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Establishing Benchmarks of Student Learning

EXECUTIVE SUMMARY

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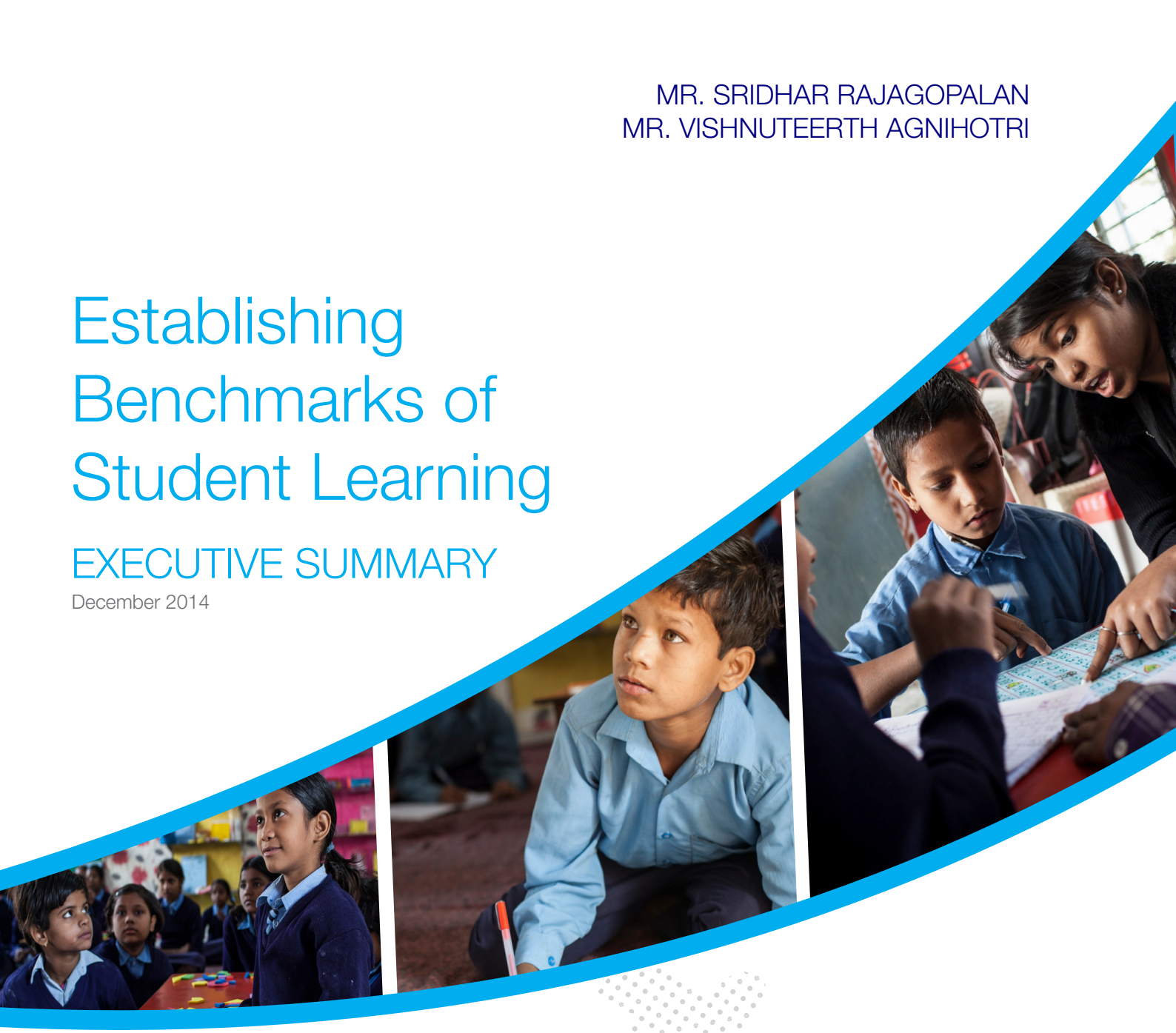

(2012 - 2013)

Michael & Susan Dell FOUNDATION

educational initiatives

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Introduction

There's a global expectation that if children spend time in school, they'll acquire at least some basic education—but in India as in many other countries around the globe—students don't have the luxury of expecting any single standard of education. Pratham's Annual Status of Education Report (ASER), an influential, non-governmental, India-wide survey of learning levels of primary school students, has demonstrated as much. "After a year in school, four in five [Indian] kids … have sat through an entire year of schooling and not mastered [basic reading]," says Lant Pritchett, a former World Bank economist and author of *The Rebirth of Education: Schooling Ain't Learning*. "For division, a simple division problem, only one in eight … learn to do that in a year of school. Seven out of eight [don't], after a whole year in school." [1]

The reasons behind this gap between time in school and lessons learned have little to do with will or willingness to invest in education, either at the governmental or the individual level. India's government and its people alike value education. The 2010 Right to Education (RTE) Act gave every child from age six to 14 a constitutional right not just to attend eight years of school, but to obtain a quality education. In the wake of RTE, enrolment rates have surged, with an estimated 97 percent of all school-age children now enrolled (regular attendance and drop outs still remain significant challenges.) [2] Perhaps more telling is the fact that enrolment at both government and affordable-private schools have both risen in recent years. The willingness of families at every income level, even the lowest, to pay for what they view as a superior education signals a major shift in priorities. Between 2006 and 2013, enrolments in affordable private schools among rural children ages six to 14 surged, from 13 to 29 percent.

Currently, it seems the country's commitment to education has reached new heights while the quality is lacking. However, significant improvement is possible – but only if stakeholders have more insights to employ while evaluating and implementing systemic change in the Indian education system.

In 2012, the Michael & Susan Dell Foundation commissioned *Establishing Benchmarks of Student Learning (2012-2013)* conducted by Educational Initiatives, a benchmark study of student learning in a variety of Indian schools, states, and grade levels. While both organizations focused past efforts on understanding grade-specific competencies, assessments and expected outcomes, efforts were constrained due to the lack of availability of a national standard or sample. The need for a comprehensive study of grade-specific learning levels of children across a wide cross section of schools in order to understand the current state of students' learning levels was recognized. The goal of the study was to give not only the foundation, but every interested party – policy-makers, funders, school leaders, social entrepreneurs, non-governmental organizations and others – a starting point for understanding what the gaps are that exist in our system today and the quantify that which need to be bridged.

The critical data collected is far more than a status report. Systematic, accurate evaluation provides actionable insights to improve student outcomes and insures a pragmatic approach to leveraging finite resources to intervene and improve classes and districts.

This study has unveiled findings that will advance the thinking around classroom instruction and academic quality and give light to priority areas to address across Indian schooling systems. The

[1] http://economix.blogs.nytimes.com/2013/10/18/the-gap-between-schooling-and-education/

[2] http://www.economist.com/node/21563418

evaluation clearly establishes that the academic performance of all of the Indian students tested, whether attending government or private schools, fell short of international averages, and a majority of the students attending APS and GOV schooling systems perform below grade-appropriate benchmarks in various competencies in maths and language. In looking at learning levels across school categories, the analysis shows that large gaps do exist between the three and that the chasm widens as students advance to higher grades. It's interesting to learn, however, that the variation of the students' performance at each grade level varies more at the high fee private schools than at the affordable private schools and government schools.

This study measured the performance levels of schooling systems in three categories, but the research suggests that the government schools category cannot be viewed as a singular, unified system. In some cases GOV districts performed ahead of the APS districts, though the APS category students' collective performance was higher overall. Significant variation at the district level will require stakeholders to digest the location-specific testing data and intervene as appropriate for each individual district.

One result from the study that cannot be overstated is that background factors impact student learning. Factors such as a student's own perception of his or her performance level and whether the child feels school is fun and useful played a substantial role in the testing results.

The benefit of Michael & Susan Dell Foundation's work is not meant to be limited to the foundation's grantees. This study—like so many other grants—stems from an intent to catalyze systems level improvements that extend well beyond the reach of the foundation's direct investments.

Much of India's economic potential depends on its ability to improve educational quality for all children. An in-depth understanding of the set of outcomes that students are expected to achieve at the end of a grade provides a needed baseline for policymakers, funders, and other stakeholders interested in improving educational quality to build on. Systematic improvement depends on establishing a reliable educational benchmark. Only with that benchmark in place can we meaningfully assess and shape progress for all our children, in all states, school types and demographics. This study, *Establishing Benchmarks of Student Learning*, is an initial point of reference.

Background

As the first study of its kind in India, *Establishing Benchmarks of Student Learning* represents an early, scientifically sound attempt to give all stakeholders the power to make data-driven decisions to improve the students' learning outcomes. The study provides a data-driven understanding of the actual learning levels of children in elementary schools (grades 3-7) in India in a range of school systems that to different socioeconomic, linguistic, and geographic groups. It also synthesizes the data to recommend performance benchmarks for improvement. We hope that stakeholders will find these benchmarks useful to set program targets, and to evaluate the change in academic quality across programmes and intiatives across different school categories.

Quantitative benchmarks researchers were looking to establish included:

1. What is the difference in learning achievements across school categories, grades and subjects?
2. How are student scores distributed in each school category and are there different patterns in different school categories?
3. What is the extent of variation in performance across districts?

Using qualitative measures, researchers sought to understand:

1. What are students at different levels of ability able to do/ not do? How does this vary across school categories?

2. What is the variation in performance between conceptual understanding and procedural/ fact-based questions?
3. What are common misconceptions and common errors? How do these vary across class levels?
4. Where do students of each school category stand compared to their international counterparts?
5. What background factors seem to be associated with learning?

Finally, researchers sought to link the performance of a district to the 'benchmark scale'. The goal was to address questions such as:

1. Where does a given system stand against the urban government school average?
2. Where does a given system stand against the affordable private schools average?
3. Where does a given system stand against the high fee private schools average?
4. How does the distribution of a given system compare with the distribution of another school category?

Study Overview

To make the study relevant for stakeholders nationwide, tests were administered to students in classes 3 through 7 across three different types of urban school systems -- government schools (GOV), affordable private schools (APS) and high-fee private schools (HFP) across six states. The government schools were selected on the basis of their performance in the Educational Initiatives' Student Learning Study (2009) [3]. The affordable private schools and high-fee private schools included were located in Delhi, Bangalore, Ahmedabad, Hyderabad, Dharwad, and Rajkot, the cities that represent the two most urban districts in each of the six states where the government schools were located. [4]

Tests were administered from January to April of 2013. Approximately 75,000 students from class 3 to class 7 were tested as part of the study-- 45,000 students from government schools, 15,000 from affordable private schools, and 15,000 from the high-fee private schools.

Depending on grade, students were given 75 to 100 items (questions) in language and maths. This helped us create a large pool of information on student performance across different competencies. A 'common minimum grade-level curriculum' was arrived at in two ways: first, by performing an analysis of the curriculum and textbooks of the participating states, and second, by obtaining input from qualified subject matter experts for items assessing additional competencies. The grade appropriateness of these items was validated based on data from past assessments. Around 15% of the items tested in lower classes were also tested in higher classes, with the aim of studying how learning levels change across classes.

The study also collected background information about students' school and home environments using a set of questionnaires to identify factors associated with learning. Various statistical techniques such as regression were used to understand how these factors affect student learning. Additional details of the methodology are available in the body of the report.

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[3] 'Student Learning Study' was a study conducted by EI and supported by Google in 2009 in 18 states of India to understand learning levels in Government schools. This study was used as the basis for selecting states that would represent the country given its comprehensive nature. For more information, the full report can be accessed on the EI website.

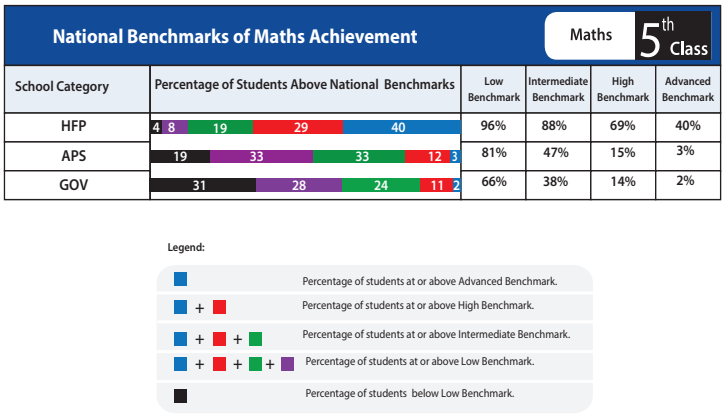
[4] Since there is no available database of affordable private and high fee private schools in different states or cities in India, a sampling based on a random selection from a comprehensive list of schools was not possible (unlike in the case of government schools, where this was done). The schools were instead selected from the data sourced from EI's internal database and other partner organisations. Care was taken to cover some Tier 1 and Tier 2 cities to ensure an adequate representation of affordable private and high fee private schools.

Key Findings

The majority of students in affordable private schools and government categories perform below grade-appropriate benchmarks on various competencies and HFP schools perform significantly better.

For example, the scale anchoring analysis in class 5 maths (Figure 1) shows that 88 percent of students in high-fee private schools are at or above the 'intermediate' proficiency level (50th percentile) while only 38 percent students in government schools are at or above this level. (An example of 'intermediate' proficiency at the grade 5 level is the ability to multiply a three-digit number by a two-digit number.)

Figure 1: Proportion of GOV, APS and HFP at different proficiency levels



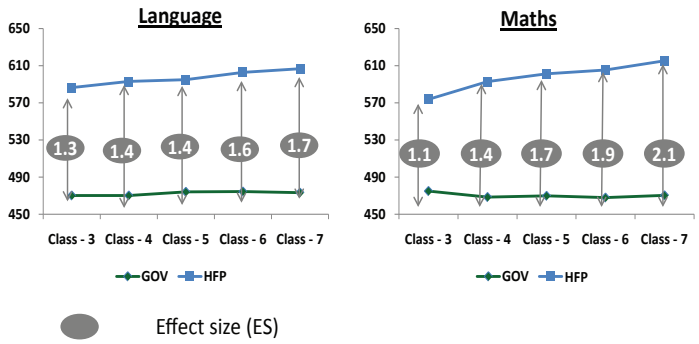
Learning levels among students in the same grade vary across every school category—government, affordable private and high-fee private.

The differences between the average performance levels of HFP and GOV range from an effect size of 1.0 SD to 2.1 SD [5] across all classes and subjects. APS category is ahead of the GOV category, with an effect size of 0.3 to 0.4 SD in most classes and subjects.

The gap across school categories widens at higher grade (or class).

The differences in the average scores of high-fee private schools and government categories increase consistently from class 3 to class 7 in both language and maths. Figure 2 below summarizes the performance of both categories of schools in language and maths in all the tested classes. It shows that gap increases from 1.3 SD in class 3 to 1.7 SD in class 7 in language; and increases from 1.1 SD in class 3 to 2.1 SD in class 7 in maths.

Figure 2: Performance of GOV and HFP in all classes (or grades) and subjects

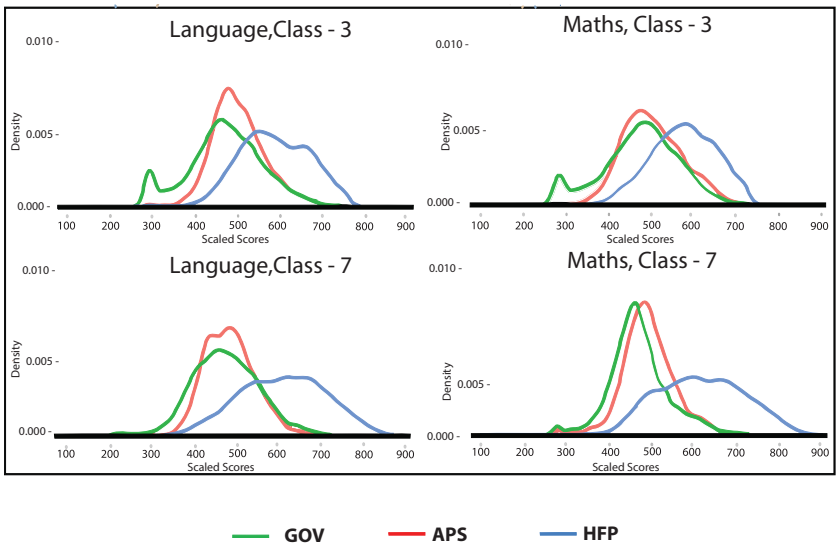


[5] The research literature considers 0.25 SD as a significant difference for large populations

Performance outcomes among students in government and affordable private schools are more uniform, while in the high-fee private school category outcomes show a wider variation.

Most of the students in the APS and GOV categories are clustered around average performance levels, i.e. the student performances within the categories are homogenous. Compared to this, student performances in the HFP category show large variations. Performance distributions for class 3 and class 7 are shown in the charts below. Performance becomes more uniform for the APS and GOV category as we move from lower grades to higher grades. In contrast, variations in the HFP category increase as we move to higher grades.

Figure 3: Performance distribution across school categories



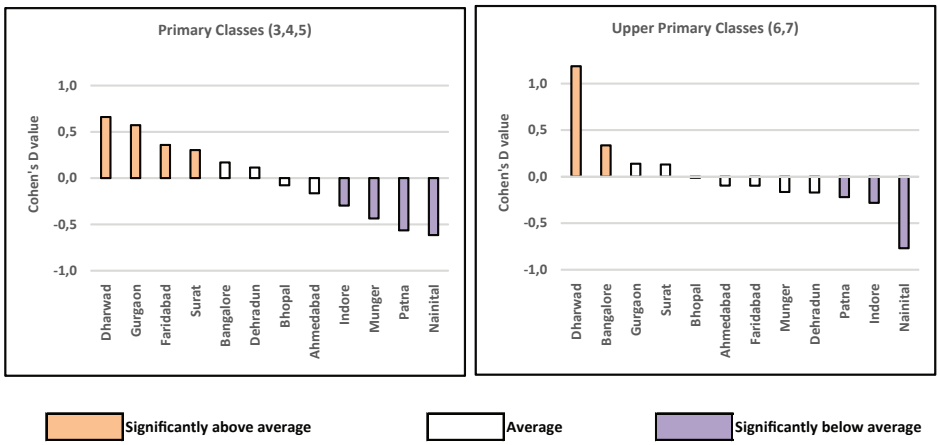
The performance levels of students in all categories are lower than international averages.

In order to compare the learning levels of Indian students with international standards, a few items in the tests were selected from internationally recognized assessments such as the Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading and Literacy Study (PIRLS) for grade 4 students. The analysis showed that the learning levels of all three school categories are below the international average in class 4 in both language and maths, and the gaps are larger in language than maths. Some grade 4 PIRLS/TIMSS items were also used in higher classes. The performance of GOV and APS categories in higher grades is also lower than the average performance of international students of grade 4 on these items.

The government category itself cannot be viewed as a single system.

The differences between the top and bottom performing districts in each class and subject are very large with a range of 1.0 SD to 2.0 SD effect size. Dharwad, Bangalore, Gurgaon, and Surat perform above the GOV category average, whereas Nainital, Patna, Munger, and Indore are below the GOV average. The trend in primary classes is different from the trend in upper primary classes. Figure 4 below summarizes the differences in the performance levels of different districts in primary and upper primary classes.

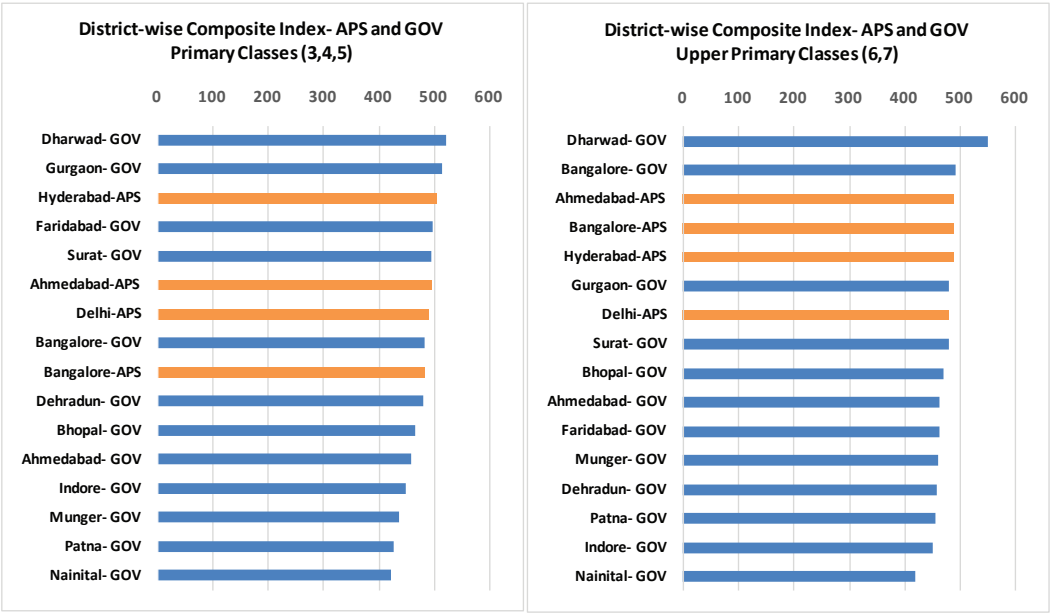
Figure 4: District-wise performance of GOV category



Some of the government cities/ districts are ahead of the affordable-private school cities/ districts, even though the affordable private category has a higher overall performance.

In fact, within the government category, there are some districts such as Dharwad that have performance levels closer to the high-fee performance category. Figure 5 shows the district-wise performance of the government and affordable private schools category.

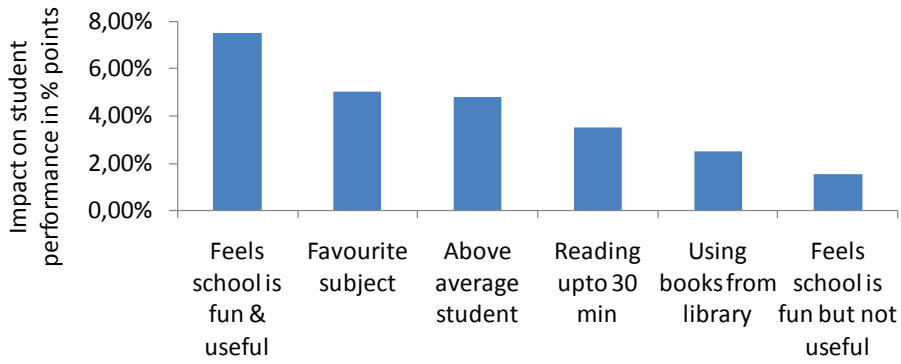
Figure 5: District-wise performance of GOV and APS category



Background factors influence student learning outcomes.

For instance, when students perceive themselves as being good at studies and think of school as a place of fun and learning, they demonstrate higher performance. Spending 30 minutes each day reading material other than textbooks is associated with higher performance. School infrastructure and available learning resources also have a positive correlation with the school's performance in lower grades; but this correlation weakens as we move to higher grades. The key factors that appear to affect learning levels significantly are summarized in Figure 6 below.

Figure 6: Impact of different factors on student performance



Summary

Until there's a shared understanding, at a very specific and detailed level, of students' baseline performance in a wide variety of schools, we cannot meaningfully seek to improve their outcomes. The Michael & Susan Dell Foundation tasked Educational Initiatives with helping to measure, at a broad and unprecedented scale, how children in different school systems, states and economic circumstances perform.

We hope this study can be put to work to by policymakers, funders, and other stakeholders to devise programmatic, sustainable, and scalable remedies to the precise challenges identified.

We offer these findings to the field in the spirit of inquiry, of starting a conversation, of sharing knowledge, and of helping Indian children – and India itself – to achieve the greatness of which it's capable.