

Detailed Assessment Report (NGOs and Private Organizations)



सत्यमेव जयते

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Table of Contents

1.	Introduction	5
1.1.	Structure of the Report	6
2.	ASER Centre, Pratham Foundation (New Delhi).....	7
2.1.	Introduction to Pratham and the ASER Centre at Pratham	7
2.2.	Key insights on School Education	8
2.3.	Possible opportunities to apply ICT to improve School Education	9
2.4.	People Met.....	12
3.	Centre for Civil Society (New Delhi)	13
3.1.	Introduction to Centre for Civil Society (CCS).....	13
3.2.	Key insights on School Education	13
3.3.	Possible opportunities to apply ICT to improve School Education	14
3.4.	People Met.....	16
4.	Akshara Foundation (Bangalore).....	17
4.1.	Introduction to Akshara Foundation	17
4.2.	Karnataka Learning Partnership	17
4.3.	Key insights on School Education	23
4.4.	Opportunities for ICT to improve School Education	24
4.5.	Challenges in the application of ICT in School Education.....	26
4.6.	Other Points.....	27
4.7.	People Met.....	27
5.	Eduvisors Research and Consulting (Gurgaon).....	28
5.1.	Introduction to Eduvisors	28
5.2.	Key Insights on School Education	28
5.3.	Possible opportunities to apply ICT to improve School Education	30
5.4.	People Met.....	31
6.	Edutor Technologies (Hyderabad).....	32
6.1.	Introduction to Edutor Technologies	32
6.2.	Key insights on School Education	32
6.3.	Possible opportunities to apply ICT to improve School Education	32
6.4.	People Met.....	33

7.	INTEL@School.....	34
7.1.	Key insights on School Education	34
7.2.	Possible opportunities to apply ICT to improve School Education	34
7.3.	People Met.....	34
8.	UNICEF, Patna.....	35
8.1.	Key insights especially regarding school education in Bihar	35
8.2.	Possible opportunities to apply ICT to improve School Education	35
8.3.	People Met.....	35

1. Introduction

As part of the process of developing the Core Scope document, NISG has undertaken a detailed assessment study to better understand the School Education sector in India and to do a preliminary identification of opportunities for leveraging ICT to improve the sector. The detailed assessment study involved interactions with four principal categories of participants in the School Education ecosystem in India:

1. *State governments*: NISG interacted with state governments through focused visits to states to interact with various state government education agencies (states selected being Kerala, Gujarat and Bihar), three regional workshops (planned at Hyderabad, Kolkata and Chandigarh) and a final national level workshop with participation from all states.
2. *Various central government education units* such as NUEPA, NCERT, CBSE, NIOS, NCTE, KVS, NVS, KGBV, etc.
3. *Non-governmental organizations* (NGOs) working in the area of School Education
4. *Private business organizations* working in the area of School Education

This report focuses primarily on interactions with NGOs and private business organizations. This report chronicles the interactions of the NISG team with NGOs and private enterprises and abstracts learning from these interactions. It covers interactions with the following organizations:

Non-government Organizations

1. ASER Center, Pratham Foundation, New Delhi
2. Centre for Civil Society, New Delhi
3. Akshara Foundation, Bangalore
4. UNICEF, Patna

Private organizations

1. Eduvisors Research and Consulting, Gurgaon
2. Edutor Technologies, Hyderabad
3. INTEL @ School

1.1. Structure of the Report

Starting from Chapter 2, each chapter focuses on the interaction with one organization / department.

Learning from each of the above interactions have been organized along the following lines:

1. Introduction to the organization
2. The insight into School Education that they provided
3. Their thoughts on potential application of ICT in order to enhance outcomes in School Education
4. Appendix, listing the names of the people met and any documents provided by them

2. ASER Centre, Pratham Foundation (New Delhi)

2.1. Introduction to Pratham and the ASER Centre at Pratham

About Pratham: Pratham is the largest non-governmental organization working to provide quality education to the underprivileged children in India. Pratham was established in 1994 to provide pre-school education to the children in the slums of Mumbai city. Since then, the organization has grown both in scope and geographical coverage. Their programs are designed to ensure that:

1. Enrollment in schools increases.
2. Learning in schools and communities increases.
3. The education net reaches children who are unable to attend school.
4. Models are replicated and scaled up to serve large numbers of children to achieve a large scale impact.

More details at www.pratham.org

About ASER Centre: ASER Centre was established in January 2008 as a specialized, independent unit within the Pratham network. Every year, the ASER Centre publishes the Annual Status of Education (ASER) report. ASER is the largest household survey undertaken in India by people outside the government¹. It annually measures the enrollment as well as the reading and arithmetic levels of children in the age group of 6-14 years. Its twin objectives are to continue to implement ASER and related assessment activities in the social sectors, and to build the capacity of individuals and organizations across the country to undertake similar initiatives. It is an attempt to institutionalize and strengthen the design and process of ASER and ASER-like initiatives.

ASER has become an important input in the educational policies of both the Central and State governments. The findings of the survey have been referred to in the approach paper to the 11th Planning Commission and several state governments use the findings to define their educational programs each year. ASER Centre's senior team leaders are members of important policy making bodies both at the Central and State levels, including the Governing Council of the Sarva Shiksha Abhiyan.

More details can be found at www.asercentre.org

¹ ASER is carried out by a local organization or institution in each rural district in the country, using a common set of tools and a common sampling frame. In 2008, ASER reached over 7,04,000 children in 16,198 villages in 564 rural districts in India. More than 32,000 volunteers from NGOs, colleges and universities, youth and women groups participated in this effort.

2.2. Key insights on School Education

1. An MMP such as this can be used to transfuse ideas from advanced states to all states. For example, Gunotsav in Gujarat is something that can be learnt from. As part of Gunotsav, government officials from the state visit government schools, interact directly with students and teachers and get firsthand information on status-quo. On an average, every school is visited once in three years.
2. Data collection can always be improved, but what is also important is how we are using the data that is available. For example, there are many complaints about DISE, which has basic data on schools. It may not be great, but what is there is also not being used adequately. There is significant amount of data available that is not adequately used for analysis and action.
3. Assessment (Continuous Comprehensive Evaluation (CCE)): designing, enabling and executing meaningful CCE is a central challenge of the system. Currently CCE frameworks are generally complicated. There is significant scope to simplify them and make them more effective and useful. Linking CCE to other Teaching-Learning processes should be well-conceptualized.
4. Teacher Eligibility Tests (TET): this is now a national requirement, and is also a challenge. Many individuals qualified as B. Ed., are failing TETs. Addressing this issue is a challenge in improving teacher capacity.
 - a. *Education Initiatives* (www.ei-india.com) is working on Assessment Studies. They have put together diagnostics tools for schools.
5. Currently the vision of law envisages linkages between teacher eligibility, continuous training and school development plan from each school.
6. Private school advantages:
 - a. Parent self-selection: most of the parents who send their children to private schools are generally interested in their child's education and follow-it up regularly and closely.
 - b. A significant proportion of private school children attend tuitions
 - c. Teachers in private schools have a better chance of focusing on classroom teaching and education (and are generally not distracted by things such as transfers and postings)
7. Model RTE guidelines for Gujarat also include tracking private school children for learning outcomes

8. Why low learning outcomes among children?
 - a. There is little help at home for a significant number of children attending state government schools; it has been found that help at home makes a significant difference
 - b. Also, undiagnosed, unsupported and automatic promotion from one class the next without any remedial action for poor performance is another reason.
9. Most fundamentally, to sum it up, we have 2 crises looming in the school education sector:
 - a. Learning crisis for students
 - b. Capacity crisis for teachers

2.3. Possible opportunities to apply ICT to improve School Education

1. Key application of ICT in School Education can be in collecting data and:
 - a. Using current data to plan for the following year and future in general
 - b. Use the data to gain insight and use it to redesign systems to make them more effective
2. Integration with Aadhaar can be a powerful way to improve data collection and subsequent analysis. But details will have to be worked out (for example, how early can fingerprints of children be collected and considered reliable for identity authentication?)
3. In order to meet goals set by the RTE, there is a great need to enhance capacity of schools and teachers. Using ICT can be one good way to enhance such capacity. It would be very helpful to train teachers adequately and make them comfortable with ICT. Teachers comfortable with using ICT are always more likely to use these tools in teachers their class in suitable ways.
4. Leverage for education enabling technology (media) platforms: the key here is infrastructure. Plan for capabilities 10-20 years down the line.
5. Assessment (Continuous Comprehensive Evaluation (CCE)): designing, enabling and executing meaningful CCE is a central challenge of the system. ICT can be used to simply, enable and execute CCE.
6. Teacher Eligibility Tests (TET): once TET system is conceptualized well it could be enabled using ICT.

7. ICT can be used to scale up content delivery methods. For ex., classroom streaming on cell phones.
 - a. Ex. *Better Marks* (German Math teaching tools) are considered effective tools
 - b. In Andhra Pradesh, TV and radio have been effectively used for teaching purposes up to cluster level. They also have interactive sessions.
8. Currently in most places, existing data is organized along different levels of schooling (primary, secondary, etc.) and there is no transfer of data from one system to another. ICT can be used to track students and their data across levels. For examples, SSA data must be automatically transferable to RMSA data. Unless this is done, there will be little scope for remedial action at the new (higher) stage.
9. In order to address the problems caused / accentuated by the undiagnosed, unsupported and automatic promotion from one class to another: technology can help by putting in place individualized pace of learning for different students.
10. Teacher training is one area where ICT can be used significantly.
11. Independent and reliable certification programs can address learning problems to some extent and these can be enabled and executed through ICT:
 - a. National open school (distance): this can be improved to make it good and valued (and ICT can help achieving that)
 - b. This can be supplementary to school (and hopefully not tied to a person's age)
 - c. If this can result in a strict, strong, independent, industry-recognized certification, it can help a lot (such as SAT, GRE, CA certification, etc.)
 - d. They can also be providers of good content
 - e. This enables the delinking of *training* and *certification*. National Open School is an existing platform that can possibly be strengthened to achieve this. A school need not do both. A school can teach and someone else can certify. This system will help in keeping assessments independent and therefore more reliable when it comes to using assessment data to make suitable interventions in the learning area (in schools).
12. A few examples of individuals / organizations doing useful work in the area of education:
 - a. iDiscoveri: they have developed *lesson plans* for teachers. They claim that usage of these lesson plans has improved learning outcomes among the lowest 50% performers. This is working in low-cost private schools as well. Include assessment, material and training.

- b. Pratham's Talk Centre ("*Shiksha for Shiksha*"): most of Pratham's grassroots workers are unpaid volunteers. So they are instead compensated through training that is useful to them. Ex. Spoken English. And these are delivered using ICT. Ex. A "talk centre" (a call center in terms of operations) calls volunteers and helps them practice spoken English.
- c. *Team Lease* is an organization that is working in this area, but they are working at a slightly higher / later level: dealing with the weak links in education that are impacting employment.
- d. Private ICT-based education service providers such as EduComp can be useful to talk to
- e. Akshara Foundation in Bangalore is doing good work in primary education
- f. Speaking to functionaries in DFID, UNICEF may also be useful. Apart from work they may be doing in India, they can provide a view of work that is being done elsewhere in the world.

13. **Summary:** the key areas to be focused for ICT intervention can be summarized as follows:

- a. Teacher capacity building
 - i. Using Education Training and Assessment software (CBT) for teacher training
 - ii. Digital Learning Material / Teaching Aids on Learning Resource Hub
 - iii. Providing Lesson Plans with content designed for the curriculum
 - iv. "Talk" Center for languages
 - v. Sharing Best Practices – Portal or delivered as Video Clips on Phone
 - vi. Customized Teacher Training based on feedback from analysis of CCE Assessment Data – CCE formats should also be simplified
 - vii. In-service Assessment
- b. Student learning
 - i. Enable Customized Pace of Learning based on the Student's assessment
 - ii. Better Platform for NIOS initiatives
 - iii. Libraries and Digital Content
- c. Data analysis to provide inputs for feedback and planning
 - i. Enabling efficient collection of the data and analysis of the same
 - ii. Analyze the TET data
 - iii. Enabling Implementation of RTE Act – Accessibility, School Development Plans
- d. Evolve mechanisms for open schooling through platform such as NIOS (and delinking teaching/learning and assessment)

2.4. People Met

Person met: Dr Rukmini Banerji, Director, ASER Centre

Documents received: Annual Status of Education Report (Rural) 2011 (Provisional)

3. Centre for Civil Society (New Delhi)

3.1. Introduction to Centre for Civil Society (CCS)

About CCS: The Centre for Civil Society is an independent, non-profit, research and educational organization devoted to improving the quality of life for all citizens of India by reviving and reinvigorating civil society. They approach it by trying to change people's ideas, opinions, mode of thinking by research, seminars, and publications. They are a think tank ("ideas organization" as they refer to it) that develops ideas to better the world. Their aim is to usher in an intellectual revolution that encourages people to look beyond the obvious, think beyond good intentions, and act beyond activism.

More details at <http://www.ccsindia.org>

Their flagship program is the "School Choice Campaign" and they are also doing significant work in the area of RTE.

School Choice Campaign: CCS's flagship project, the School Choice Campaign (SCC), which champions the "Right to Education of Choice", was launched in 2007 and is a campaign to bring about the much-needed reforms in the system of school education in India today using the three pronged approach of *Education Vouchers, Regulatory Reforms and Encouraging Edupreneurs*. School Choice is a policy reform idea developed to increase the involvement of parents in responsibly schooling their children by giving them ownership of the task. Based on education vouchers as a mode of funding for the schooling of needy children, School Choice is also designed to reduce disparity in the quality of schooling offered by the government and increase transparency and efficiency.

More details at <http://www.schoolchoice.in> and <http://www.righttoeducation.in/>

3.2. Key insights on School Education

1. The three main areas that need to be tracked / managed for effective performance are:
 - a. Student learning
 - b. Teacher performance
 - c. Effective and efficient use of funding / financial resources
2. Key challenges / suggested focus areas:

- a. Student tracking (including leaning)
 - b. Linking student learning to teacher performance
 - c. Tracking and managing investments and effectiveness of funds in the education system
3. Bringing in reform in the education system to focus on student learning and teacher capacity:
 - a. It may be useful to study examples from other countries. Ex. No child left behind program in the US.
 - b. Study the “Race to the Top” program in the US. The federal government earmarked funds for education, to be disbursed against specific proposals made by state governments. And all data regarding the implementation of the program is displayed for all to see. This has resulted in states competing with each other for funds and this further has resulted in states coming up with education reforms to utilize the funds.

3.3. Possible opportunities to apply ICT to improve School Education

1. Student tracking: movement of students has to be tracked: school to school, district to district and also state to state if necessary. And this, along with the performance of the student.
2. Linking students’ performance with teacher capacity: If this has to be done, the value added by a teacher to a student has to be measured (i.e., the difference between learning level of a student before a student started in a teacher’s class and when the student is graduating from that class). Therefore from a research and accountability point of view, information on which teacher taught what subject to a student may have to be tracked.
3. RTE Implementation:
 - a. Tracking 25% rule in private schools:
 - i. Tracking the student: there are various difficulties, but in order to do this, one needs a reliable student identity system. Using *Aadhaar* is one option, but there could be several difficulties such as the development of reliable fingerprints for school going children. Some kind of a smart card system may be an alternative that can be considered.
 - ii. Delivery of funds (reimbursements of fee) to private schools

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- b. Mapping students and schools for the 25% rule: some of the challenges include:
- i. There might be some localities in a city / town where the number of private schools is high (ex. South Delhi is one such area, where the number of private schools is high and they are also considered very good schools) while the number of underprivileged children live in other parts of the city (in case of Delhi, one may not find many underprivileged children living in South Delhi; instead many may be found, for example, in North Delhi or West Delhi, for example). Are there ways to address this imbalances using technology?
 - ii. In case the number of applications is higher than the number of vacancies in a school, there must be a system to facilitate the lottery mechanism that will determine selection. Given the locality balance issue discussed above, it may make sense to centralize such lottery systems in a city and design a single window application mechanism for all schools in a given town / city / area. This could be enabled by ICT. This will help in bringing down possible corrupt practices.
4. School level assessments, when executed properly, can have significant impact on the performance of schools and teachers. For example, linking student assessments, teacher performance and parental reporting / SMC proceedings (and potentially, even third party independent assessment of schools). ICT can be used to develop platforms to make this happen. Perhaps on a platform that enables school and community participation. (For example, an extension of a platform such as Kerala's "SchoolWiki")
5. School system MIS (especially focusing on funding / financial information) to be done at different levels – city, state, MHRD, etc. To understand what portion of funds are being spent on what activities at what levels; and how these expenditures are mapping against desired outcomes of the projects they are being spent on. If done, there will be the benefit of knowing the effectiveness of government funding at the State and MHRD level. This analysis also helps address the question of "per-child funding" that is central to the implementation of the 25% rule in RTE. There is little data available on this front presently. DISE collects data for government and aided schools. There is the gap of information from unaided schools if one wants to analyze the complete system.
- 6. Summary:**
- a. Fundamentally, to have a big picture perspective, the most important thing is to collect accurate data at two levels:

- i. Student level
 - ii. School level (teachers, infrastructure and funding)
- b. At each level, the data must be analyzed at student , school and system (different geographical units- Town, District, State .Country):
- i. What questions need to be answered
 - ii. How does this data answer these questions and is more data required?
 - iii. How should this data be collected?
- c. How these answers can be interpreted to determine remedial action to improve the overall system – student learning, teacher capacity and proper utilization of funds.

3.4. People Met

Person met: Dr Parth J Shah, President, CCS

4. Akshara Foundation (Bangalore)

4.1. Introduction to Akshara Foundation

Akshara Foundation is a Bangalore-based Public Charitable Trust with the mission to ensure that every child is in school and learning well. Established in the year 2000, Akshara Foundation has a range of programs that provide multiple solutions for universalizing elementary education.

Akshara is a part of the Pratham Education Initiative and has replicated Pratham's approach of comprehensive, scalable, replicable and cost-effective education solutions. Akshara works in Bangalore, and many other parts of the state through its close partnership with the Education Department of the Government of Karnataka and the different school administrations.

All Akshara programs are child-centric and are designed to ensure that:

- Enrollment in schools increase
- Dropout from schools decrease, and
- That children's learning outcomes and overall development improve

Akshara's initiatives focus on pre-school and primary school level and their key programs include the following:

- The Preschool (Balwadi) Programme
- In-School Programmes
- The Library Programme
- The Karnataka Learning Partnership and the Capacity Building Programme.

More details can be found at <http://www.akshara.org.in>

4.2. Karnataka Learning Partnership

Of the above programs, *Karnataka Learning Partnership* (KLP), anchored by Akshara Foundation is quite relevant to the School Education MMP.

About KLP: The Karnataka Learning Partnership is a public platform where all the stakeholders involved in primary education can participate and contribute to the cause of ensuring better schools and education for all children in Karnataka. This effort envisages a system where a network of non-profits working across multiple verticals – education, health, nutrition, etc. – will bring their data together to

present a factual assessment and this will be used to galvanize community led ownership of the public schooling system to drive change.

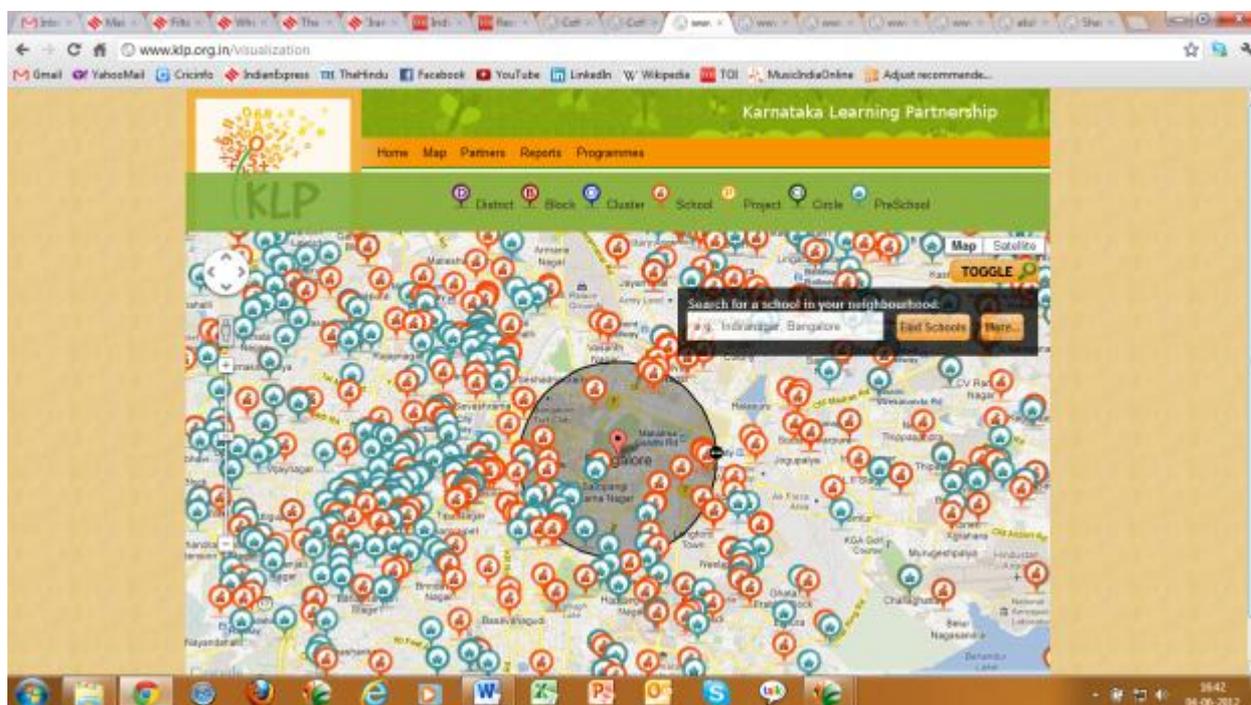
Akshara Foundation is anchoring this effort on both ends of the equation – by building a network of non-profit organisations, creating a technology platform for them to share data and hosting a common public platform to engage communities and citizens through multiple channels, both offline and online. They have built a module to allow community members to voice their opinions – this model is called “*Share-Your-Story*” and draws the average citizen to visit schools and anganwadis and respond with their comments. The programme data and the Share-Your-Story component can be seen at <http://klp.org.in/visualization>

The platform, in its current form, does not yet include some important stakeholders such as the parents who send their children to government pre-schools and primary schools. It also recognizes that current systems are not optimal when handling specialized expert information, such as education assistance and community members make their best guess, unsupported by external information sources. Akshara Foundation is trying to address these issues and will use technology tools such as mobile phones to address these gaps. Their ultimate aim is to share their resources with communities and to collect their feedback and experiences with the government education system so that those in government can gear up to meet the challenges based on data and opinions from the communities.

A few snapshots of the KLP technology platform: <http://www.klp.org.in/> (Home Page)



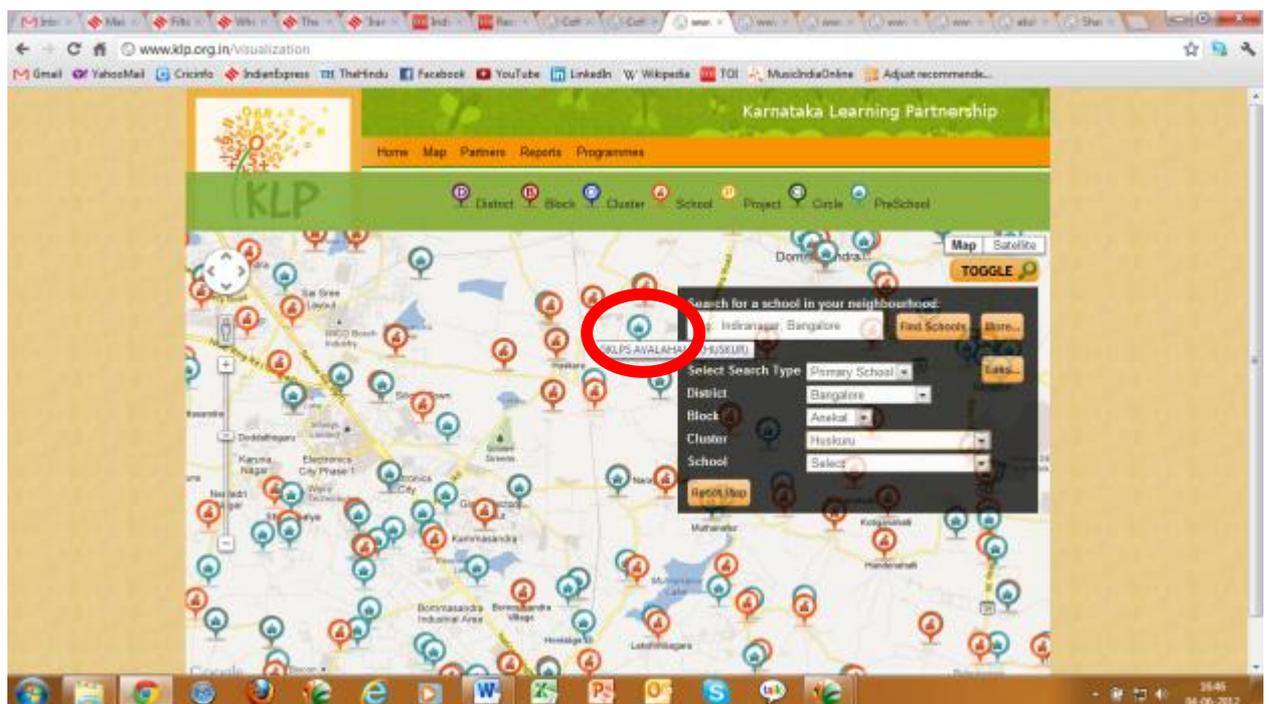
More from <http://klp.org.in/visualization>



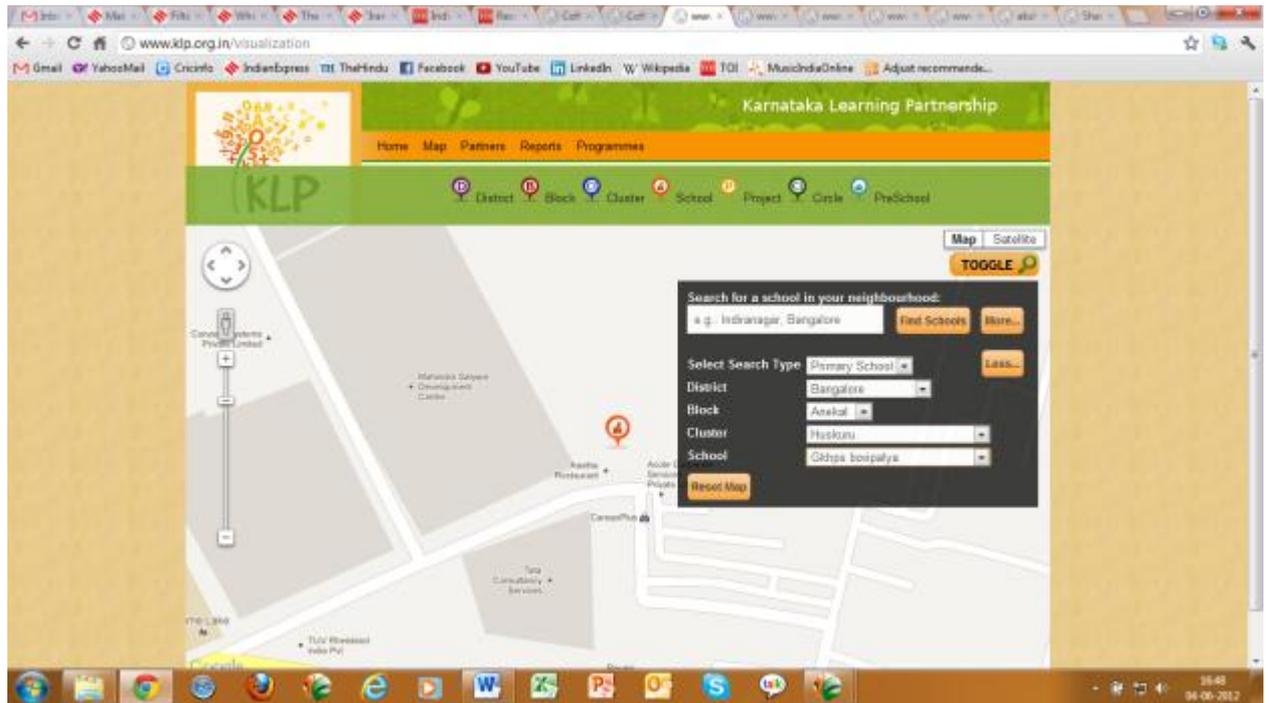
There is an option to make a more focused selection by choosing one more parameters from the following:

- Type of school (pre-school or primary school)
- District
- Block
- Cluster
- School

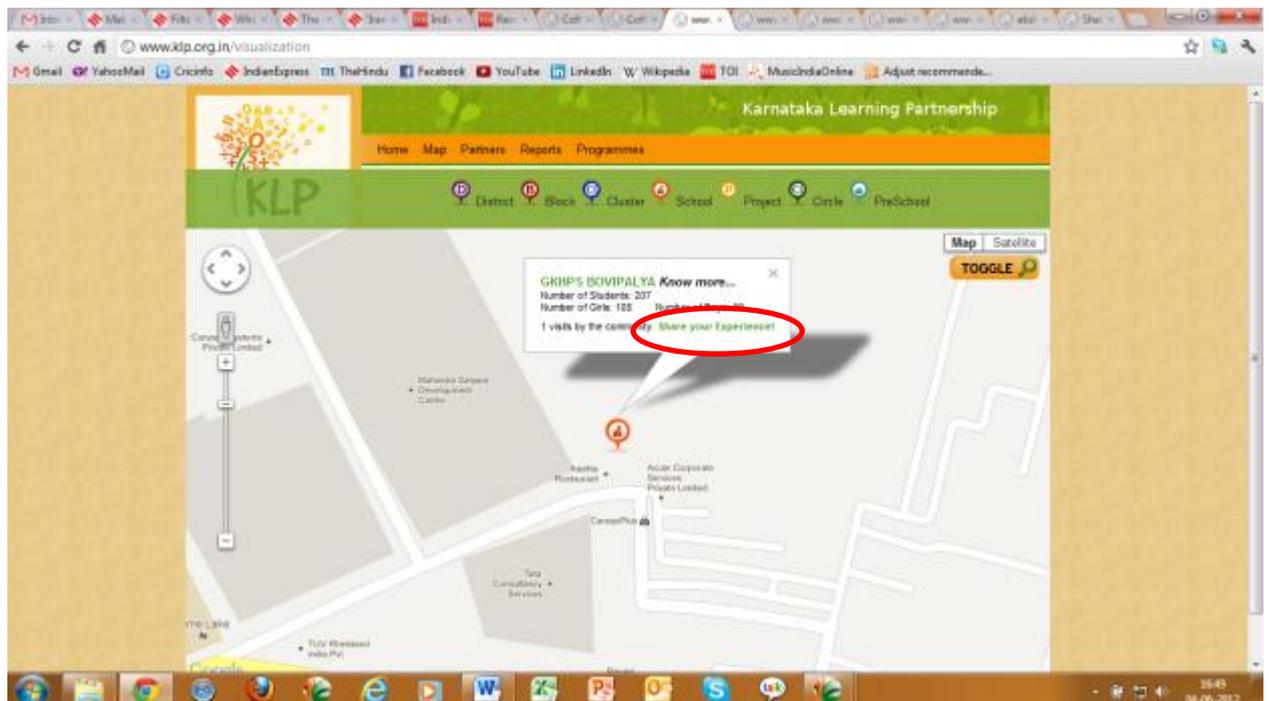
For example, the following screen shows a selection of all *Primary* schools in Bangalore district, Anekal Block and Huskuru Cluster: As the red circle highlights, a single school from the selection can be selected for deriving more information.



Selection of a single school: GKHPs Bovipalya from the above selection:



Basic student enrollment statistics in the chosen school:



The red oval highlights the *Share-your-experience* feature mentioned above. On following that link, the site leads to a place where any community member can share their experience of a visit to their school:

The screenshot shows a web browser window displaying the 'Share your Story!' form on the KLP website. The form is titled 'Share your Story!' and is for 'GKHPs BOVIPALYA'. It includes a section for 'Your Contact Information' with fields for Name, E-Mail, Telephone, and Date of Visit. Below this is an 'Upload Photos' section with five 'Choose File' buttons. The main part of the form is a checklist of school facilities and conditions, with instructions to check boxes indicating whether they were observed or found. A red oval highlights the 'Share your Story!' button at the top of the form.

In addition to school education data, the KLP platform can also be used as a basis for collection and organization of student data related to health, nutrition, etc. Akshara Foundation does not work in these areas, but collaborates with other organizations that supply data that can be incorporated in the KLP platform.

Using the data collected above, Akshara comes up with reports such as http://akshara.org.in/reports/bangalore_report_card_2009-10.pdf.

4.3. Key insights on School Education

1. The sector must focus on the following:
 - a. Children's learning in the classroom
 - b. Insight (through well-organized and meaningfully presented data) to administrators to result in appropriate interventions

2. Enhancing classroom learning:
 - a. *Measuring the learning of children on important parameters in a continuous and meaningful way:* since Akshara focuses on pre-school and primary school level, they concentrate on reading, writing, basic math and in case of pre-school children, basic cognitive skills (shapes, colors, etc.). But even in case of older children, simplicity in measurement helps.

 - b. *Continually supporting teachers with teaching plans, teaching aids and training them on teaching aids:* in many government schools (perhaps in private schools as well), the problem is teachers' teaching skills and ability. Training them appropriately has shown clear improvements in the learning outcomes of the children they teach (as seen through Akshara's own experiments and experiences, as well as through the work of independent researchers). A few pointers:
 - i. External training must be aligned to the teaching schedule of the school / individual teachers. If there is a misalignment (that is, the training focuses on certain topics while the teaching schedule lays down different topics), the training intervention can only be an additional burden with little positive result. One way to do this is to train a teacher on a certain topic a week or two before that topic is scheduled in the class.
 - ii. Training should be supplemented with subsequent monitoring and hand-holding; else its impact will be minimal. For example, after training a teacher, observe them in the class, support them in the use of the teaching aids, pass on feedback and continue to coach them till teaching capacity improves.

4.4. Opportunities for ICT to improve School Education

1. ICT can be effectively used in School Education for the following:
 - a. Collecting and organizing data in a meaningful way for administrators so that appropriate interventions can be made
 - b. Training and supporting teachers better
 - c. It can also be used for creating and delivering content in classrooms for children. But such initiatives are better organized locally. Once the usage of ICT content and delivery in classrooms increases, better and creative content, tools and delivery models will evolve.

2. Data-driven insight / support for administrators:
 - a. This is an area with significant potential to improve the system if executed well
 - b. The key is that the data must be accurate, derived from the field and must be presented in a meaningful way to different administrators
 - c. It is important to collect real data and not statistical data. Statistical data cannot form the basis for specific and focused interventions in a given locality. For example, consider a region with 2000 schools. It is possible to conduct a survey of a “statistically valid sample” (of say, 200 schools) and arrive at a (sample) conclusion such as “children in 40% of the schools do not perform well in math skills. This means that children in 800 schools do not perform well in maths. When it comes to specific remedial action of training maths teachers in these 800 schools, which 800 does an administrator choose (because the surveyors have visited only 200 schools!). So it is important to act on real data rather than on statistical data.
 - d. Ensuring data quality is vital. As long as there is a vested interest for a data collector to manipulate the data, the data cannot be considered accurate (more about this in the following section).
 - e. It might be useful to organize and present basic school system data (not including student and teacher data that is protected by privacy) for viewing and analysis by the wider community – administrators, elected representatives, parents, media, NGOs, etc. Meaningfully organized data can form a basis for collaboration between various parties to identify and implement corrective interventions in the school system.

3. Support for RTE implementation: while most of the public debate in this regard is around the implementation of the 25% rule, there are other ways in which RTE implementation can be supported by ICT tools:

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- a. The rule that a lower primary school must be located in a 1 KM radius of every point and that an upper primary school must be located within a 3 KM radius of every point. Using GIS based / mapping tools can help in determining which areas need schools of what level, in making decisions on new school approvals, etc.
 - b. Availability of basic infrastructure in schools
 - c. Teacher training, TETs, etc.
4. Use of computers and ICT tools in schools: at the present, computer equipment is not used in many schools. Even in schools where equipment is supplied, the boxes are often left unopened and are not installed, some of the reasons being:
- a. Lack of adequate and reliance power supply
 - b. Lack of maintenance support for equipment and other ICT tools (many times, maintenance service providers don't visit interior places for attending to maintenance requests
 - c. Lack of adequate skills on the part of teachers and other school staff in using the equipment / IT tools or not seeing the benefits of doing so.
 - d. Another reason – applicable not only in rural schools, but also in some urban schools – is the lack of security for the equipment. Many government schools – rural and some urban as well – are used for nefarious activities in the evenings and nights, and all sorts of people congregate there. This renders the classrooms (and therefore equipment installed in classrooms) insecure. So school management leaves the supplied equipment unopened and locks them up to ensure that they are not stolen.
5. ICT Content in curriculum and as teaching aids in classrooms to teach children:
- a. There is already lot of good content available and the creation of more good and effective content is not an issue. Many times the less-than-effective results of the content are due to teachers' inability to use the content adequately. The solution is to train the teachers well on using available tools.
 - b. In creating useful content, the relevance of the content to the daily lives of young children is very important. It must be available in local language and must be based on local examples, idiom and culture for it to be effective with little children.
 - c. Once classroom usage of ICT-based content and tools increases, there will be many parties who will create good quality content in local languages to address the needs of local schools; and overall relevance and quality of content will automatically improve.

4.5. Challenges in the application of ICT in School Education

1. As stated above, programs principally dependent on the presence of infrastructure deployed at school level face challenges of non-adoption or slow-adoption. Two key challenges being:

- a. Lack of adequate skills and comfort level in using computers and ICT tools at the school level
- b. Lack of adequate security at the school for deployed equipment

Possible ways to overcome:

- a. Adequate training and subsequent support to teachers and school staff
- b. Demonstrate utility to teachers and school staff
- c. Strong sponsorship from administration

2. Collection of data and quality of data: school records are not always dependable. One key challenge is the vested interests of those who record the data.

Possible ways to overcome:

- a. Akshara obtains initial data from schools and then engages 3rd party confirmation in a particular percentage of schools. As long as the difference in the two data points / reports is within a reasonable range, no action is taken. If it is greater, they make a direct check to obtain actual data / information. This model may not easy to scale up.
- b. They also use data obtained by other organizations and agencies to compares and complement their observations. Some of the organizations that Akshara partners in this way are Pratatham's ASER reports, PROBE (Public Report on Basic Education), IndiaGoverns Research Institute (that organizes and publishes Lok Sabha and State Assembly constituency level data), PAISA (Accountability Initiative), Education For All, etc.
- c. Another important way to collect and confirm data is through intensive community engagement. If volunteers from civil society (either parents who send their children to government schools or other volunteers) commit their time – say something like a couple of hours or a couple of schools visits a month – to make school visits and confirm data / information, this model is likely to work. Akshara claims that their experience is that as long as this is undertaken in a collaborative approach, schools are open to cooperating with citizens.

- d. As mentioned in the above section, data renders itself better for remedial action if it is real data and not statistical data.
 - e. It is generally observed that complex, long and tedious data collection forms encourage non-collection data (in fabrication of data) and collection of data that is not useful. Simplifying data collection templates increases data collection and improves data quality
3. *Linking student marks to teacher performance*: While this appears logical enough, it is important to note that there are several other determinants of student learning / performance – demographics, socio-economic data, parents' education levels, student's ability, student's hard work and application, etc. So to hold teacher capacity alone responsible for lower student learning will not be appropriate. On the other hand, given the evidence that teacher training improves student learning in an absolute way, it may be a better idea to focus on equipping and supporting the teacher as best as one can.
- a. Also complicating DSS at the grassroots may be counter-productive. If everyone involved do not appreciate it and don't find value in it, adoption will not take place. It is better to start simple and increase sophistication on a need-basis once there is basic acceptance and adoption. Bottom-line – don't go overboard on analyzing causal linkages of student learning to start with.

4.6. Other Points

Akshara Foundation feels that a KLP-like initiative is implementable nationally. The technology platform is developed on open source technologies and there are no IP related issues involved. The features of the platform are basic at the moment, but they have plans to add more features in the coming months. They are happy to share the platform if MHRD is interested and also willing to train anyone on using the platform.

4.7. People Met

Person met: Mr Ashok Kamath, Chairman, Akshara Foundation and Pratham Books

5. Eduvisors Research and Consulting (Gurgaon)

5.1. Introduction to Eduvisors

About Eduvisors: Eduvisors is a research and consulting firm focusing on the education sector. They provide consulting and implementation services in the Indian education sector. Their services include research services, market entry strategy, audited – K12 and higher education audits, business operations and strategy, program design and evaluation, transaction advisory, scholarship management services, digital campus strategy and government and public sector consulting.

5.2. Key Insights on School Education

1. ICT in Classrooms to enable Student Learning

- a. Many forms of content and delivery is available in the market, mainly through private providers (with different firms focusing on different areas of content, based on different types of pedagogy and choosing different delivery models)
- b. Examples of types of delivery: some have broadband-based delivery, some have VSAT-based delivery, there are some who ship content in CDs and DVDs. There are also tools like the use of robotics for teaching in the classroom.
- c. There are different models of delivering digital / ICT-based content to classrooms that are adopted by private service providers: One is the hardware-driven approach. This model is driven by hardware equipment manufacturers who deploy ICT infrastructure in schools and bundle content with it (many times free content). This model is prevalent in many countries such as China. Another model focuses on content and is implemented usually on a subscription basis (ex. X rupees per student per subject per month / year). In India, this is a more often encountered model.
- d. New models emerging in India include inexpensive tablets and smart phones along with content and apps (usually on a subscription basis). This model is expected to take off because this eliminates the high initial investment costs of setting up computers in schools, networking, etc.
- e. Several private players are working with government schools on providing ICT solutions to the classroom (primarily content). EduComp is a major player in

this. Everonn is another. Other examples include TeachNext, classteacher.com, etc.

2. Teacher Capacity

- a. Even among private schools, teacher capacity is a major challenge. In many studies done in the area of teacher capacity, it was found that impact of ICT on student learning is lower-than-expected – even with good and proven content – because of the lower capacity of teachers to use ICT (even in semi-urban areas).
- b. Many schools do try to train their teachers, but of late demand is increasing for scaled-up solutions for teacher training. For ex. Shiv Nadar University, School of Education is coming up with a hub-and-spoke model for teacher training. NIIT is also coming up with special training programs for teachers.
- c. In private schools also, they find that one challenge is in training teachers well enough so that they are able to effectively use ICT in teaching their own courses rather than be completely dependent on it. There is a need for teachers to be trained well on using ICT as a tool so that they can suitably incorporate ICT tools in their teaching methods rather be over-dependent on the tools.

3. RTE Implementation

- a. The primary area of concern for private schools is the implementation of the 25% rule. Mostly they are waiting for governments to come up with rules on this (reimbursement amounts, modus operandi, etc.) before responding from their side on implementing it.
- b. From their perspective, one major concern area is reimbursement of fee from government. There is an apprehension that the transaction cost of getting the reimbursement through local education offices will be high. So from their perspective, an online system that is transparent and eliminates too many discretions from local officials will be highly useful.

5.3. Possible opportunities to apply ICT to improve School Education

1. **School management:** Many private schools use ICT for managing the operations of the school, sort of School ERP – used for managing admissions, payroll for staff, accounting, managing student and teacher data, etc.

2. ICT in Classrooms (for students) and for Teacher Training

- a. Content in various forms – starting from power point slides to multi-media tools with carrying degrees of interactiveness – are used in classrooms. This could be one possible area.
- b. The important thing here is to identify a suitable model to access content from private service provider and bring it to the classroom (for students) or even in the context of teacher training: content, relevant apps and other tools, the infrastructure / equipment that will be needed, deployment of infrastructure, delivery of content, financial model.
- c. There are many firms doing good work in the area of content. In scaling up, government may find it useful to partner with suitable solution providers. Therefore identifying content and related tools itself may not be the most challenging part. One key challenge in ICT in classroom is that classrooms have to be equipped with necessary infrastructure, which is an expensive affair if you also take continual upgrades and maintenance into consideration. Even in case of many private schools, the infrastructure present is usually a fraction of what is advertised due to this reason. And this challenge will be higher in government. So the key will be to figure out the right deployment / delivery model. Low-cost Tablets might be one such alternative.

3. RTE Implementation

- a. Private schools will have to set up systems to track the 25% rule, but that need not come in this MMP that will not cover school administration systems in private schools. But even from government's perspective, they will need a system to audit private schools for the 25% rule. This may be something that they can drive through the application of ICT. This is something that can possibly be integrated with UID (of students), but that can only be done once the basic framework for implementing the rule is established. It may take a while for something like this to be feasible.

4. Other Ideas

There are many firms that are doing something in education. To identify good ideas that may be disseminated through this MMP, one source of information could be Venture Capital firms focusing on education. They are likely to have a pulse of the latest thought process and activity in this area.

5.4. People Met

Person met: Mr Bharat Parmar, Founder & Partner, Eduvisors

6. Edutor Technologies (Hyderabad)

6.1. Introduction to Edutor Technologies

About Edutor: Edutor Technologies is a firm focused on improving student learning. They design, develop and market technology-based educational products. Their products are based on personal learning and effective learning experience. The Edutor learning platform is offered via a tablet into which content / apps can be pushed regularly.

More details at <http://www.edutor.in>

6.2. Key insights on School Education

Their products are based on the following learning principles:

1. Edutor's solutions are offered as supplements to school education and primarily as at-home solutions. They are based on the belief in the effectiveness of personal learning – that each child learns at their own pace, learns best when the mode of learning is active and that spoon-feeding and one-size-fits-all approach is not adequate.
2. Their approach is to provide the child with the right tools to enable such learning.
3. Their products are based on emergent neuroscience and visualization research that indicates that active learning (involvement of multiple senses and “learning by doing”) is more effective than passive learning (reading / hearing / seeing only)
4. A few research-based cognitive principles such as multiple representation principle, contiguity principle and split-attention principle

6.3. Possible opportunities to apply ICT to improve School Education

1. Given their own area of expertise, the focus was on assessment of student learning and content to enable student learning.
2. Content that can be used to teach children:
 - a. There are many organizations working in this area. Each effort is based on specific leaning principles, techniques, etc. and most of them are useful.

- Choice among them is mainly a decision based on specific needs of a student / subject / school / availability, etc.
- b. On the feasibility of including classroom teaching content as part of the MMP: the challenge lies in developing specifications. There is a wide variety available and each offering has its own strengths. If it has to be included, the only way to do it is to define specifications at a very generic and high level – possible examples of such generic specifications being: interactive, multi-media based, etc. – and leave it up to states (or even district level) administrators to define further specifications.
3. Assessment of children’s learning: using ICT in this area to develop simple and standardized ways to assess student learning will be beneficial.
- a. In a way, this data can also be viewed as content. Research indicates that continuous testing and assessment is also an effective way of learning (gave a small demo of how a slightly difficult addition of numbers can be taught to a student through a series of progressively difficult smaller addition problems – after each time the student solves the intermediate sum, the next sum is given based on the previous answer given by the student).
 - b. This assessment should be kept very simple and measurable in some sort of numeric form; and focused only on basic language and maths skills. Say after 5th standard or so, it can get a little more sophisticated by adding one or two more parameters.
 - c. This assessment data must be kept separate from CCE (which has many other parameters such as more subjects and extra-curricular activities) and its purpose must only be to assess general state of learning – this must not be treated as a feedback mechanism for the student (once that starts happening, it becomes evaluation rather than assessment, focus shifts to the individual student rather than the system).
 - d. These assessment statistics can be analyzed at the level of student, section, class, locality / community, etc. and corrective actions drawn. Corrective actions can be in the form of improvement of tools, teacher training, adjustment of curriculum, etc.
 - e. Such measures, once established and stabilized, can potentially be standardized across a school system (city / district / state / national, etc.)

6.4. People Met

Person met: Mr Ram Gollamudi, CEO, Edutor Technologies

7. INTEL@School

Intel@School is a foundation that works with teachers using Intel's assets and their applications. They focus on teacher capacity building and follow-up with state governments on implementation.

7.1. Key insights on School Education

1. ICT is still considered a subject to be taught than as a tool to aid learning of any subject
2. Fundamental infrastructure issues such as power and connectivity are a major challenge to using ICT in education
3. In the present PPP models with Education Service Providers (ESPs), the SLA emphasis till now has been on infrastructure rather than on learning outcomes; the question is: is there a way to make the ESP more accountable? And what should they be made accountable for (this may be similar to asking: to what extent can a text book publisher be held accountable for student learning)?
4. A key unanswered question according to them is: What is the best model to have government schools access the innovation in the private sector?

7.2. Possible opportunities to apply ICT to improve School Education

1. The market for ICT-enabled content is highly fragmented. There is an absence of frameworks, standardization, consistency of quality across the services offered by different providers.
2. Student learning should drive the entire gamut of issues and decisions in education: policy, planning, implementation, teacher training, etc. But the challenge is in actually implementing it. Some possible approaches to make it work are:
 - a. Standardization
 - b. Relating any intervention to CCE
 - c. Creating ICT-enabled measurement systems
3. Teachers are the most important and yet the least motivated group (most burdened from an effort angle) in this area. They need innovative incentives such as service points, preferential postings, point upgrades leading to principal roles, monetary incentives etc.

7.3. People Met

Persons met are Anil Misquith, Country Business Manager for Education & Government and Shwetha Khurana, Corporate Affairs

8. UNICEF, Patna

UNICEF is working in Bihar primarily on improving quality of education at the elementary level. They have 20 indicators of quality at the school level that they track. They work towards involving the community through PTAs or SMCs. Another focus is teacher education. They work a lot on the soft aspects of rather than on infrastructure, such as training trainers, designing curriculum etc.

8.1. Key insights especially regarding school education in Bihar

1. For most people, ICT is equivalent of typewriters or Internet access and not a possible learning solution.
2. Child tracking isn't that convincing. It may make sense at a decentralized level such as school or panchayat, but not as a centralized manner. Nevertheless administrators need data aggregated.
3. Bihar faces basic infrastructure issues

8.2. Possible opportunities to apply ICT to improve School Education

1. Ideal solutions at a school level:
 - a. Child tracking
 - b. Notice boards
 - c. Maintaining accounts
 - d. Linking with teacher training institutes (to enable regular interactions with teachers to get support for difficult areas)
2. Ideal solutions at a departmental level:
 - a. Mapping details and qualifications of all teachers, especially to assist in designing of training as per teacher requirements.
 - b. Tracking absenteeism
 - c. Transparent teacher transfer
 - d. Scheme monitoring – important to create linkages between various implementation agencies.
 - e. Capacity building of officers
 - f. Regular CCE tracking and simple CCE progress reports

8.3. People Met

Person met was Ms. Shwetha Sandilya