISA 2009+. Their dreadful results (second and third last out of 74 participating regions) were the subject of headlines in the media for some weeks. The Government of India's response (as reported in the newspapers) was to argue that socio cultural differences made the test items unfair to Indian students. India subsequently pulled out of the 2012 round of PISA.

While this may be an extreme response, it does raise the question of what type of learning assessment might work best to improve learning in the context of India and in other countries around the globe where issues of access, rather than learning achievement, continue to dominate the government's agenda; where schooling is assumed to translate automatically into learning; and where evidence is not necessarily used to inform policy. In India as in other countries, beyond widespread media interest there are few local consumers of the results of international learning assessments.

In some ways this is a chicken-and-egg situation: governments are not interested in conducting or using learning assessments because student learning is not at the centre of the educational agenda; but the results from learning assessments on scale are critical to getting learning into the centre of the agenda. While there may be many ways to resolve this situation, this case study summarizes one such initiative– the Annual Status of Education Report (ASER), a national learning assessment designed and facilitated in India by the non government organization Pratham every year since 2005. Conducted by ordinary citizens across the country, ASER has been substantially responsible for putting learning on the agenda in India. In recent years the ASER model has spread organically to countries as diverse as Pakistan (since 2008); Kenya, Tanzania and Uganda (known as Uwezo, this east African initiative began in 2009); Mali

(since 2011) and Senegal (since 2012). Now referred to as the family of citizen-led basic learning assessments, these initiatives reached more than a million children in 2012.

Context

For more than two decades, India has demonstrated its determination to meet Education for All (EFA) goals. Accordingly, the education system has focused on access – getting children into school. The indicators commonly used to evaluate progress have been expenditures, inputs and enrolment and by these yardsticks, India is doing very well indeed. The country's education budget has more than tripled in the last five years alone; almost 90% of all rural habitations have a primary school within one kilometre; and more than 95% of all children in the 6-14 age group are now enrolled in school. The government has created mechanisms for routine tracking of a range of parameters related to elementary education, such as access, enrolment, inputs, infrastructure and provisions. Detailed data on these indicators are collected annually and are publicly available for every government and government-aided elementary school in the country. [1]

What about learning achievement? The assumption at every level of the system, from parent to policy maker, has been that if children are in school, then "learning" will happen automatically. The "automatic pass" policy enables children to transition from Grade 1 through Grade 8 irrespective of whether they have mastered curriculum content. The central government has no mechanisms for routine assessment or tracking of student learning, although some state governments are beginning to put their own systems in place. The central government's learning achievement surveys, carried out by the National Council for Educational Research and Training for a sample of students in Grades 3, 5 and 8, generate periodic estimates of learning at the state level. [2] These assessments are not conducted annually, nor does the level of disaggregation enable these data to be useful inputs in the annual process of review and planning which takes place at the district level. [3]

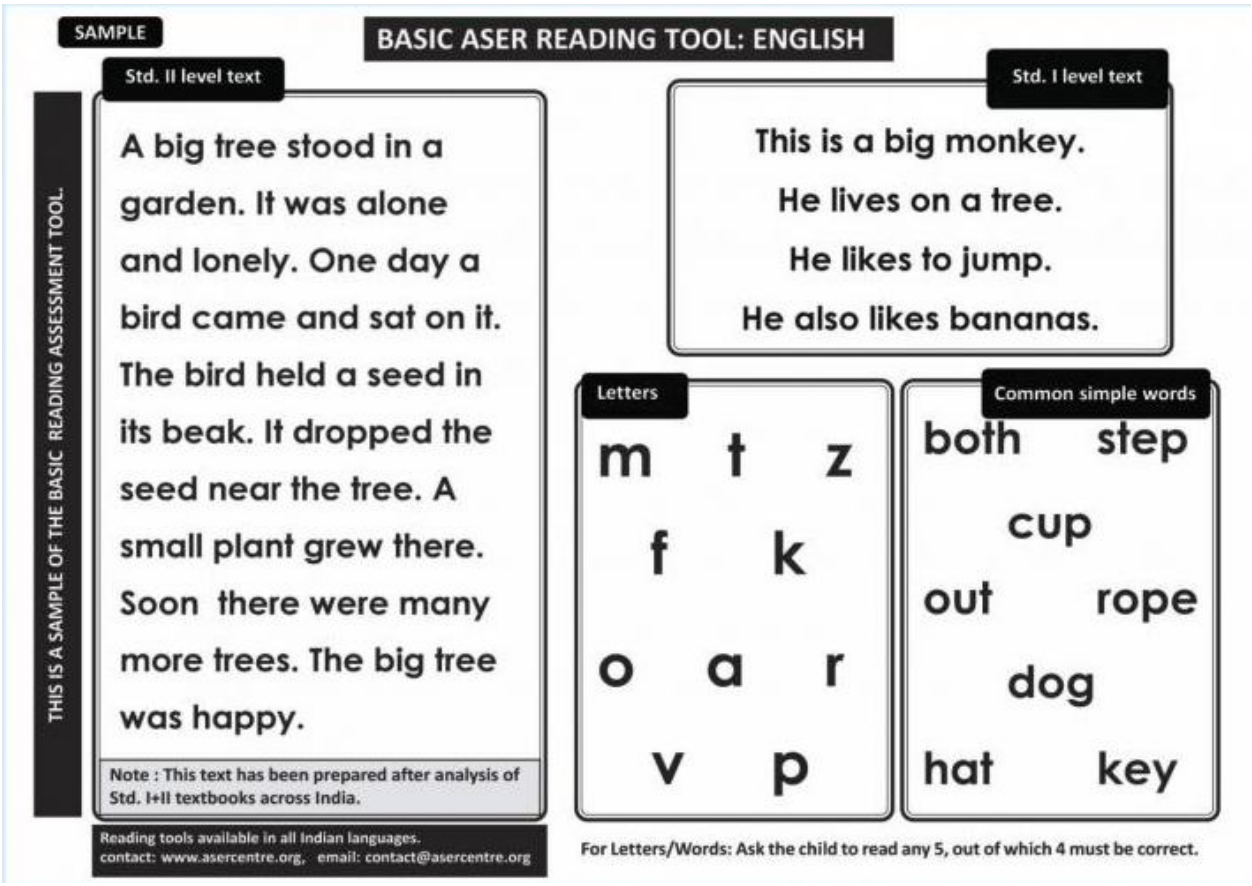
Pratham: 'Every child in school and learning well'

Since the mid 1990s, the non government organization Pratham has worked with millions of children in schools and in communities across India towards a very simple goal: "every child in school and learning well". Pratham's key strength lies in its ability to harness the energy and talent of local youth in cities and villages across the country, providing them with supervision, support, simple methods and materials to teach remedial classes in basic reading and arithmetic to children in their own communities. These young Pratham volunteers work within the government school system where state governments permit, and hold classes in any available public space when not given access to schools. The organization has trained teachers and volunteers in about 350,000 villages and 40 cities across the country.

Measurement has always been a core activity in Pratham's work, as part of both program development and assessment of impact. [4]A set of common measurement activities also provided members of the rapidly growing network with a common framework and vocabulary with which to discuss progress and problems. Long before the Annual Status of Education Report came into existence, what is known today as the ASER reading tool was used extensively by Pratham teams across the country to quickly understand how fluently children could read and where they were getting stuck.

The reading assessment tool consists of four simple reading tasks, contained on one side of a single sheet of paper (Figure 1). The easiest task comprises letters of the alphabet, followed by simple commonly used words. The third reading task comprises a paragraph with four short sentences, equivalent to text that children are expected to be able to transact in Grade 1 of primary school. The most difficult task involves reading a slightly longer, more complex text equivalent to the content of a Grade 2 textbook. In the space of just a few minutes, a Pratham volunteer with minimal training could place a child at a specific rung along this ladder of basic reading ability, and tailor instruction accordingly. His goal as instructor was to get every child to the highest level of reading ability being tested - the ability to fluently read Grade 2 level text. Repeat assessments over a period of days or weeks provided him with a quick way to tell whether children were making progress and which children required additional attention. Aggregated over villages and districts, these data provided information to Pratham management on the extent to which its interventions were achieving their intended objectives.

Figure 1. The reading assessment tool in English

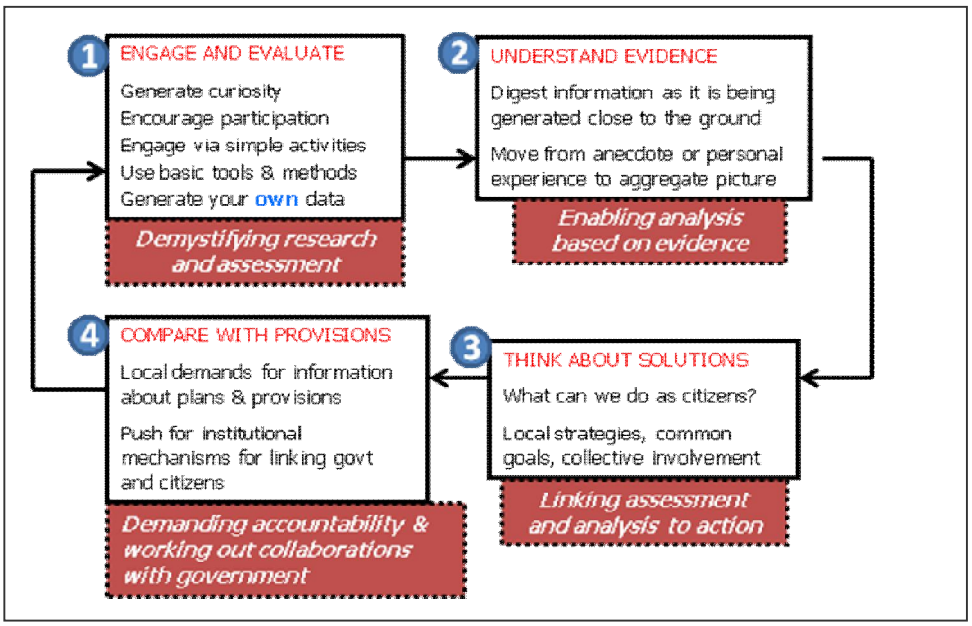


The simplicity and ease of administration of the tool had additional benefits. Given that about 60% of India's school-going children have mothers who are themselves illiterate, the challenges of engaging communities in a debate on educational outcomes, or 'quality', are considerable. In village after village, Pratham used the same tool to build awareness of poor learning levels and catalyze action within the

community. The process would begin with the generation of a 'village report card', which involved Pratham teams going from hamlet to hamlet in the village, visiting every household and testing the reading ability of every child (Figure 2). This process invariably generated enormous interest among parents, family members, neighbours and people walking by. In a context where there is typically no communication between school and family on the subject of children's learning, the community testing activity invited immediate engagement and discussion: crowds would gather, everyone wanted their child to participate, everyone had an opinion on how much they thought their children can read and was eager to see their prediction confirmed. The simple, non-threatening nature of the test itself typically had children coming up to the Pratham team, eager to be included; and more educated members of the community were invited to help with the testing process.

Street by street and hamlet by hamlet, the process of creating a village report card involved community members in generating new evidence about their own children. Data aggregated for the village as a whole was then presented at a village meeting, and the problem could then be clearly identified in a way that village residents understood and knew to be true: after 3, 4 or 5 years in school, their children had not learned how to read or solve basic sums. Only once the problem is identified was it possible to discuss possible solutions and future actions. Next steps could take a variety of forms (including but not limited to identifying educated youth in the village who were willing to run remedial classes for children).

Figure 2. From assessment to action



The Annual Status of Education Report

In 2005, frustrated with the continued invisibility of the crisis in learning that was evident from their work with children across the country, Pratham's leadership decided to design a national learning

assessment that could be conducted by ordinary citizens. This new initiative came in response to the fact that the recently elected United Progressive Alliance (UPA) government continued to ignore learning outcomes – even though "outcomes over outlays" had been a central plank of its election campaign the year before. The government's own rhetoric, as exemplified by the first Budget Speech of the Finance Minister, provided ample justification for such an endeavour:

> *At the same time, I must caution that outlays do not necessarily mean outcomes. The people of the country are concerned with outcomes. The Prime Minister has repeatedly emphasized the need to improve the quality of implementation and enhance the efficiency and accountability of the delivery mechanism. During the course of the year, together with the Planning Commission, we shall put in place a mechanism to measure the development outcomes of all major programmes. We shall also ensure that programmes and schemes are not allowed to continue indefinitely from one Plan period to the next without an independent and in-depth evaluation. Civil society should also engage Government in a healthy debate on the efficiency of the delivery mechanism.*[5]

Implemented for the first time in 2005, ASER was conceptualized and designed as a large scale rapid assessment to be done by ordinary citizens. Its architecture is based on the need for simplicity and speed, so that any interested citizen of India can participate. Thus the metrics, methods and mechanisms could not be complex, time consuming or costly. At the same time, the results of the exercise had to generate information that was comparable and consistent both across contexts and over time, so that citizens could see whether progress was being made. Given constraints of time and resources, the architecture of the mechanism had to be simple; the design scientific; and the results had to be useful to local actors but also allow aggregation to appropriate levels.

Key elements of the ASER approach

In any system for assessment, core features of the design respond to decisions regarding who, what, when and how to assess. Some key decisions that underlie the ASER methodology are outlined below.

a. Who to assess?

Universal primary education implies that *every* child should be in school and learning well. Although large scale learning assessments are usually school-based, in countries like India school-based sampling automatically excludes substantial proportions of children: those enrolled in private schools, those not enrolled in school, and those who are not in school on the day of the assessment. [6] ASER is designed as a household- rather than school-based survey to ensure that all these categories of children are included. Data are collected on all children in the age group 3-16who are resident in sampled households, regardless of their schooling status. [7] Learning assessments are administered to all children in the age group 5-16.

Each year ASER aims to reach each of the country's 585rural districts. Given the need to keep costs low in terms of time and people, the challenge is to generate reliable district level estimates that are comparable over time. In 2005, 20 villages were randomly selected from each district. In each sampled village, 20 households were randomly selected for the survey. All children age 3-16 in sampled

households were surveyed; those in the age group 5-16 were tested in basic reading and arithmetic. In 2006, the ASER sample size was increased to 30 villages per district and 20 households per village, for a total of over 300,000 households and about 700,000 children. This expanded sample size has been used from 2006 onwards (Table i). [8]

Table i. Coverage of ASER, 2005–2012

Coverage	2005	2006	2007	2008	2009	2010	2011	2012*
No. of districts covered	485	555	568	551	580	567	558	567
No. of villages covered	9,521	15,610	16,054	16,198	16,291	14,830	16,017	16,166
No. of villages per district	20	30	30	30	30	30	30	30
No. of households surveyed	191,057	318,761	319,239	335,966	338,027	308,636	327,372	331,881
No. of children surveyed	332,971	758,028	720,397	704,241	691,734	609,659	633,465	596,846
No. of schools observed **	9,252	--	14,066	--	14,748	14,240	14,373	14,591

* Provisional data

** School observations have been conducted in one government primary school in each sampled village as part of ASER 2005 and 2007; and every year since 2009.

Source: Pratham, *Annual Status of Education Report* 2005-2012

b. What to assess?

In order to bring learning to the centre of all discussions of educational planning and implementation, ASER focuses on basic learning, especially the ability to read simple text (up to Grade 2 level) and perform basic arithmetic operations (up to Grade 3 or 4 level). For widespread dissemination and discussion, indicators need to be simple and easy to understand and communicate.

ASER employs a "floor" level test: that is, the same tests of basic reading and math are administered to all children age 5 to 16. Younger children in Grades 1 and 2 are not expected to able to go beyond the first couple of tasks. However it is expected that from Grade 3 onwards, children should be able to comfortably and confidently complete the simple tasks in the ASER assessment. [9] Since 2005, ASER results have indicated that significant proportions of children in Grade 3, 4 and 5 are not able to read text at Grade 2 level or do simple arithmetic expected of children in early grades; this situation has not improved over time. Table ii provides some data illustrating this conclusion.

Table ii. Ability to do selected reading and arithmetic tasks among Grade 5 students, 2009-12

Indicator	2009	2010	2011	2012*
Proportion of Grade 5 children who can read Grade 2 level text	52.8	53.7	48.2	46.8
Proportion of children in Grade 5 who can solve a 3 digit by 1 digit division problem	38.0	36.2	27.6	24.8

* Provisional estimates

Source: Pratham. *Annual Status of Education Report* 2009-2012

c. Who will assess?

One of the most unique features of ASER is its implementation each yearby a local organization in each district of India. While the sample design, assessment tools and procedures are centrally designed by ASER Centre in order to ensure comparability and consistency, actual data collection and dissemination is undertaken by a partner organization. Pratham's many years of experience working with local communities had made it clear that local ownership is an essential ingredient for building awareness and action for the improvement of elementary education from the ground up. Thus local ownership is a key element of the design of ASER, and each year more than 25,000 volunteers from about 500 partner organizations across India conduct the survey, with supervision and monitoring by ASER teams. [10] To date, well over 2,000 institutions have partnered with ASER. These range from teacher training colleges to women's self help groups, from private sector companies to high school students. Prior to the actual survey, volunteers from partner organizations are given a three-day intensive training workshop which includes at least one full 'practice' day in the field.

The ASER approach is intended to align with the district level planning and implementation process envisaged in Sarva Shiksha Abhiyan, the country's flagship program in the field of elementary education. In the ASER context, the district is therefore the "local" unit, and the assessment is designed to provide a representative sample of children at the district level. It also provides the only estimates of basic learning outcomes currently available at the district level. The information generated from ASER is a valuable input into the government's processes for development of the district annual work plan.

d. When to assess?

Each year ASER is in the field in October and November, and the report is released the following January. From start to finish, the entire exercise takes about 100 days.

The timing of ASER is determined by a number of factors. In many states, enrolment numbers are finalized by end of August or September. And, in most states, by October or November, children are in the middle of the school year. ASER findings therefore provide a midyear benchmark for enrolment and basic learning. Most importantly, ASER data disaggregated by state and district are available before plans or allocations for the following academic year are made. [11]

e. How to assess?

The process of 'doing' ASER in a village embodies both its ground-level objective (catalyzing discussions with local people around the issue of learning) and its policy-level objective (generating annual estimates of participation and learning at the district level) as a series of concrete procedures which have remained the same since the first ASER was conducted in 2005. [12] Major steps in this process include:

- *Walking around the village and making a map*. This is the first step on arriving in a village. In addition to providing the survey team with the basic information necessary in order to select the twenty required households, the process of map-making enables the team to engage with community members through a series of conversations – about the village, about the school,

about their children and about education. As described earlier, these conversations are invaluable as a basis for identifying problems and thinking about possible solutions.

- *Selecting twenty households to be surveyed*. This process requires the survey team to divide the village into four sections. Within each section, the team starts from a central location and selects every fifth household for inclusion in the sample. For reasons of both time and cost, ASER does not do a house listing at the village level to establish a frame from which to sample. The 'every fifth household' rule together with the division of the village into four quadrants approximates the random selection of twenty households in the village.
- *Obtaining information from sampled households*. This involves collecting basic information about the household (for example number of residents, information about assets) and more detailed information about each child living in the household. All children between the ages of 5 and 16 are tested one-on-one by the survey team. Invariably, the testing process sparks great interest among parents, siblings, neighbours, and people passing by. Every such situation provides an opportunity to engage with the community on the subject of their children's learning (Box 1).

Reliability and validity of ASER estimates

Each year ASER tools, methods and findings are put into the public domain. [13] In the absence of other learning assessments using a comparable design and of equivalent scale, there are no alternative data sources with which to compare its findings. [14] However, a series of studies conducted in 2010 provide evidence of the reliability and validity of ASER estimates. Specifically, they find "substantial reliability of decisions across repeated measurements, satisfactory inter-rater reliability and favourable evidence for concurrent and convergent-discriminant validity", as well as a strong association between the ASER reading test and the Fluency Battery. [15]

Impact and future directions

To recap, ASER 2005 marked the first time that district-level independent estimates of enrolment became available in India. More significantly, ASER 2005 was also the first time that children's mastery of the basic skills of reading and arithmetic were measured in India, on scale and using indicators that even semiliterate parents could easily understand.

By conducting a massive national survey each year, ASER has demonstrated that it is possible to use simple, reliable and scientific methods of sampling and assessment on scale for high impact at a very low cost. Key to this aspect of ASER has been its ability to mobilize over 25,000 volunteers each year. The speed and predictability of ASER has been a very important contributor to its visibility and impact. ASER routinely receives enormous media coverage, both at the national level and by regional or local media groups.

The widespread dissemination of the annual ASER results at national, state, district and sub district level has undoubtedly helped to focus government attention on the issue of learning. In 2008, three years after the first ASER was conducted, the government's District Annual Work Plan guidelines were amended to include a new line item for learning enhancement efforts, which enables districts to spend

2% of the district outlay on learning improvement programs in primary schools. ASER has been cited in the Economic Survey of India for the past three years; in the Approach Paper to the XI Five Year Plan; and in the Education chapter of the XII Five Year Plan. It has been cited in state government documents in some states. It has also resulted in partnerships with a number of state governments to carry out a range of assessment tasks. The last two ASER reports have been released by the incumbent Union Minister for Human Resource Development, and ASER Centre has been invited to present its data and findings to state Ministers and Secretaries of Education on several occasions. Overall it seems clear that ASER has catalyzed the beginnings of a shift towards more measurement, timely analysis, and evidence-based planning by government.

At the same time, it is also true that at the national level, children's learning outcomes have shown no improvement over the eight years for which ASER data are available. In 2005, many were shocked when for the first time the nation learned that half of its Grade 5 students could not read a Grade 2 level text. As Table ii above shows, eight years and billions of dollars later, this continues to be the case. While regular assessments of learning outcomes are a necessary input, the links between assessment and action clearly need strengthening at all levels.

Box 1. 'Doing' ASER in a village: extracts from field notes

Early next morning, armed with the school teacher's map and equipped with what we have learned the day before, we arrive at the centre of the village. Despite the dirt and dust in the dilapidated neighbourhood, there is a holiday feel all round. Music is wafting from the makeshift church, women are chatting leisurely, a sunny breeze is blowing through the Buddhist prayer flags. It is Sunday in Bhalukpong.

According to our instructions, we are to divide the village into four quadrants. In each quadrant we are to go to every fifth house and talk to all children in these houses. The first section of houses begins right opposite the school gate. We go up to the door of the first house. A familiar face opens the door – our map-maker school teacher. His two shy daughters come out too. Oiled, neatly combed short hair, frocks with belts at the back, they smile as we ask questions – of course they are in school, one in Grade 4 and one in Grade 8; both in their father's school. Our reading and arithmetic tasks are very simple for them, but they do them seriously.

Our next stop is a crudely built bamboo house on stilts. Perched on the edge of the elevated verandah, dangling his legs, is nine year old Timothy. Frowning with concentration, he strains to read the simple paragraph we give him. He is in Grade 3. Children tumble out of the bamboo room behind him and crowd around him as he tries to read. While Timothy struggles, his little sister pulls my hand. She couldn't be more than four. "Can I try?" she asks. I show her the numbers… different numbers from 1 to 100. The little girl points to each number, thinks seriously for a few moments, and then in a firm quiet voice says "Forty four" "Sixty seven" "Twenty nine"….

At one end of the village is a large family of cousins. Everyone's surname is Jebiso. Little Lakisu is not sure how old he is. His cheeks are red, dirty and cracked by the winter breeze. When he smiles, his eyes crinkle shut. Lakisu's cousins think he is seven. He is thrilled to be asked to write. He lies on his stomach on the floor, legs in the air, pencil clutched in his fist. His spelling is not always correct but the writing is confident. Slowly the words show up on the page: "My frend is ……".

From house to house, family to family, we meet mothers, fathers, brothers and sisters, some literate, some not, some contented, some with dreams, some homes that have nothing but still offer us tea. But everywhere, every time, people gather around when children are asked to read or to do sums. In the poorest house in the village, in the school teacher's verandah, in the garden of the police constable, there are serious discussions about schools, about learning and about the future of children.

By afternoon, we are well known in Lower Bhalukpong. People are inviting us into their homes and asking us to "test" their children. Each child has is a story, a distinct identity, a combination of current abilities and future potential. By day's end we have visited twenty households, five from each section of the village, and tested all the children. But beyond what we were supposed to have done, we feel we have chatted with almost everyone.

As we leave, the school teacher is coming home with a bag of vegetables. He wants to know what we have learned. We have learned a great deal. We have begun to understand how far the children have come and how far they still have to go. Together, through chats and conversations, through the activities we did with the children, we are beginning to see how the village fits into the bigger mosaic, common patterns with other villages higher up in the mountains, comparisons with places far away. All of this adds up to the map of India as it stands today. Not just dots and dashes, circles and solid lines on a piece of paper, but also anxieties and dreams of where we want to be tomorrow. *-- Rukmini Banerji*

[1]Data for individual schools, districts and states can be consulted at www.schoolreportcards.in and www.dise.in. Systems are in the process of being put in place for secondary schools as well.

[2]The National Achievement Survey (NAS) is designed and administered by the National Council for Educational Research and Training (NCERT), and comprises school-based pen and paper achievement tests administered periodically to a national sample of children in government schools in Grades 3, 5 and 8. Estimates are representative at the state level. The most recent NAS results for Grade 5 are available at http://www.ssatcfund.org/LinkClick.aspx?fileticket=9EVS6D4hOGo%3d&tabid=2478

[3]Sarva Shiksha Abhiyan (SSA), India's flagship program for elementary education, specifies several desired review and planning processes. These include habitation level planning and decentralized decision making that takes into account local conditions, community participation and involvement of non government organizations. An important component of SSA functioning is the district annual work plan (AWP) process. Following SSA guidelines and norms, each district in the country prepares its annual operational plan and budget for elementary education. This district level planning and implementation can be seen as an important step in the direction of decentralization and local decision making. District level annual work plans are reviewed at state and national levels before decisions about allocation of funds are made for the subsequent year.

[4] Pratham and ASER Centre undertake research studies both internally and in collaboration with others. Examples of the latter include several randomized control trials to evaluate Pratham interventions undertaken collaboratively with MIT's Poverty Action Lab (JPAL).

[5]Extract from the Budget Speech by the Finance Minister, P Chidambaram, on February 28 2005. Full text available at http://indiabudget.nic.in/ub2005-06/bs/speecha.htm

[6]Unlike in developed countries, in India school enrolment does not automatically translate into regular attendance. In 2012, an average of 71% of students enrolled in lower primary schools (Std 1-5) were found to be attending on one random day during the school year (ASER 2012).

[7]Nationwide estimates generated by the independent study commissioned by the Ministry of Human Resource Development in 2005 closely matched the ASER 2005 estimates of out of school children for that year. See www.ssa.nic.in/research for details of All India Survey of Out of School Children in 2005.

[8] Seehttp://images2.asercentre.org/ASER_survey_/Sample_Design_of_Rural_ASER.pdf for more details on ASER's sampling methodology. A 2010 study by Ramaswami and Wadhwa showed that while state level averages are estimated precisely (the 95% confidence band lies within 5% or less of the estimate), district level averages are less precisely estimated; and averages for Grades 3-5 are less precise than those for lower grades.

[9] The ASER test is conducted in 18 languages. Tools are developed after analyzing state textbooks and in consultation with expert groups at state and national level. They are then piloted intensively before use to ensure comparability and consistency across states and languages as well as over time.

[10]Processes for monitoring and recheck of survey processes and data have been improved each year; in ASER 2012 close to half of all sampled villages were either monitored (during the survey) or rechecked or both.

[11]The budget is presented to the parliament in end February and the annual work plans for elementary education are usually finalized in March.

[12] Every year, all tests and procedures are intensively piloted by the ASER team and then practiced by survey teams as part of the training process. Tools, formats and procedures are described in more detail in each year's ASER report.

[13] See http://www.asercentre.org/ngo-education-india.php?p=ASER+survey for a detailed list of documents. ASER data from 2006 to 2011 can be queried at http://www.asercentre.org//ngo-education-india.php?p=Query+ASER+data

[14] However, ASER estimates of enrolment are comparable to other available estimates. See Note 7 above.

[15]More details of the analysis and findings are available in Vagh (2010).

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