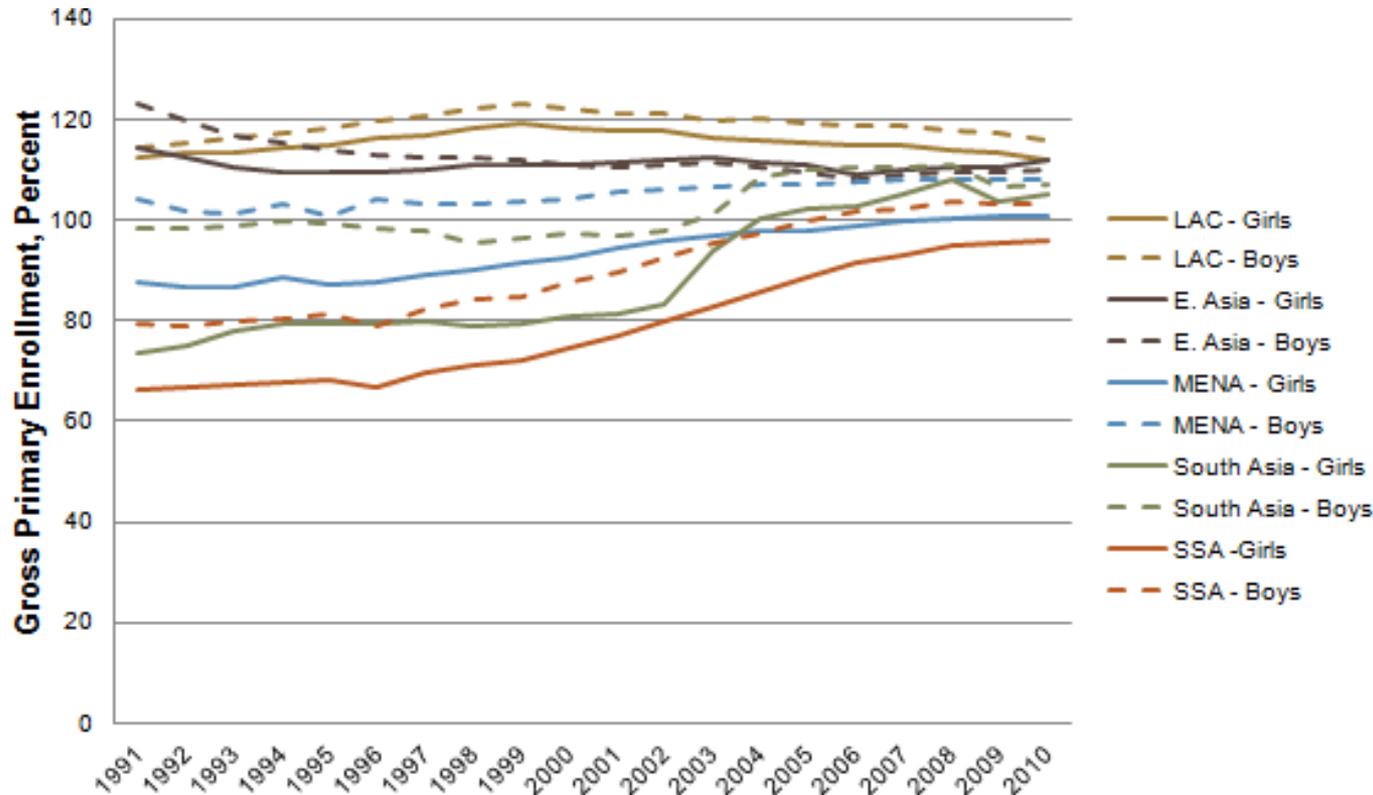# Challenges of large scale learning assessments for policy action

Suman Bhattacharjea, ASER Centre, New Delhi
Workshop on Introduction to large-scale assessments of learning
NEQMAP, Bangkok, September 23-26 2014

- In India, according to the 2013 Annual Status of Education Report (ASER), over 96 percent of Indian children ages 6 to 14 are enrolled in school.

- In many countries, the current MDG for education has almost been reached.

…But basic learning levels are often poor

But being in school does not seem to imply that children are learning:

- According to the 2013 ASER survey in India, more than half of 5th graders are three or more grades behind in reading

- Similar trends can be seen in Kenya, Tanzania, Uganda, Mali, Senegal and Pakistan (Uwezo; ASER Pakistan; Beekungo, Jangandoo)

Governments have focused on measuring and delivering inputs

In many developing countries,

✦ Many decades of work on access and enrollment. Focus on inputs and outlays, not on outcomes. Government usually produces data on inputs and expenditures.

✦ Not much of a history of thinking about or doing much on the issue of children's learning. Assumption is that schooling will lead to learning.

✦ There is not much of a tradition or culture of measurement especially of outcomes. Neither is there a practice of looking at large scale evidence for informing policy.

✦ Large majority of parents of children currently in school are illiterate or have had very little schooling.

The challenge

Many different metrics and methods are available to assess learning outcomes at scale.
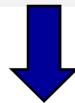
All of these have a common goal: to bridge the gap between policy and practice.

This means that they should bridge the gap between expectations and reality, in ways that are understood by policy makers, practitioners and others.
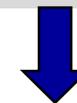
Learning assessment data needs to be understood and actionable. **Producing data does not guarantee action**.

Some factors to consider

Contextual factors and ground realities

Where? All children may not be enrolled in school. Many may attend unrecognized private schools or other kinds of schools. Daily attendance in school may be variable.

What? Learning outcomes for large proportions of children may be far below grade level.

How? Even after several years of schooling, many children may not have acquired foundational skills like reading.

Children may have no experience with written test formats like multiple choice test items

Decisions to be made

How to reach <u>all</u> children? School or household?

Test the curriculum or test children?

Children who cannot read cannot do written tests. Oral one-on-one assessment? Written tests in groups?

MCQs or open ended questions?

How to reach <u>all</u> children?

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Enrolment in many developing countries is approaching 100%.
But:

- Enrolment does not mean that children attend regularly.
- Children are enrolled in many kinds of schools. Not all schools are listed in government records.
- Some children may still be out of school & not enrolled.

If attendance is poor on the day of the assessment, school-based assessments will not be representative of <u>all</u> children.

If all schools are not listed in the sampling frame, sample-based in-school assessments will not be representative of <u>all</u> children.

Household-based assessment may be the ONLY method if ALL CHILDREN are to be the focus of education systems.

| ALL INDIA (Rural)	Year		
	2007	2010	2013
% children age 6-14 enrolled in school	95.8	96.5	96.7
% children age 6-14 in private school	19.3	24.3	29.0
Average Grade 1-5 attendance on day of visit	73.5	72.9	70.7

Source: Annual Status of Education Report 2013

Test the curriculum or test children?

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A growing body of evidence suggests that large proportions of children lag far below grade level.

However, many large scale assessments develop assessment tools based on the curricular expectations for a given grade or just one grade below.

Measuring skills and competencies only at grade level is not always useful for designing action.
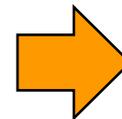
Tools should include tasks well below grade level in order to understand what children know as well as what they do not.

These considerations have implications for methods of testing, length of assessment & complexity of the tool(s).

% Children in Grade 4 who:	Citizen led assessments of basic learning. 2012						
	India	Pakistan	Kenya	Tanzania	Uganda	Mali	Senegal
Cannot do Grade 2 level subtraction	46.5	26.2	11.6	13.9	21.7	64.6	37.6
Cannot read Grade 2 level text	65.4	63.8	50.4	57.8	7.5	90.8	53.0

Example 1: Using large scale assessment data to identify next steps for action

Ability to do basic math at different levels, by grade (One on one assessment in basic arithmetic)

% Children who can:	End of Grade 2	End of Grade 4
Do 2 digit subtraction with borrowing	14.8	46.6
Do 2 digit addition without carry over but not 2 digit subtraction w/borrowing	21.5	24.9
Recognize 2 digit numbers but cannot do 2 digit addition	10.0	8.0
Recognize 1 digit numbers but not 2 digit numbers	42.5	17.3
Not yet able to recognize numbers till 9	10.4	2.5
Total %	100	100
Number of children tested	22424	22467

33% in Grade 4 need to learn to do basic addition & subtraction

53% in Grade 2 not as yet comfortable with numbers up to 100

Another 20% need help to recognize numbers till 100

Source: Data from May School Assessment in Bihar. May 2014. Collaboration of ASER Centre, SCERT & UNICEF

Example 2: Using large scale assessment data to identify next steps for action

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Grade 4. %Children able to do questions correctly (Pen-paper written assessment)			
Addition / Subtraction	2 digit	Addition (carryover): Numerical	69.8
	2 digit	Subtraction (borrow): Word problem	49.1
Multiplication	2 digit by 1	Multiplication: Numerical	60.2
	2 by 2	Multiplication: Word problem	30.1
Division	2 digit by 1	Division: Numerical	47.5
	2 by 1	Division: Word problem	31.1

Source: Data from May School Assessment in Bihar. Collaboration of ASER Centre, SCERT & UNICEF

The data shows that children's numerical ability is much better than their ability to solve word problems.

The difficulties with word problems could be from:
- Reading skills are poor
- Not sure exactly what operation to do.

Two action points emerge:
- Reading needs special focus and strengthening
- Oral discussion around math problems in class

The importance of reading

Reading

Table 4: % Children by class and READING level All schools 2013						
Std	Not even letter	Letter	Word	Level 1 (Std I Text)	Level 2 (Std II Text)	Total
I	47.3	32.3	12.6	4.4	3.6	100
II	23.1	33.4	20.8	11.8	11.0	100
III	12.7	25.0	22.2	18.5	21.6	100
IV	8.0	17.6	17.9	21.5	35.1	100
V	5.0	12.6	14.2	21.2	47.0	100
VI	3.0	9.0	10.8	20.1	57.1	100
VII	2.0	6.3	8.2	17.0	66.6	100
VIII	1.4	4.5	5.5	14.3	74.2	100
Total	14.1	18.5	14.4	15.8	37.2	100

How to read this table: Each cell shows the highest level in reading achieved by a child. For example, in Std III, 12.7% children cannot even read letters, 25% can read letters but not more, 22.2% can read words but not Std I level text or higher, 18.5% can read Std I level text but not Std II level text, and 21.6% can read Std II level text. For each class, the total of all these exclusive categories is 100%.

Source: Annual Status of Education Report 2013

The problem of children being unable to read is often invisible, because assessments assume that children can read.

Understanding children's reading levels is critical to the design of appropriate actions – both interventions and assessments.

If you cannot read then what should be done? Written tests or oral, one on one assessment?
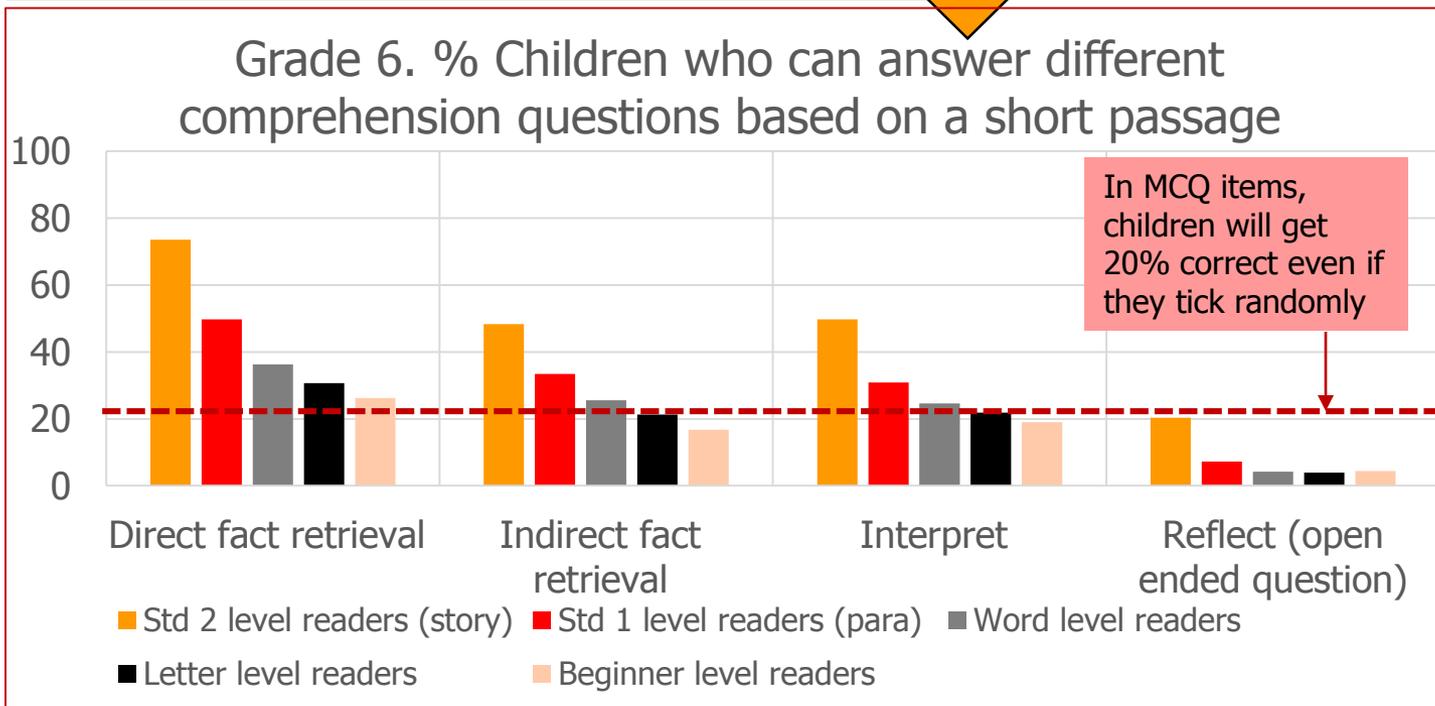
Evidence suggests that many children in primary school grades are struggling to read. Even in upper primary/middle school, reading is a problem.
But most large scale assessments are written tests administered simultaneously to a group of children.

Data shows:
Fluent readers (story level) do much better than others for all questions. Those who cannot read cannot really do most questions in a pen-paper test.
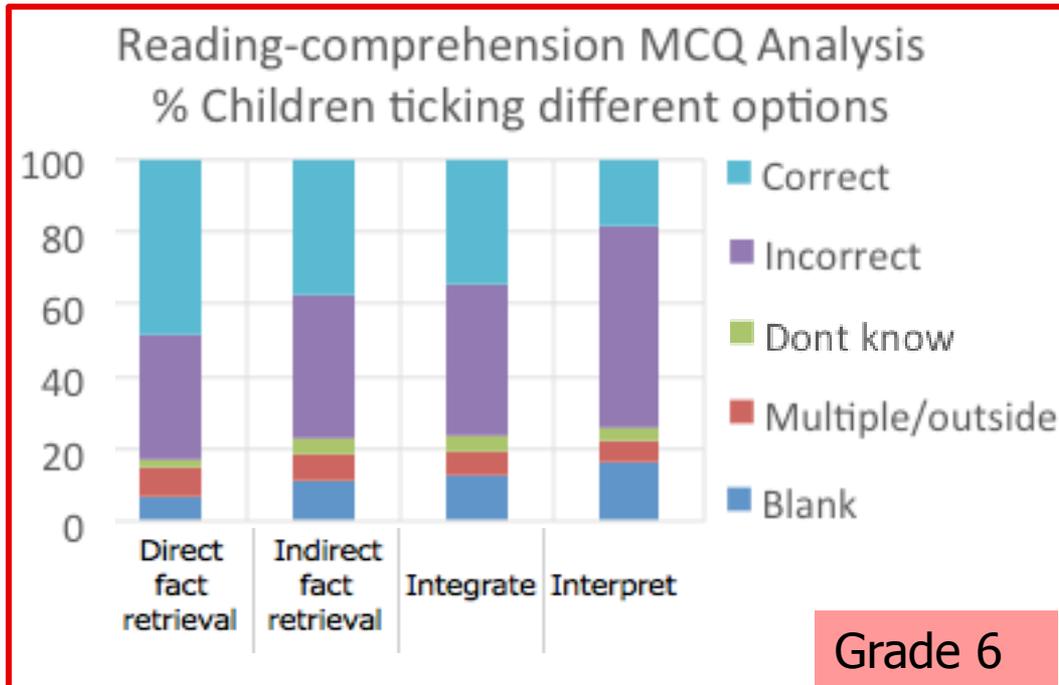
Reading must be assessed.

The only way to assess reading is by listening one on one to a child read.

This cannot be done in a group.

Grade 6. % Children who can answer different comprehension questions based on a short passage

In MCQ items, children will get 20% correct even if they tick randomly

Categories (x-axis): Direct fact retrieval, Indirect fact retrieval, Interpret, Reflect (open ended question)

Legend:
- Std 2 level readers (story)
- Std 1 level readers (para)
- Word level readers
- Letter level readers
- Beginner level readers

Source: Data from May School Assessment in Bihar. May 2014

Multiple choice or open ended?

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Reading-comprehension MCQ Analysis
% Children ticking different options

- Correct
- Incorrect
- Dont know
- Multiple/outside
- Blank

Direct fact retrieval | Indirect fact retrieval | Integrate | Interpret

Grade 6

Multiple choice questions are an convenient way to collect data on scale.
But in many countries, children have no experience with this format. So results need to be interpreted with caution.

In this example, % correct and incorrect responses vary by level of difficulty of the question.

But about 20% children don't attempt or tick multiple options or outside the boxes. 'Don't know' & multiple ticks do not vary by the question.
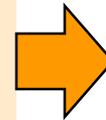
Do ~20% children not know the answer to the question? Or do they not understand what to do? Or are they unable to read the question? **Ground level action will depend on the answer…**

Using evidence to plan action

Grade 2: 53% children not comfortable with numbers up to 100

The ability to read and comprehend at least at the basic level (fact retrieval) is highly correlated with the ability to read fluently.

Grade 4: 27% children need to learn basic addition, subtraction

MCQ data for one fifth of Grade 4 children cannot be clearly interpreted

Grade 6: Children's basic concepts and their ability to do basic operations need to be strengthened.

Ability to read is higher in higher classes. But even in Grade 6 we do not have all children reading at Grade 2 level.

These kinds of assessments can provide clear pointers for policy action

- In teacher training
- In academic support
- In school organization

Examples:
- Group children by reading ability rather than grade for all or part of each day
- Dedicated teacher for Grades 1,2
- Focus on basic reading, math ability

Summary and concluding thoughts

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Assessment data needs to provide information that is **actionable**. Two key aspects to consider:

In order to identify and implement actions to improve children's learning, we need to **assess where children are today** and build from there, rather than assess where we think they ought to be.
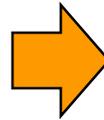
- Where are they physically? *-> Many are not regularly in school*
- Where are they relative to the curriculum? *-> Many are several grade levels behind*
- Where are they with respect to foundational skills? *-> Many have not acquired these, especially in early grades*

In order for evidence to lend itself to action, it needs to be **easily understood by those who need to act** – whether policy makers, teachers or parents.
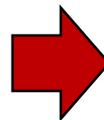
Evidence on learning often challenges people's assumptions about schools and schooling. What kind of data will make sense to policy makers? To teachers? Others?
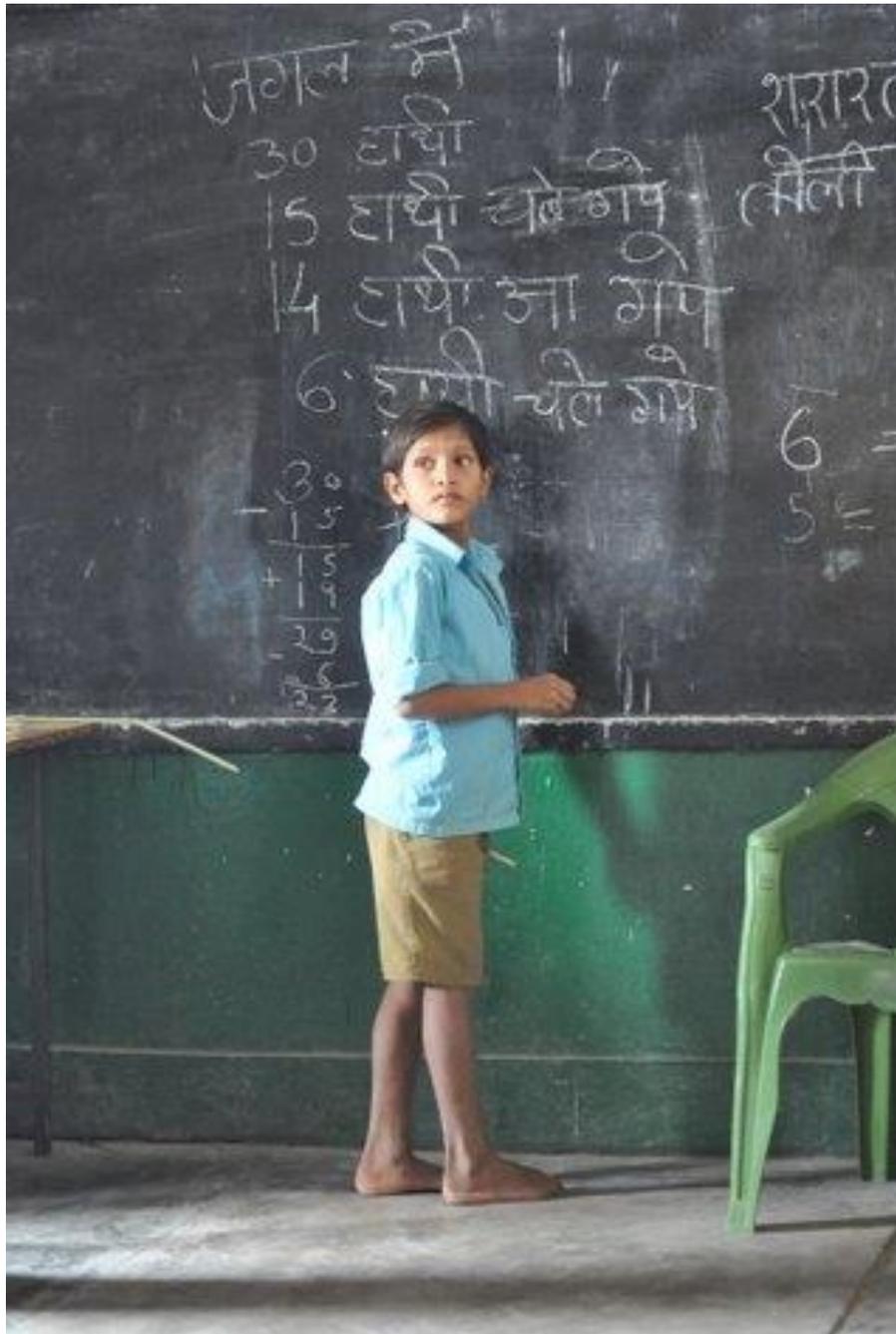
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