

ASER and learning profiles: The pace of learning is too slow

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One of the big advantages of the ASER approach of testing children out of school is that it can assess the performance of children at a wide variety of grade (and age) levels. Rather than seeing just a snapshot of how children at one grade do against some grade-based standard, the ASER approach shows the entire *learning profile* of what fraction of children in each grade are in which level of performance on literacy and numeracy. In the case of ASER this is easiest to interpret at the highest and lowest categories of performance, for instance what fraction of children can read a level 2 story and what fraction of children can do division of a one digit into a three digit number. The point I want to make about these learning profiles is that the differences across grades reveal important facts about the dynamics of learning, in particular the fact that progress is so slow that 4 out of 5 children who do not have mastery will fail to acquire mastery in an entire year of schooling. Let me explain using the overall rural results from 2010.

Table 1 starts from the numbers from last year's report on the fraction of children who can read at level 2 or do subtraction, both grade 2 curricular objectives. Many children finish grade 2 not having mastered these simple skills, which is not perhaps shocking. What *is* shocking is the bottom line for reading, which is that 75 percent of children (3 out of every 4) who do not acquire reading or arithmetic mastery at the "grade appropriate" level don't acquire it in the following year either, and 3 out of 4 of those who still don't master these skills won't get it even after another entire year of schooling. This implies that only 1 in 4 students is making progress across these very low thresholds of literacy and numeracy per year of schooling.

I'll explain this simple calculation using reading from grade 4 to 5. The fraction of students that could read Level 2 text in grade 4 was 38.1 percent and in grade 5 was 53.4 percent, so the proportion that could read increased by 15.3 percentage points. But many children already could read, so if we want to see what fraction of those who could not read acquired this ability, let's adjust this gain by the fraction who could not read in grade 4 which was 61.9 percent (100-38.1). So the gain from grade 5 over grade 4 as a percent of those who could not read

Table 1. Children gain slowly in skills even as they progress through grades—three out of four children who enter grade 3 or higher without a grade 2 skill leave without gaining mastery

Grade	Reading			Arithmetic		
	Can read level 2 text ^a	Gain from grade to grade	Fraction of those who did not learn ^b	Can subtract (or above) ^a	Gain from grade to grade	Fraction of those who did not learn ^b
1	3.4%			5.5%		
2	9.1%	5.7%	94.1%	17.1%	11.6%	87.7%
3	20.0%	10.9%	88.0%	36.4%	19.3%	76.7%
4	38.1%	18.1%	77.4%	57.4%	21.0%	67.0%
5	53.4%	15.3%	75.3%	70.3%	12.9%	69.7%
6	67.5%	14.1%	69.7%	80.1%	9.8%	67.0%
7	76.2%	8.7%	73.2%	84.3%	4.2%	78.9%
8	82.9%	6.7%	71.8%	85.4%	1.1%	93.0%
Total gain from Grade 3 to Grade 8		62.9%			49.0%	
Average gain, Grades 3 to 8		12.3%	75.9% (3 of 4 do not gain mastery in a year of instruction)		11.4%	75.4% (3 of 4 do not gain mastery in a year of instruction)

a. Data from ASER 2010 (Rural) report tables 4 and 6.

b. Formula is $100 - ((\text{gain from previous grade}) / (100 - \text{fraction that could do in previous grade})) * 100$.

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in grade 4 was 24.7 percent ($=15.3/61.9$). This implies that one of each four children who entered grade 4 not able to read at Level 2 passed that threshold of literacy during that year. But it also means that three out of four children who came into grade 4 not reading at a Standard 2 level progressed on to grade 5 without having learned how to read.

Overall this problem is exactly the same in arithmetic, with a slightly different pattern. More children pick up basic arithmetic quickly, so that by grade 3, 36.4 percent of children can do subtraction. But in the five additional years from grade 3 to grade 8 only 49 percent gain that level of arithmetic capability. This is because progress peters out and by grade 8, even though 15 percent still cannot do subtraction, there is almost no progress at all.

This formulation of the learning problem in Indian rural basic education comes from seeing the entire learning profile and has been a contribution of the ASER approach. The flat learning profile which is the result of most students making no progress in answering particular questions has now been replicated in studies in Andhra Pradesh by the APRest study and in the work of Education Initiatives which have asked common questions across grades (see Beatty and Pritchett 2012).

I also find this formulation of the learning problem—that three out of four don't learn enough to pass a low threshold in a year—the most stark and striking. Imagine you are a child who came to school with the hope and promise that getting an education could transform your and your family's future by opening up the opportunities that *learning* enables. You perhaps weren't "school ready" and so in grade 3 you still cannot read a simple (level 2) paragraph but you still have hope. But the odds are 3 out of 4 against you learning in grade 3. So now you are passed along to grade 4 as one of the 62 percent still not reading. You come again hoping that someone will notice, someone will help. Again the odds are against your hope, 3 out of 4 that you don't learn in grade 4 either. The result is that you could easily be one of the one in three children who complete lower primary schooling, passed through five entire years of schooling, having spent roughly 5,000 hours in school, still lacking the most fundamental of skills. And so, year after year, a dream deferred becomes a dream denied.

