

IgnusERG Education Resource Private Limited

Baseline Assessment of Teacher Performance in Project Pragyan's Pilot Schools

Jaipur, Rajasthan

October 2018

(Revised January 2019)



Preface

Sterlite School Technologies is a foundation established by Sterlite Tech – an industry leader in telecom technologies. The organization has worked in 400 municipal schools in Mumbai by creating and implementing “viable technology,” that has helped mitigate the effects of unavailability of municipal teachers, while leveraging key teachers in reaching out to larger student audiences. Sterlite believes that technology can change the education landscape of India and has thus invested in 40 government primary and upper primary schools, under Project Pragyan, in two blocks of Jaipur district of Rajasthan. This is a pilot project that aims to scale to a larger number of schools through adoption in the governmental system. As part of the initial activities in Project Pragyan, an assessment of teacher performance was undertaken by IgnusERG in a large sample of the 40 schools.

The Teacher Performance Assessment is meant to establish a Baseline against which future progress may be reviewed and evaluated. The study combines qualitative and quantitative data from a partial data set (19 treatment and 7 control schools) to evaluate, analyze and offer suggestions that can be used as a reference point for the programme’s future planning.

The statements made in this report are based largely on observations from the field visits and from the conversations had with the stakeholders of the system.

Acknowledgements

Team IgnusERG would like to express its gratitude to Sterlite School Technologies and the Project Pragyan team members for all the support and courtesies extended to us, especially in the fieldwork, to make this programme study possible.

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Executive Summary

The baseline study conducted for Project Pragyan shows that though the selected sample of treatment schools is fairly homogenous, there are subtle differences in the performance levels. This report tries to recognize the areas where the teachers are already performing well in and could thus be helped augment their performance via thorough, timed inputs.

In brief: Though the teachers are able to achieve close to expected levels (Level 2 - 3) of performance in a number of cases, which implies that they are able to recognize the importance of synthesizing an equal, encouraging and engaging learning environment with the help of prior planning and utilization of TLM and assessments, they lack the requisite knowhow to take it a few steps further and create a meaningful and effective impact.

Therefore, the focus of inputs by the Project Pragyan field team have to extend beyond the utilization of technology as a pedagogical resource. The teachers on-ground require general as well as subject-specific pedagogical inputs that can allow them to augment their effectiveness in the classroom.

There are some concerns regarding the project's perception in the field, these have been detailed in the report along with an extensive list of suggestions to support the project planning.

Project Background

Project Pragyan aims at using technology to make classroom learning interesting and challenging to improve the learning outcomes of students of class 3 and 5 in English and Maths in government schools. It believes that the teachers are at the core of an engaging and meaningful learning experience for the child and that they should be supported towards this. This 'support' is understood as building capacities of teachers and enabling processes for supportive supervision so that they may perform effectively to bring about a change in student outcomes.

Sterlite School Tech has signed a MoU for ICT support in Education with the Rajasthan government for 3 years. The project is being piloted in 40 schools in two urban blocks of Rajasthan (Jaipur West and Sanganer) in the first year. The schools will use a blended learning pedagogy to teach English and Maths in class 3 and 5 in 40 schools. Of the 40 schools, 20 are designated 'high touch' schools where Sterlite team will make weekly visits, while the remaining 20 will be treated as 'low touch' schools that will be followed up once a week. Inputs in the form of in-service training workshops and equipment as well as materials provided will be common. This is at the request of the state government as it provides a window into what the later scenario might be like on larger scale when follow up is not likely to be very intensive. The project is expected to scale-up to other schools in the state after demonstrating success in the pilot stage.

Project Components

In its first year (2018-2019) the project plan is to,

- Provide hardware: TVs, wifi, tablets to 40 schools
- Develop and Provide content: e-content, lesson plans mapped to Rajasthan State Textbooks

- Develop a mobile app containing lesson plans for teachers
- Undertake Capacity Building Workshops - two workshops of 3 days after an interval of 3 months
- Provide Teacher support: Pragyan Team will meet the teacher once a week in high touch schools and once a month in low touch schools
- Provide virtual classrooms by experts
- Develop and disseminate MIS reports for all levels (Pragyan, school and state)
- Improve participation of Block level officials in school management and
- Build community forums

(Source: Project presentation and MoU with the Rajasthan Government, 2018)

Many of these components need further detailing as well as strategic directions in order that they may contribute best to improving teacher performance and, ultimately, student learning levels. The Baseline Assessment is also seen as a means of enabling this detailing, identification of strategic planning as well as an action plan.

Objectives of the Baseline Assessment

The objectives of the Baseline Assessment were:

1. To analyse the performance of teachers in classes 3 and 5 in English and Maths and understand how they would use technology in their classroom using the blended learning approach,
2. To understand the involvement of Head Teachers in the project,
3. To understand the existing training model and supportive supervision of the Pragyan team and
4. To understand the engagement of Rajasthan Education Department in the project.

The baseline assessment process involved

- Defining objectives of the baseline assessment and developing specific questions
- Envisioning the stakeholders' involvement in the process
- Development of tools for assessment
- Piloting the assessment tools
- Conducting assessment through school visits, observations, review of documents and interactions with stakeholders
- Analysis of results, and
- Development of a way forward

Tools and Techniques

The tools used for baseline assessment were for

- Classroom Observation
- Documents Analysis
- Semi-structured interviews
- Recording of Field-notes

Details of these may be found in the Annexures.

Limitations

1. A planned pilot study for the baseline could not be conducted due to unexpected school closure on the stipulated date.
2. Only a handful of schools had yet received the technological equipment being provisioned under the project. Also, none of the schools visited in the present study had installed the EdTech infrastructure. Consequently, the indicators on use of technology (#7 - 9) could not be assessed. These have been excluded from the tables and charts presented further in the report.
3. Though planned in advance, one of the high touch schools could not be assessed because of absence of teachers due to administrative duties.
4. Despite the descriptive nature of the teacher observation format used in the study, it is not possible to capture the essence of the connect between the teacher and the student with the help of an indicator. To this effect, efforts have been made to add detail to the observations from the field in order to provide a context around the cold numbers. Thus we have not relied only on indicators but taken an more holistic approach.

Delimitations

1. When the study was conceptualized it was anticipated that 2-4 teachers from each school will be observed in the class (English and Maths in Class 3 and 5). However, since not all teachers under the purview of the project were available in the schools due to administrative duties and personal reasons, it was decided to reduce the classroom observations to minimum 1 per school and to increase the length of the interaction with students and head teachers. This allowed us to get a well-rounded view of the expectations and requirements of the stakeholders.
2. In places where the same teacher taught English/Maths class in both class 3 and 5, only one classroom observation was conducted.

Baseline Assessment Results

A total of 55 teachers were observed during the study. These teachers are spread across treatment and control schools, classes 3 and 5, and English and Mathematics subjects. The breakdown is presented in the tables below.

Subject- and Class-wise Breakdown of Teacher Data

	English	Maths	Total
Class 3	13	13	26
Class 5	14	15	29
Total	27	28	55

School-wise Breakdown of Teacher Data

	English			Maths			Total
	HT	LT	C	HT	LT	C	
Class 3	6	5	2	4	5	4	26
Class 5	4	7	3	6	6	3	29
Total	10	12	5	10	11	7	55

HT = Hight Touch; LT = Low Touch; C = Control

Overall Comparison of Schools

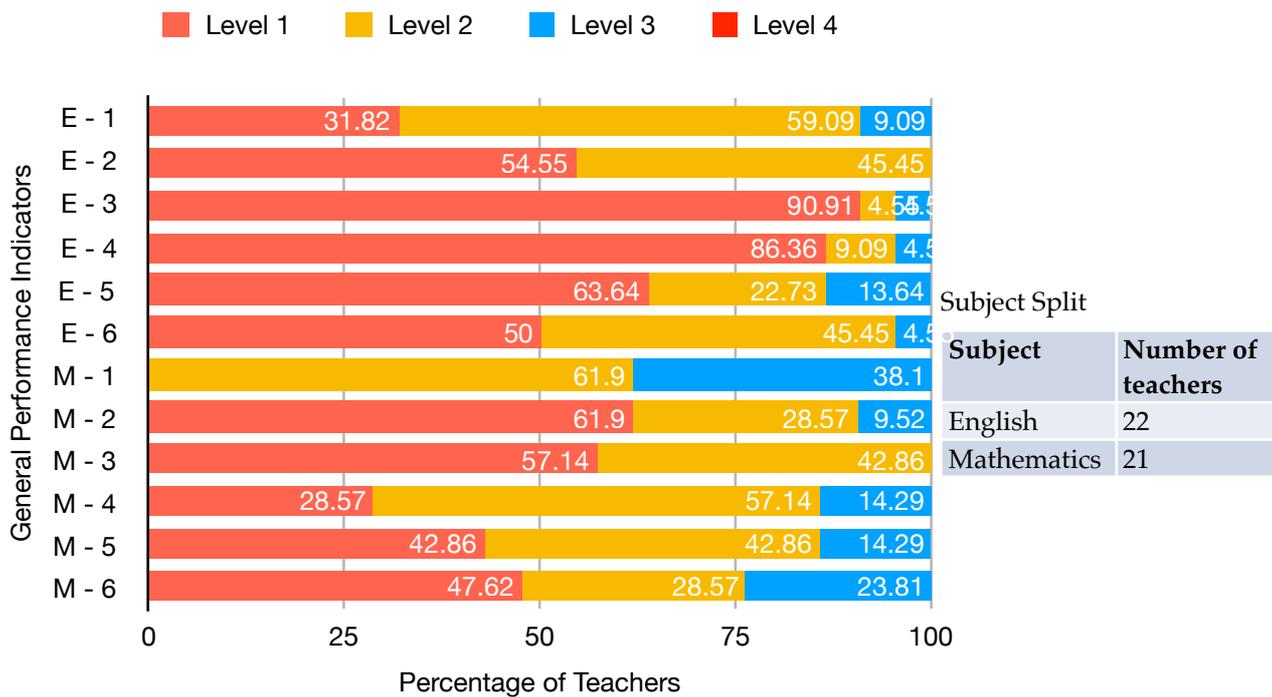
Since the sample selected for the project is fairly homogenous, the difference in performance as observed during the field visits and through the collected teacher assessment data was not much. The categorization of schools into High Touch and Low Touch may bring about a mental comparison of the former being better than the latter, however, that should be avoided as the categorization is solely on the basis of intensity of inputs from Sterlite School Tech's side.

The performance indicators for teachers are for general pedagogy and the teaching of mathematics. Each indicator has a set of four descriptors, describing a poor or non-performing level (Level 1), a below par performance (Level 2), the expected performance (Level 3) and an outstanding performance level (Level 4). The sections below present the level at which teachers in different schools, subjects and grades were found to be performing.

General Pedagogy

The following figure compares the performance of the treatment schools alone across the general pedagogy indicators (#1-6 in the observation form). *It is easy to discern that while the teaching of Mathematics (among the 21 teachers observed) still appears to achieve expected levels of performance, the performance of English teachers (19 in number) is almost entirely below par.*

In English, the indicators with the most significant need for improvement pertain to the usage of TLM and the creation of an engaging, activity-based learning environment. While a majority of teachers have achieved Level 2 on the first two indicators which look at the creation of an equal, encouraging atmosphere in the classroom and the following of a lesson plan, it should be noted that this is still a notch below the expectation level and that there is plenty of room for improvement therein. This extends to the equal split between Level 1 and 2 seen on the 6th indicator as that only goes to tell that the students are mostly involved in tasks in an individual capacity and rarely ever get to work together in groups. *This should be a critical area for improvement* as language is learnt only through interaction and engagement and not by working in isolation.



The data for Mathematics shows better results in comparison with 5 teachers out of 21 achieving the expected level in at least one indicator. *The use of lesson plans is still the area necessitating most improvement*, with the use of TLM and creation of an engaging, encouraging and equal learning environment also requiring attention. Assessments are still a part of the regular teaching-learning process merely as a means of record-keeping.

Teachers of English struggle particularly with indicators 3 and 4 that are related to use of TLM and making the classroom interesting and challenging. This comparison can be understood across the various indicators as follows.

- *The teacher creates an equal and encouraging learning atmosphere in the classroom:* this indicator is about teacher’s ability to create an encouraging learning atmosphere in the classroom. Most of the English and Maths teachers are at level 2 of this indicator as they have a good relationship with the children but this does not translate into getting children to speak in the class as only a few children are seen talking in their class. The Maths teachers fare better in terms of many children participating in the classroom.

- *The teacher creates a teaching plan and follows it in the class:* Both the Maths and English teachers make the mandatory lesson plans but 12.5% Maths teachers are able to make plans according to the previous knowledge of the children. Their plans show a continuity of conceptual flow and they recapitulate previous knowledge while transacting lessons. This was not seen in English lesson plans that were made lesson-wise for two groups. The learning outcomes expected from the lesson plan were not clear and though created for two groups, the classroom transaction followed a whole class approach.
- *The teacher makes use of teaching-learning materials (TLM) in an effective manner:* Maths teachers used TLM in their classroom. They used picture cards, called children over and assigned them values and even drew pictures on the board to explain concepts. This was clearly absent in the English class. Even in schools where a library existed, there were no books of English (except a dictionary). The English teachers showed willingness and intent to use TLM but did not know how to start.
- *The learners are involved in an interesting and challenging, activity-based learning environment:* 100% of the English teachers are not able to engage children in the classroom using activity-based methods. The classroom is dominated by teacher talk, with teacher translating and explaining the lesson to teacher marking questions from the text to be copied in notebooks. The Maths teachers show some signs of conducting activity-based classrooms mostly by using examples given in the textbook. A few of them are able to create more examples to engage children in the class. The English teachers show keenness to use activity-based learning methods but they assume that it is not possible for children as they do not know English. They are constrained in understanding the difference between activity and activity-based teaching learning. They are also constrained to think how to use children's home language and their context as a resource to conduct activities.
- *The teacher conducts a regular assessment of student learning levels and makes use of it in developing a relevant teaching strategy:* Most English and Maths teachers conduct the summative assessments and maintain children's portfolios that are updated every week in some cases. In case they are updated every week (as in some Maths portfolios) it was observed that the teacher could give more attention to the child in class though there was no specific lesson plan made for them as such. The problems that children faced were more likely to be addressed in the classroom.
- *The teacher manages and arranges the classroom in a way that ensures that all learners are able to engage with each other in the learning process:* Most Maths teachers engage children in whole group activities that automatically take form of unplanned group activities where children solve problems in groups or individually on the board. In English lessons this takes the form of children arranged to sit in pairs with one child knowing more than the other to help her in copying text and completing the work.

The data shows that the Maths teachers compare better than English teachers on all general pedagogy indicators. It was seen that English teachers, in particular, felt that Maths classes could be made more interesting as there is no language barrier there. With children's disadvantaged backgrounds and lack of understanding of approaches to teaching of English (specially for teachers who taught other subjects and have moved to teaching of English) this is an issue they want to disentangle. Teachers say that the children perform Maths in their daily lives but they do not get to use English language that is why it is difficult to teach them leading to having low expectations from children.

What must be noted is that the teachers are seemingly able to achieve Level 2 in quite a few places. This goes to show that though they are able to recognize the importance of synthesizing an equal, encouraging and engaging learning environment with the help of prior planning and utilization of TLM and assessments, they lack the requisite knowhow to take it a few steps further and create a meaningful and effective impact.

Implications of findings on General Pedagogy

- English teachers clearly need a stronger understanding of general pedagogy in light of their subject and also an exposure to how to teach English in the situation they find themselves in, where their own language may be weak and children's exposure to the language far too little. They need support to emerge from many self-imposed constraints / myths where they have concluded beforehand that certain methods are unlikely to work. Actual experience of a more functional pedagogy along with an understanding of why it is likely to work as well as a detailing of how to make it practicable in their circumstances is their requirement.
- Mathematics teachers, though relatively better off than English teachers, still need a deepening of their use of activity based learning, teaching learning, materials and planning as well as assessment for the purpose of learning assurance.
- The fact that on the basic indicators many teachers are able to achieve Level 2 shows that they have been exposed to many expected aspects but need help to be able to convert them into effective classroom processes. Hence training does not need to focus so much on the 'new' as on how to use better what teachers already know something of.

Mathematics

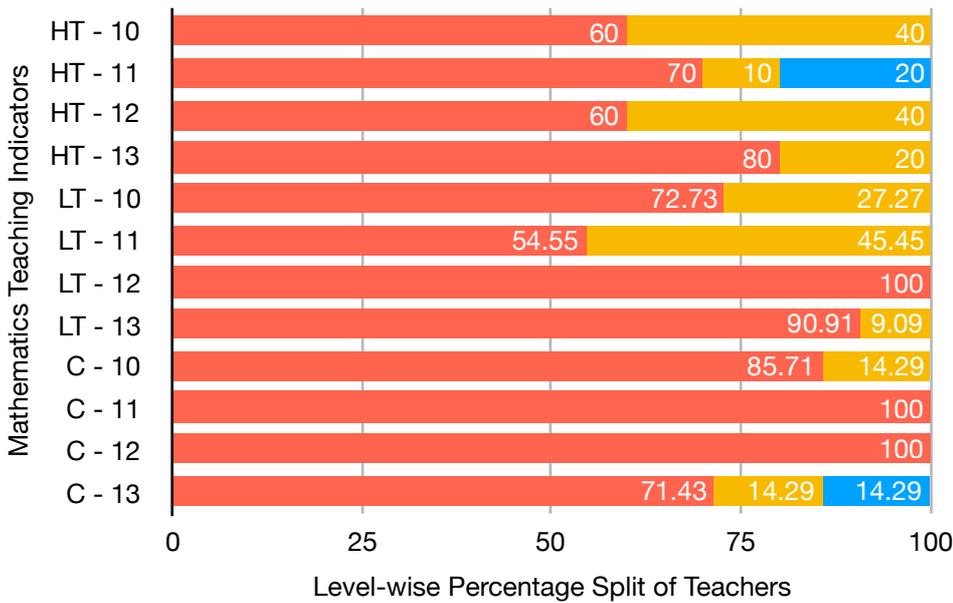
The following graph compares the performance of the three categories of schools on the Mathematics teaching indicators. Evidently the performance of control schools is worse in comparison to the treatment schools. Recognising this, the control school sample was extended by two schools by Sterlite School Tech.

Between the high touch and low touch category of schools, the performance is fairly equal with the former performing marginally better. However, almost all the teachers exclusively fall in either Level 1 or Level 2 which tells us that there is a significant room for improvement.

The better performance in Maths could possibly be biased because the material being taught in some of the classes during observation had already previously been taught and so the students were familiar with it. It would be best to assume that if Maths teachers were to teach new material from scratch their performance might not be of the level witnessed. Thus it would be better to start training and provide other inputs assuming teachers have just about entered Level 2 rather than attained it entirely.

English

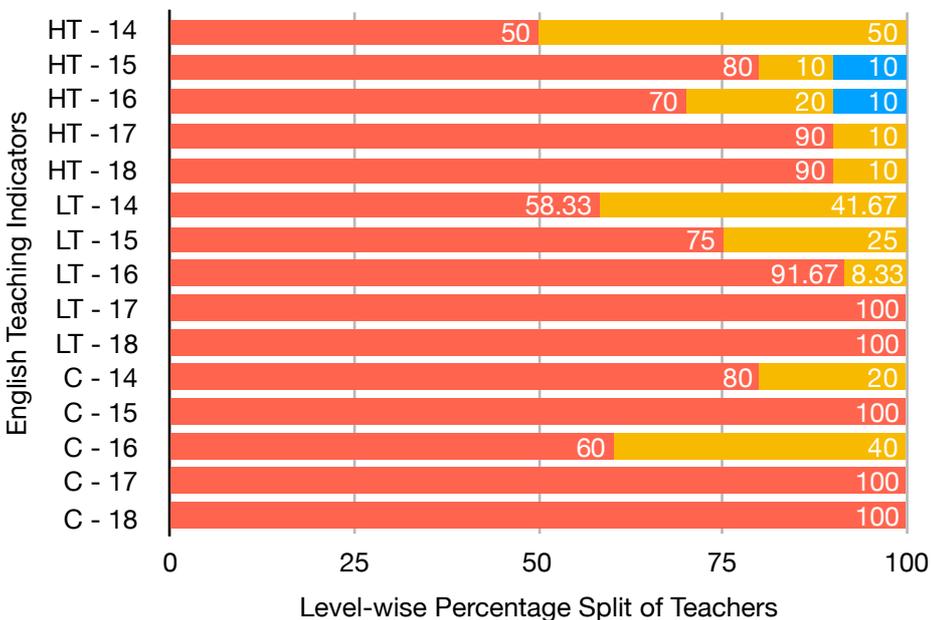
The stacked bar graph below compares the performance of the three categories of schools on the English teaching indicators. As before, the control schools were found entirely at the lowest level of performance along with most of the low touch and some of the high touch.



Maths Category Split

Category	Number of teachers
High Touch	10
Low Touch	11
Control	7

Only one teacher was able to achieve Level 3 performance from treatment schools (Ms. Sonia from UPS Pratap Nagar, Sector 8), while one of the control schools' teacher's (GUPS Sanganer) displayed a level 3 performance on indicator 13 as well.



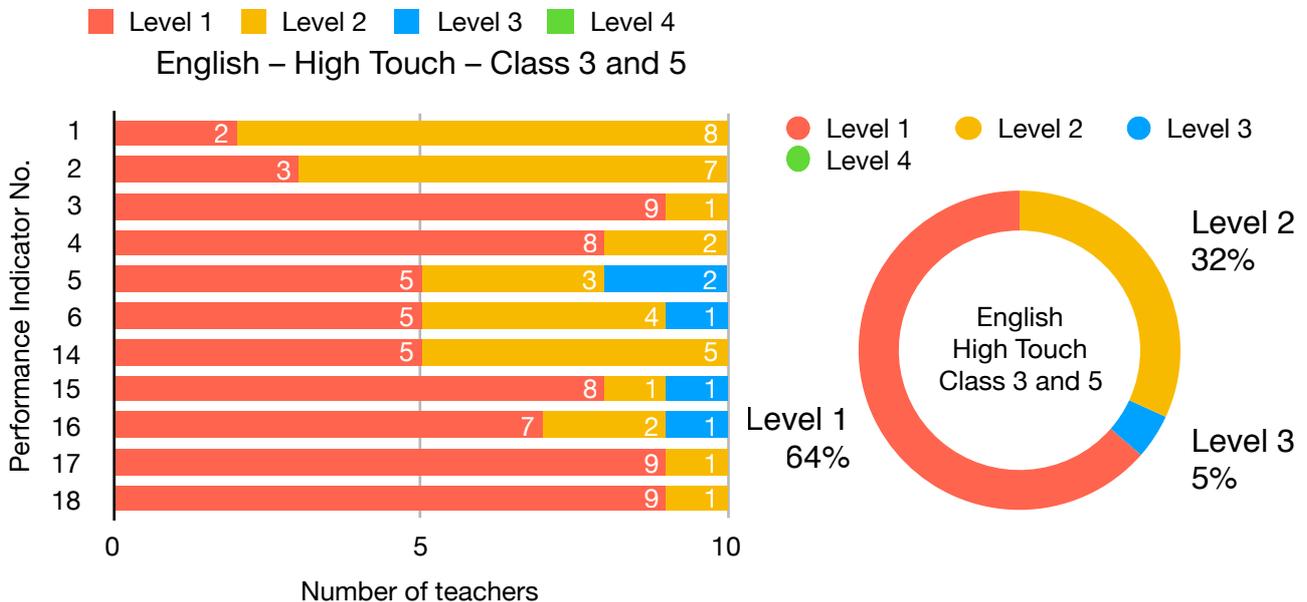
English Category Split

Category	Number of teachers
High Touch	10
Low Touch	12
Control	5

As seen in the comparison of general pedagogy, English language teachers are a step behind their Mathematics counterparts in subject-specific pedagogy as well. A possible reason for this might be the lack of effective training programmes conducted by the state education department. Plus, it must be remembered that English is a foreign language to most, if not all, the learners.

Inputs to English teachers could include support materials for children (e.g. graded reading material), generic and lesson specific teaching guides, and various inputs to increase the teachers' own command over English.

High Touch Schools English Teachers



Data Analysis

Indicators where English teachers' performance is the poorest

The performance indicator data for English teachers in high touch schools shows that 100% teachers at level 1 in the following indicators.

General Pedagogy

- *The teacher makes use of teaching-learning materials (TLM) in an effective manner:* Teachers in classroom used textbook as the only source for teaching. Few teachers referred to the pictures given in the text for eliciting discussion otherwise the translation of text was central to teaching.
- *The learners are involved in an interesting and challenging, activity-based learning environment:* The teachers did not use activity-based teaching learning. One teacher (GUPS, Jyoti Nagar) struggled with ideas to teach using activity-based methods so much so that she asked the baseline team to conduct one in her class. In general, teachers are keen to know how to conduct activity-based teaching and they specifically asked if these could be incorporated in the training.

English

- *To make reading enjoyable for the learners, the teacher introduces the study material in a lively and attractive manner so that students are motivated to read on their own:* Teachers start teaching the text after asking a few information questions. These are related to the context or experience directly. The teachers look at this as an introduction to a lesson. They are yet to differentiate and plan for reading and writing activities. Reading is presently being combined with other objectives like pronunciation and vocabulary.
- *The teacher creates opportunities wherein the learners have to think about a certain topic of interest and then share descriptions, processes and opinions about it:* The teachers need to

engage with children at a level where they can share their descriptions as language is learnt best when one thinks and speaks. Right now, the teachers seem to explain everything as they have low expectations of English language learning from the children who come from disadvantaged backgrounds.

Urgent needs of English teachers

Generating oral use of English in the classroom

For English teachers there is 'oral' TLM that can be used in the form of English words that are already included in Indian languages (including what urban children come across in the various media they are exposed to), as well as signs/signages they are exposed to on streets, markets, buses etc. In addition print material, specially designed TLM such as flash cards or games, and of course digital materials could all be of use. What is more important though is for the English teachers to understand exactly how TLM may be used to generate language usage (i.e. oracy) and also contextual comprehension before moving on to engaging with text.

At present, teachers feel the need to explain everything from their side, effectively doing the work both for children and themselves. What kind of thinking and speaking can they get children to do? This is question they need to explore and implement in the class.

Using activity-based learning

Teachers' frustration at their inability to implement activity-based teaching is likely due to their inability to get children to respond to them. The good part, though, is that they are keen to learn. What they are unable to figure out is how to generate engagement when children do not have any English that can be used for the purpose. Here, the mother-tongue can be helpful as it has provided children with generic language structures that can be built upon by teachers. *This would be an important aspect of training related inputs to English teachers.*

Introducing reading

Teachers' focus on the mechanistic aspects of pronunciation etc. is keeping their attention away from the meaning-making process involved in reading. Once again, this involves giving agency to children so that they can use their own faculties to make the required break-through. As long as teachers keep giving the meanings and the child is not making the effort to arrive at the meaning, reading will not take place. Teachers need a repertoire of different ways in which they can do this.

Medium level performance

A majority of teachers are at level 2 on the following indicators

General Pedagogy

- *The teacher creates an equal and encouraging learning atmosphere in the classroom:*
Teachers, in general have good relations with the children and are aware of their backgrounds. Children are neatly dressed, active and attentive in the classroom. In interviews with children, almost all school children say that they get bored when the

teacher is absent; that they like to learn from her. This is further seen in the classroom where when asked, they answer the question. The relationship of the teacher and learner can be translated into more meaningful teaching learning experience.

- *The teacher creates a teaching plan and follows it in the class:* Most of the teachers maintain the mandatory lesson plan file that is updated every fortnight. These plans are developed keeping in view two levels in a class but these plans are not followed in the class.

Teachers are used to creating a plan and to some extent following it too. The planning process involving the app developed under Pragyan would need to build on this rather than run contrary to it. The it was not possible under this assessment to understand this in detail, it will be useful if the Pragyan team could hold more detailed discussions with teachers on which aspects of planning teachers find difficult (e.g. goal setting, identifying activities or materials, assessing likely time, addressing different student needs etc.). Such aspects could be strengthened further in the app.

Expected performance level attained

17% teachers are in level 3 on the following indicators.

General Pedagogy

- *The teacher manages and arranges the classroom in a way that ensures that all learners are able to engage with each other in the learning process:* The teachers give tasks to the whole group and encourage children to speak. Most of the children are seen participating in classroom interactions. This can be made more engaging by planning for group activities and individual activities.

English

- *In order to build their verbal expression in English, students are encouraged to make use of their home language by making use of both languages together at first and then moving towards English alone:* The teachers encourage use of local language in the classroom and use translation methods to teach English. The teacher refers to examples from the context and asks children of their own experience in Hindi and children respond but there is no specific planning to begin from local language to move towards English.

High Touch Schools where Teachers Performed Well

1. GUPS Pratap Nagar, Sector 8

Date: 5th October 2018, Friday GGUPS, Pratap Nagar, Sector 8 [High Touch]

The teacher lacks experience in teaching primary classes but is eager to improve and engages in self-reflection to determine the gaps. She has a bond with the kids, knows their names, and recognizes their performance levels despite having spent only two months with them. She spends ample time in ensuring that the purpose and context of the lesson is understood. She does this by making use of the discussion questions listed in the textbook. Perhaps if she were provided with more such reflective questions spread throughout the lesson, she would be able to perform at a far better level. The teacher does not lack in capacity, she lacks in variety and experience. Which were also her demands from the programme.

The teacher performance in the classroom, not being an isolated instance, may be seen in relation to other school factors. These are listed below,

School Space- school has a large campus and playground. The classrooms are big and spacious. These are maintained clean and tidy. Children sit in one half of the classroom owing to its large space. This space can be used for activities within the classroom. The children sit on mats. They leave their footwear outside the room lined up neatly.

Head Teacher: The Head teacher is supportive of the staff. She has been in the school since last 10 years as a teacher. She has been recently promoted as a Head Teacher. She has been a part of educational transformations as the Janshala, DPEP and later the SSA. She looks forward to good quality trainings for the teachers.

Training: The teacher is looking forward to the EdTech material and content. She originally has worked as an elementary school teacher (teaching classes 6-8) and is now constrained to teach class 3 and 5 and shared that she would like to know methods that she can use to teach children as she is not able to get across to them as well as she can with the class 6-8 students. She recognizes that the teaching methods for the younger children will be different but she does not know how to do it herself therefore she looks forward to a training that can help her do so.

2. GUPS, Jyoti Nagar

Date: 3rd October 2018, Wednesday GGUPS, Jyoti Nagar, Jaipur West [High Touch]

The English teacher was teaching EVS in the previous school. She has started teaching English since last academic session and is constrained in teaching the subject. The teacher has however brought improvement in English in the present school as she is concerned about children. She said she needs training as she is keen to do activity-based teaching in the class but knows little of how to do this in English. She asked our team to conduct an activity in the class that we did. After the activity we also sat with the teacher to discuss what 'activity-based teaching' means and how she can start thinking of making a class more engaging. Her request for a training in English was logged.

This school is a supportive space for teachers performance because of the following factors.

School Space: The school covers a small area. It has small rooms. It is neatly maintained. The children are seen in uniform. The classrooms are neat and tidy. There are separate toilet facility for girls and boys with running water facility. The school is supported by an NGO that sends two additional teachers to the school and helps improving infrastructure.

Head Teacher: The HT is very responsive and supportive of the teachers. She takes Maths classes regularly at school and maintains all teacher records and portfolios. She is a SRG (State Resource Group) for Maths and encourages teachers to use activity-based methods of teaching as she does them herself in class. She has a good idea about the learning outcomes, lesson plan and assessments and helps the teachers with academic inputs from time to time.

Training: The English teacher did not attend the Sterlite Tech Training as she was on leave but she is keen to learn and know methods of teaching English that can improve her classroom transaction. She categorically requested for English teacher training for herself.

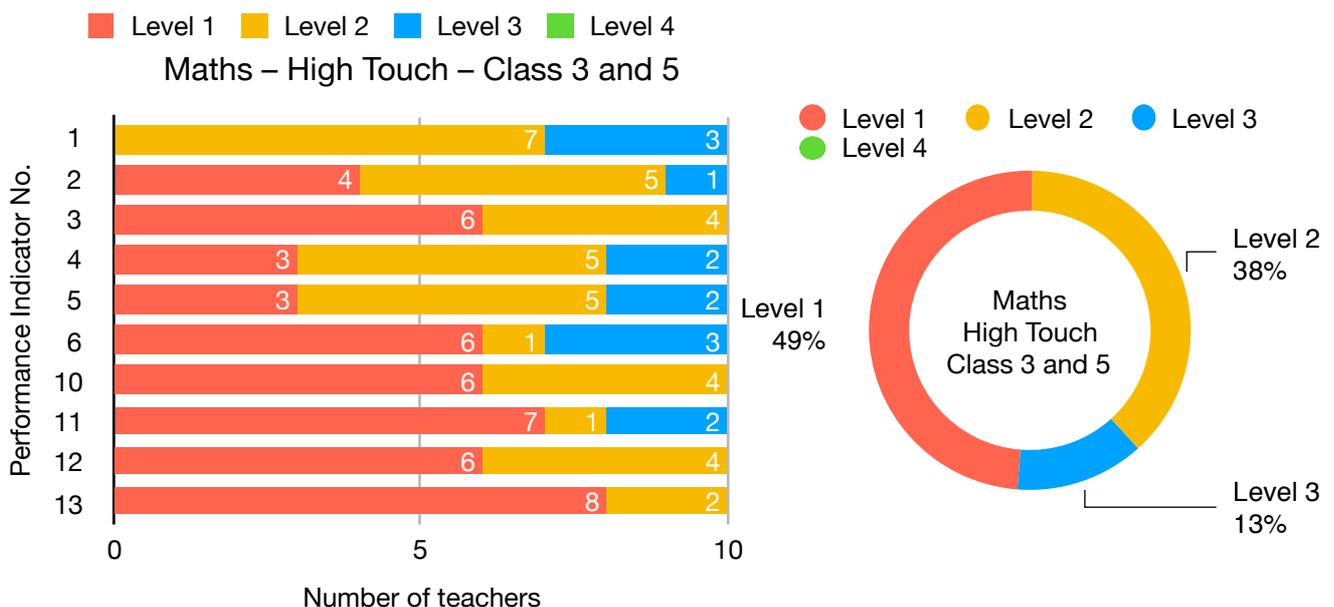
Maths Teachers

Teachers of Maths in High Touch schools are at level 1 and 2 on all Maths indicators. These are detailed as given below.

Areas of poorer performance of maths teachers

Pedagogy of Maths

- *The teacher connects mathematics with the surrounding context of the learners by talking about their daily life experience:* Majority of the teachers take examples from the text to practice concepts. Then students are given practice questions to solve. Teachers teaching fractions on a number line give reference of roti divided into parts from their context but such examples are limited in number. They have mostly been learnt from the trainings and teachers are unable to bring examples on their own.
- *Using concrete objects, followed by pictures and then symbols, the teacher moves from tangible to abstract when talking about mathematical concepts:* 29% Teachers were observed using concrete objects and moving to pictures and symbols in order to teach numbers but there was no clear sequence identified. This was more intuitive rather than planned consciously.
- *The teacher makes use of objects in the immediate surroundings as TLM when teaching mathematics.:* 43% teachers were seen as using material in their immediate surroundings as TLM. Teachers mostly use cards with numbers written on them as TLM. They even call children forward to act as numbers. The children's participation increased due to use of TLM in the classroom. Teachers attribute this to their state level trainings.



- *The teacher makes use of a variety of exercises to improve the learners' understanding of the mathematical language:* Teachers are seen giving multiple examples for practice but it was observed that these examples were mostly from the textbook.

A stronger foundation in terms of understanding what mathematics is, the approach to the teaching of the subject and exactly how TLM works in Mathematics (including the movement from concrete to pictorial to symbolic) would help greatly. Though both the use of activities and materials is visible in some form or the other, neither are being used as effectively as they could.

It is also important for the Maths teachers to be able to go beyond the textbook and bring in children's lived experience into the learning of mathematics. Hence, understanding children's environments, and their after school activities at home and beyond, would provide a basis for this.

Medium to expected level performance in many teachers

Teachers are at level 1, 2 and 3 on the following indicators,

- *The teacher creates an equitable and encouraging learning atmosphere in the classroom:* The teachers had a good relationship with the children and the class was seen participating well. The teachers gave questions for all to solve and mostly all children were eager to participate. All those who participated were encouraged.
- *The teacher creates a teaching plan and follows it in the class:* Teachers make plans and prepare for the class in advance sometimes but most of the times they plan and use the TLM as the class situation demands.
- *The learners are involved in an interesting and challenging, activity-based learning environment:* The teachers generally give the exercises to the whole class but the classroom ethos is such that children start participating in groups and solving it. There is no conscious planning by the teachers at this point.
- *The teacher conducts a regular assessment of student learning levels and makes use of it in developing a relevant teaching strategy:* Teachers conduct assessments as mandated. They maintain portfolios of individual children that are updated every week with remarks. Maintaining portfolios keep them informed of the level at which the children are.
- *The teacher manages and arranges the classroom in a way that ensures that all learners are able to engage with each other in the learning process:* The teacher does not do this consciously. It is the set of questions asked that generate participation and learning from each other.

An important aspect is to address varying needs in the classroom. The good part is that teachers seem to be aware of where the students are in terms of learning levels – they need a greater repertoire of the ways in which they can address these different needs.

Only after teachers have understood the basics of activity-based learning and have begun to implement it reasonably effectively in whole class, group and individual learning situations, can the use of differential learning techniques be introduced. Hence this is a point for Year 2, but with an awareness of it from right now. If an opportunity arises, the Pragyan team doing the follow up can point these out to teachers.

High Touch Schools where Teachers Performed Well

1. GUPS, Jyoti Nagar

Children were participative, activity-based learning was taking place. The teacher's voice was encouraging and children responded well to her teaching. She used number cards to do a maths activity and taught the concept of ones, tens and hundreds using the cards. Formative evaluation took place during the lesson itself with each child given a chance to answer questions. The teacher addressed problems that children were facing in learning.

This school is a supportive space for teachers' performance because of the following factors:

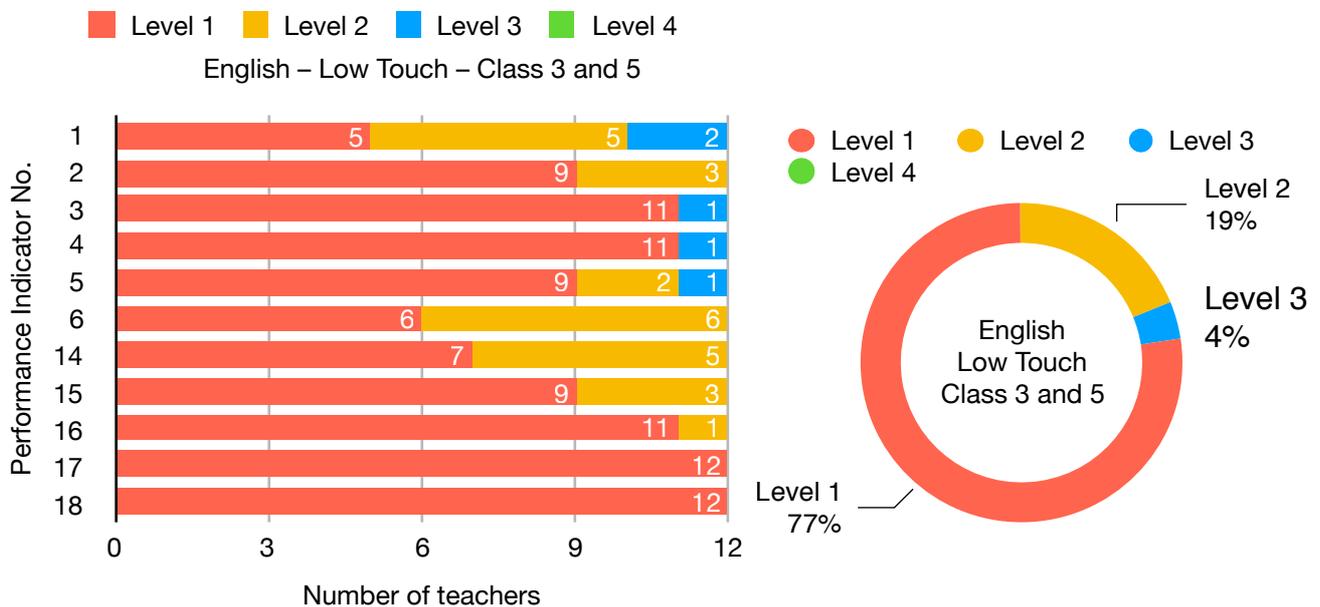
School Space: The school covers a small area. It has small rooms. It is neatly maintained. The children are seen in uniform. The classrooms are neat and tidy. There are separate toilets for girls and boys with running water facility. The school is supported by an NGO that sends two additional teachers to the school and helps improving infrastructure.

Head Teacher: The HT is the Maths teacher mentioned above. She very responsive and supportive of the teachers. She takes Maths classes regularly at school and maintains all teacher records and portfolios. She is an SRG (State Resource Group) for Maths and encourages teachers to use activity-based methods of teaching as she does them herself in class. She has a good idea about the learning outcomes, lesson plan and assessments and helps the teachers with academic inputs from time to time.

Training: The English teacher did not attend the Sterlite Tech Training as she was on leave but she is keen to learn and know methods of teaching English that can improve her classroom transaction. She categorically requested for English teacher training for herself.

This is one school where another NGO's inputs are being provided. Ways in which synergy can be attained between that input and Pragyan should formally be found.

Low Touch Schools English Teachers



Data Analysis

Areas of poor performance

Teacher Indicator Performance data shows that 100% teachers are at level 1 in two general pedagogy indicators and three English pedagogy indicators. These indicators are,

General Pedagogy

- *The teacher makes use of teaching-learning materials (TLM) in an effective manner-* During the classroom observations it was noted that the textbook was the central to learning in the classroom and teachers' focus was to complete the lesson.
- *The learners are involved in an interesting and challenging, activity-based learning environment:* It was observed that the teacher followed the chalk and talk method with children as passive listeners most of the time unless asked by the teacher if they understood what she spoke.

Pedagogy of English

- *In order to build their verbal expression in English, students are encouraged to make use of their home language by making use of both languages together at first and then moving towards English alone:* The classroom observations and interviews showed that the teachers struggle with English language pedagogy because the language is not spoken in the children's context. Some teachers point out that they were teaching other subjects like EVS, Hindi and Sanskrit earlier but due to paucity of teachers they had to undertake the subject. They mentioned that they need trainings on activity-based teaching learning so they can do so themselves.
- *To make reading enjoyable for the learners, the teacher introduces the study material in a lively and attractive manner so that students are motivated to read on their own:* The focus of the teachers was the textbook and there was no other study material used.

- *The teacher creates opportunities wherein the learners have to think about a certain topic of interest and then share descriptions, processes and opinions about it:* Teachers do not give a topic to write. They write the text on the board for children to copy. The teachers, when interviewed, did not realize that children's own expression is important for language learning. They themselves struggled with approaches to teaching of English. Most of them used the translation method. They concentrated on correction of punctuation, pronunciation and vocabulary of the text at the same time the children read the text for the first time.

Given that there is actually no real difference between high touch and low touch schools (to start with, at any rate), many of the implications mentioned earlier for high touch schools would apply here and vice-versa too. *All teachers will need strengthening on basics of activity-based teaching learning processes.* It will help them to understand how the lessons in the textbooks can be transacted in a participatory and experiential process.

Many English teachers were teaching other subjects and are not really prepared to teach English. Inputs to them should provide them a foundation that they can build on further.

When teachers are not clear about what to do they tend to revert to methods by which they were taught when they were children, or try only those actions where they feel they will retain 'control'. It is important that Pragyan team help them experiment without fear, to try out different ways of attaining their objectives. This support can be in the form of discussing and planning with them, giving some reading material that provides the basis for what they might be thinking of doing, or sharing the experience of some other teacher doing the same. It will also be helpful to talk with the local supervisor/ URCC / PEEO and HMs in this regard so that they do not make it uncomfortable for the teacher to try out something new.

Medium level performance

Indicators at which teachers are at level 2 are

General Pedagogy

- *The teacher creates an equitable and encouraging learning atmosphere in the classroom:* The classroom observations reiterated this finding as teachers had good relationship with teachers. The teachers spoke reassuringly to them and asked if they could understand what was being taught.
- *The teacher creates a teaching plan and follows it in the class:* The documents observed showed that the teachers maintained the state mandated lesson plans for multi-level teaching. These plans are based on lessons of the textbook to be completed and syllabus in general. They do not refer to the learning outcomes in specific. Teaching units are segregated and independent rather than being continuous. Moreover, the plans made in the lesson plan diary are not implemented in the class as the teaching in class is done using the whole class approach.
- *The teacher conducts a regular assessment of student learning levels and makes use of it in developing a relevant teaching strategy:* The interview and observation showed that the teachers take regular assessments of children. They maintain each child's portfolio and assigns remarks. Most teachers do not plan separate strategies of teaching. They explain each sentence and mark answers for children to copy them. They make peer groups so children can learn from each other.
- *The teacher manages and arranges the classroom in a way that ensures that all learners are able to engage with each other in the learning process:* The classroom observations and

interview with the teacher showed that the teachers have made peer groups (bright child-below average child) to assist children in learning and that the children look into each others' notebooks and copy. This however does not mean that the teacher organizes classroom to assure leaning for all. While making the lesson plans, the teachers make plans for two groups of children in each class – group A and group B and they maintain individual portfolios for each. This is because they follow the practice that all children, even if in one class, are at different levels and teachers need to plan to each separately. While the portfolio is helpful to gauge each child's progress and work accordingly, making more than two groups gets difficult for the teachers. By seating children in pairs of differing pace of learning, the teacher enables them to learn from each other. During the classroom observations it was seen that all teachers teach the whole class using the same set of activities and methods though they are maintained in the lesson diary as group A and group B. In one case, where the teacher has made two groups, it is a discriminatory practice where the group A is told that they are bright and group B are told that they have to learn.

Pedagogy of English

- *Of the total teaching time, oral activities are done for 30% of the time in Class 3 and 20% in Class 5: Here level 2 refers to teacher asking information questions to children for 2-4 minutes before the beginning of the lesson. In all schools, it was observed that the relationship between the teacher and learners is congenial. The teachers know the backgrounds of the children and are sensitive to the fact that they do not get opportunity to speak the language in their context therefore they teach the subject such that they can understand. Due to lack of understanding of giving primacy to oral activities in language learning however, the oral interactions are limited to teacher clarifying and children responding.*
- *During oral activities, the teacher makes connections with the objects, situations and processes occurring in the surroundings of the learners. Using this the logical thinking and imagination ability of the learners are enhanced with the help of discussions and debates wherein they are encouraged to form and share opinions: Here level 2 refers to teacher asking a few information questions about the local environment to the children. It was observed that the teachers explained the lesson giving references to objects in the environment. The ongoing lessons in class 3 'Swachh Bharat Abhiyan' and poem in class 5 'Traffic Lights' were being taught by giving reference to the traffic lights and a school programme held on 2nd Oct to commemorate Gandhi Jayanti.*

Teachers who are at level 2 on performance indicators are doing mostly well at the general pedagogy indicators. This was observed during classroom observations and interviews.

Where teachers are already implementing practices (such as peer learning or the use of student portfolio or oral activities), these could be supported and extended to reach a more desirable level. (Though these are 'Level 2' it would be more appropriate to dub it 'Level 1.5'!) At the same time limitations (such as labeling children as belonging to the 'bright' A category or the restricted nature of oral language usage in English) would need to be worked on. Here, it would be useful to take the help of head teachers and local supervisors since these are state mandated practices. On learning how these ought to be implemented, supervisors could also take to other schools.

Support materials being prepared for teachers should also take these into account.

Low Touch Schools Where Teachers Performed Well

1. GUPS, A Circle, Jagatpura

Children were not participative in English classroom. Children listened to what teacher said and repeated after her. Teacher was teaching preposition in class 5 - in front of, in, under, on, up etc. The teacher told the children about the prepositions mentioned and asked them to copy them in the notebook.

The teacher used material available in the classroom to teach prepositions. This helped the children connect the meaning of the prepositions used. The concern is that the teacher conducted the activity herself posing a few information questions 'Where is the duster?' 'Where is the pen?' The logic, reason or imagination questions were not asked which is why children did not get to think about the prepositions themselves (*Source: Field Report, Sterlite Baseline Assessment*).

The teacher performance in the classroom, not being an isolated instance, may be seen in relation to other school factors. These are listed below,

School space is attractive, clean and organized. Facility of water cooler and drinking water is available. There is separate toilet facility for boys and girls. Toilets are maintained well. Fans in classroom are in order. The facilities are conducive to learning. Mid-day meal is provided by Akshay Patra. Children wash their hands and sit organised in lines to eat.

Head Teacher- The Head Teacher was appointed to the school 10 months ago. Since his appointment, he has made efforts to increase enrolments from 113 to 163 students. All the students have passed with good results and he got water facility in the campus and fans installed in the classroom. Head Teacher has a good relation with the teachers. Teachers of class 1-5 and class 6-8 have separate rooms allocated to them. The school has a PTR of 23:1. There are 2 male and 5 female teachers.

Trainings- The teachers have a good relationship with children. This was visible in the classroom interactions. During the interview the teachers shared that they tried to allay inhibitions of children first, so they can talk freely to them. They shared that they learn activity-based teaching in trainings and use them in classrooms. They also share that this way the tendency to ask questions has increased.

2. GUPS, Pratap Nagar

Date: 5th Oct 2018, Friday, GUPS Pratap Nagar, Sector 8

The teacher lacks experience in teaching primary classes but is eager to improve and engages in self-reflection to determine the gaps. She has a bond with the kids, knows their names, and recognizes their performance levels despite having spent only two months with them. She spends ample time in ensuring that the purpose and context of the lesson is understood. She does this by making use of the discussion questions listed in the textbook. *Perhaps if she were provided with more such reflective questions spread throughout the lesson, she would be able to perform at a far better level.* The teacher does not lack in capacity, *she lacks in variety and experience.* She posed these demands from the training programme (*Source: Field Report, Sterlite Baseline Assessment*).

The overall school ethos, Head Teacher and her commitment to teacher support, infrastructure and resources available in this school are listed,

School Space was large, neatly maintained and had large sized classrooms. The children sat on mats in one half of the large classroom. These rooms were mopped and cleaned in the morning. The children lined their footwear neatly outside the class before entering. The school has a large playground. The morning assembly is a space for instilling norms of behaviour. The students say their daily prayers followed by teachers talking about topics as cleanliness, hygiene and good behaviour. The assembly culminates after singing the national anthem.

The **Head Teacher** in the school was appointed as teacher in the same school since 2001. She was a part of the school when the major education projects were undertaken in India- the Janshala, DPEP and later SSA. She has been appointed as a Head Teacher recently. She is appreciative of the teachers and wants to give them good trainings for improving classroom teaching. The Head Teacher as well as the teachers are aware and sensitised of the children's background (mostly belonging to the waste-picking community). There are 8 teachers and 173 students in the school; PTR ratio 1:21.

Library- The school has a library run by Azim Premji Foundation. The library has books in all subjects but lacks books in English. Only a dictionary is available.

Training- the English teacher specified that she needs training to understand how children learn. As she is a teacher of class 6-8 and has started teaching younger classes recently, she feels constrained to connect with children.

It is instructive that where teachers are doing well, usually the HT is sensitive, appreciative of the teacher, and generally a good manager. This is manifested in the good upkeep of the school. Pragyan team could interact with such HTs and find out the steps taken by them, and the kind of support given to teachers. Strengthening the *instructional leadership* of HTs (goal setting and planning, arranging resources including academic ones, supporting teachers and given them feedback) is known to play an important role in improving student learning outcomes.

Maths teachers

Teacher Performance Indicator data shows that Maths teachers' performance is distributed over levels 1 to 3.

Indicators that show low level of performance

The two General Pedagogy Indicators and 3 Maths indicators that they are found at level 1 are,

General Pedagogy

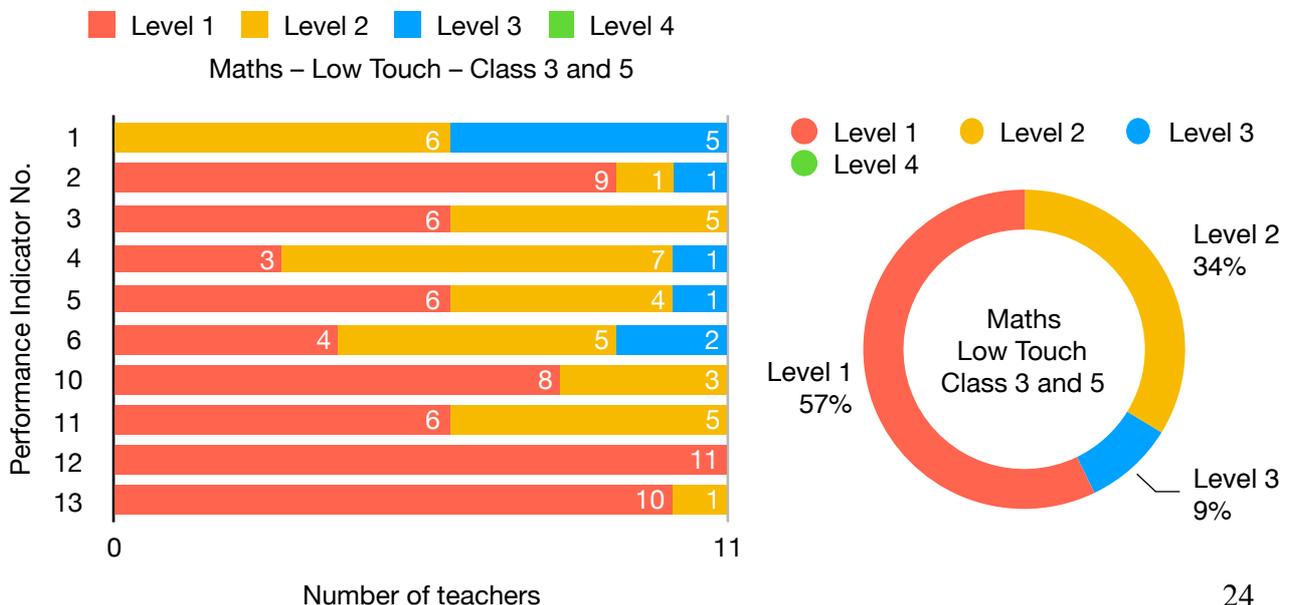
- *The teacher creates a teaching plan and follows it in the class:* It was seen that the teachers make the mandatory lesson plans but these are not followed in the classrooms. Like the English teachers, Maths teachers too make plans for two levels of students and these focus on completion of syllabus rather than on learning outcomes.

- *The teacher conducts a regular assessment of student learning levels and makes use of it in developing a relevant teaching strategy:* The teachers maintain individual child profiles and conduct summative assessments as assigned in the school time-table. The teacher does not use formative assessment techniques in the classroom for learning assurance. When interviewed, the teachers could not identify the techniques of formative assessment. They said they know children are learning when they say they have understood and when they write the tests.

Assessment, its use as a pedagogical tool, and data-assisted decision-making are key issues that need to be addressed. One difficulty here is that the abstract thinking skills these involve are often missing (collation of data, comparison, contrast, seriation, prioritization, inferring and using this to identify from a repertoire of possible action the actual action to be taken). As can be understood, these skills take time to develop – sometimes they even trigger fear and negative reactions. Therefore, it would be good to begin on basic data and logical thinking skills this year, and taking them to the desired levels in Year 2.

Pedagogy of Maths

- *The teacher connects mathematics with the surrounding context of the learners by talking about their daily life experiences:* The Maths teachers did not connect mathematics to the context of the learners. In most schools, class 3 teachers were teaching addition of three-digit numbers using algorithmic method and class 5 teachers were teaching fractions on a number line or making tally. In all these classes, the teachers used examples quoted from the text. In one school, 'the teacher kept asking if the children understood. When the teacher asked a question in Maths, children contributed in framing the question relating to their context, but this was rejected. The teacher raised a question- he said that a person has 2000/- rupees is going to the market to buy certain things. What do you think he will buy? Children said the person bought TV, mobile. He rejected this answer. Teacher said he went to buy sugar. One child said that costs 34 rupees a Kg. This was rejected too, and teacher said he bought sugar worth 600/-. Then the children said, 'Sir this is the same question as in the textbook.' On interviewing, the teacher shared that he knows that the children participation is to be taken but does not know how to use that as a resource for learning (Source: Field report, Sterlite Baseline Assessment).



- *The teacher makes use of objects in the immediate surroundings as TLM when teaching mathematics:* Teachers were seen using number cards and calling children to stand as numbers but they did not use objects in the immediate surroundings as TLM.
- *The teacher makes use of a variety of exercises to improve the learners' understanding of the mathematical language:* The teachers give exercises from the text to explain and clarify.

Medium to expected level of performance

The four General Pedagogy Indicators and two Maths indicators they are distributed over levels 1,2 and 3 are:

General Pedagogy

- *The teacher creates an equitable and encouraging learning atmosphere in the classroom:* 62% teachers are on level 2 and 25% teachers are on level 3 of this indicator showing that teacher creates a congenial atmosphere in the class, encourages children to talk although the tasks are done as a whole group. While a few children in classes of 62% teachers participate in classroom activity, all children in classes of 25% teachers were seen participating in the classroom to solve questions on the board and doing Maths activity. Interview with the teachers showed that they use the techniques learnt during the Maths training workshops organised by the State.
- *The teacher makes use of teaching-learning materials (TLM) in an effective manner:* 12.5% teachers are at level 2 and 12.5% teachers are at level 3 of effective use of TLM for teaching of Maths. This means that the teachers at level 2 are using concrete material to teach Maths and some of them are using material, stories from the context to teach Maths. The observations showed that a few teachers follow E-L-P-S sequence and they mention about use of concrete material to build an understanding before moving to more abstract understanding. They are following an intuitive sequence rather than a considered sequence.
- *The learners are involved in an interesting and challenging, activity-based learning environment:* 62.5% teachers are at level 2 and 12.5% teachers are at level 3 in this indicator which means whereas 12.5% teachers conduct oral activities regularly, 62.5% teachers conduct these 2-3 days in a week. The textbooks itself contains many examples that were extended by teachers as examples for children to think and do activities.
- *The teacher manages and arranges the classroom in a way that ensures that all learners are able to engage with each other in the learning process:* Teachers were seen encouraging children to participate in solving sums mostly as a whole class though some teachers were seen either making groups or letting children discuss.

Pedagogy of Maths

- *Using concrete objects, followed by pictures and then symbols, the teacher moves from tangible to abstract when talking about mathematical concepts:* Most teachers were seen using either picture cards, giving examples by drawing on the board or calling children to depict numbers in both the classes. The teachers were aware that the children learnt better with concrete material and they find difficulty in moving to symbols directly.

In case this has not already been done, Pragyan team should analyze the training modules of the state's in-service training programme in which teachers have participated. Since some of the project schools also have SRG members, they can also be interviewed. This will ensure that forthcoming inputs are not only aligned but build upon state components, which in turn will encourage the state to adopt Pragyan inputs as they roll out.

While teachers are comfortable with oral activities, they will need to be supported in the use of activities based on reading-writing and concrete materials, in particular those that involve students to think collaboratively.

Low Touch Schools where Teachers Performed Well

1. GUPS, Circle, Jagatpura

Date: 1st October 2018, Monday, GGUPS, Circle, Jagatpura, Sanganer [Low Touch]

The teacher entered class 3 and started teaching addition of 3-digit numbers. He wrote a few sums on the board and asked children to come over and solve them. Many children raised their hands. A few were called. They solved the sums. Then the teacher asked the whole class if these had been solved correctly. If some children responded with no, they were called over to rectify the sums. Many such sums were written on the board and all children got a chance to come and solve these. The process entailed two things, one that the whole class was encouraged to participate and when they did, they were encouraged in front of the class. The children who could not do sums correctly were not afraid of coming up to the board and solving it. But the second process where children had to identify and correct errors encouraged only a few children to participate. The teacher needs to planning and organization for learning assurance.

The teacher performance in the classroom, not being an isolated instance, may be seen in relation to other school factors. These are listed below,

School space is attractive, clean and organized. Facility of water cooler and drinking water is available. There is separate toilet facility for boys and girls. Toilets are maintained well. Fans in classroom are in order. The facilities are conducive to learning. Mid-day meal is provided by AkshayPatra. Children wash their hands and sit organised in lines to eat.

Head Teacher- The Head Teacher was appointed to the school 10 months ago. Since his appointment, he has made efforts to increase enrolments from 113 to 163 students. All the students have passed with good results and he got water facility in the campus and fans installed in the classroom. Head Teacher has a good relation with the teachers. Teachers of class 1-5 and class 6-8 have separate rooms allocated to them. The school has a PTR of 23:1. There are 2 male and 5 female teachers.

Trainings- The teachers have a good relationship with children. This was visible in the classroom interactions. During the interview the teachers shared that they tried to allay inhibitions of children first, so they can talk freely to them. They shared that they learn activity-based teaching in trainings and use them in classrooms. They also share that this way the tendency to ask questions has increased.

2. GUPS, Mansarovar Old

Date: 5th Oct 2018, Friday, GUPS, Mansarovar Old [Low Touch]

The teacher was teaching numbers-Making a tally. Teacher gave an example of transport, added numbers for each kind and then asked them to make a tally. Then she took a classroom example. There were 3 girls and 5 boys in the class. She wrote each one's name and added names of their siblings to the list by asking them. Then she asked them to make tally marks. The children were then explained about the tally marks and its relation to numbers. The children added number of their siblings to the list. Teacher did three things - took examples and allotted them numbers, made tally marks for numbers and converted these tally marks back to numbers. She engaged the children in making the list. She could have planned to engage children in converting examples to tally to numbers (*Source: Baseline Assessment, Sterlite School Tech*).

The enabling and supportive conditions can be understood thus,

School Space - the school has 12 rooms including the Head Teacher room and Anganwadi room. There is space to play. There separate toilet facility for boys and girls and this is maintained well. The rooms are well maintained. There are mats in some classes and some have benches. The open spaces are maintained clean and tidy. Children are provided milk and mid-day meal. Teachers and students were seen to be working together to keep the classrooms clean.

Head Teacher - The Head Teacher is supportive of the teachers. Head Teacher attended the Pragyan Training for one day and is hopeful that the project will benefit the children. He has identified a room for installing the equipment. The school has a PTR of 1: 19 (10 teachers and 193 students).

Trainings - Both the teachers did not attend Pragyan training. They were given an overview by the team. They attend the state mandated trainings regularly and make use of the learning in the classroom.

3. GUPS, Dholai

Date: 3rd Oct 2018, Thursday, GUPS, Dholai, Jaipur West [Low Touch]

The teacher demonstrated addition on the blackboard using the concept of ones and tens but realized that some of the students did not understand this. Then she used a number where numbers did not have to be carried over for the class. The group that did not understand before said they could do this. She gave 5-5 questions each to both the groups. Teacher recapitulated the previous lessons and asked a lot of why and what questions and children participated actively. Children were talking to the teacher freely and posed questions and queries. Two children of the entire class were seen to be asking most questions, but when it came to solving questions all were seen to do so (*Source: baseline Assessment, Sterlite School Tech*).

School space - The school premises is neat, tidy and well-maintained.

Head Teacher - The Head Teacher is supportive of the teachers. Head Teacher attended the workshop so did the teachers. The school PTR is 1:12 (teachers 7 and students 85)

Training - The teacher was using learning from previous trainings to teach children in the class. This was one of the few classes where teacher made groups and allotted separate tasks after taking children's suggestion.

Control Schools

To begin with, the Pragyan Project team studied a number of schools and selected its high touch and low touch schools on certain criteria (details in Annexure 2 – Sample Selection). The schools that were studied, but not selected for intervention were taken as control schools. Initially, 5 control schools were selected using random selection method. The baseline assessment showed a below par performance as compared to low-touch and high-touch schools (19 in number). This prompted the Pragyan Team to include two additional schools as control schools.

Two comparable control schools added were – GUPS, Sanganer and GUPS, Airport. In the current selection, the schools' infrastructure, number of children, PTR ratio and backgrounds of children are similar to Project Pragyan intervention schools.

A baseline assessment of the teacher performance in these two schools is detailed below:

1. GUPS, Sanganer Old

Date: 16th Jan 2019, Wednesday [Control]

Class 3, Maths - The teacher wrote a three digit number on the blackboard and asked children to tell where she should write ones, tens and hundreds. She wrote another number after ones and asked them to rephrase the place values. Then she took children's responses to do addition. In the process, some children found difficulty in carrying numbers, adding numbers (as they added 1+4 as 14) and in naming numbers (they couldn't read 86). The teacher realized the gap and asked other students to answer. Children were participating but they did not pose questions to the teacher. Most children could answer. The 4-5 children (out of 26) who could not answer were seated with children who could.

School space - The school premises have two sections- one part with one HM room and the remaining school as a separate section. The school has limited space and rooms are tucked tightly close to each other. The school has a computer room. The computers are functional but the classes will start once the school has a computer teacher.

Head Teacher - The Head Teacher will be retiring in May 2019. She did not attend the last HM workshop. She is supportive of the teachers. School has 355 children with 14 regular teachers and 17 B.Ed. interns (PTR- 1:25). HM has allotted one B.Ed. intern (and more) with each teacher.

Training - The teacher says she attends workshops but finds her ways to teach children. Among these, the use of finger counting and marking lines are useful, she thought.

Analysis - The teacher has good relationship with the children. She is aware of the gaps in learning but does not have methods to address these. She makes children who do not know sit with those who do, expecting them to learn from each other. She has no alternate plans for addressing this. It is likely that she does not know how to teach a multi-level classroom. She makes a lesson plan for two level groups but she does not teach them as such.

2. GUPS, Airport

Date: 17th Jan 2019, Thursday [Control]

Class 3, Maths - The teacher wrote a three-digit number on the blackboard from the textbook and asked children to solve it while she wrote on the board. The students answered. Children were participating but they did not pose questions to the teacher. Most children could answer.

Class 5, English - The teacher wrote opposites on the blackboard and asked students to repeat what she said. She taught using translation method.

School space - The school premises are large and open. It has a playground and large classrooms.

Head Teacher - The Head Teacher is supportive. She focuses on discipline and regularity of students. School has 100 children with 6 teachers (including HM) and 25 B.Ed. interns (PTR - 1:16). HM has allotted one B.Ed. intern (and more) with each teacher.

Training - The teachers share their learning from the training with all teachers. After the training, the Maths teacher focuses on completing the mandated tasks like writing lesson plans and portfolios. She does not apply it in the classroom. The English teacher shared her inability at knowing methods of teaching English to her students.

Analysis - The maths teacher has not been taking classes regularly since a few months and is replaced by B.Ed. interns who come for 2 months. Children are learning with a different teacher every two months. They are able to answer questions asked showing that they have been attended to. The matter of concern however, is that the teacher trainees teaching them are inexperienced. They are not regular and the children get new teachers every 2 months. This is problematic as the children's levels and pace of learning are neither recorded nor addressed. As regards English, the children are learning by translation. The teachers are teaching exercises given at the end of the lesson for these are tested. One can say that the teachers are 'teaching the test' rather than teaching the text.

Performance of Control Schools

The performance indicators of the two control schools is comparable to control schools assessed before which is why there is little to no difference in the performance graph shown below.

It is evident from the figure that a vast majority of the teachers observed in control schools are performing at levels 1 and 2. Addition of two comparable control schools has made the sample more reliable, as performance in these two schools is comparable to low-touch and high-touch schools. This is indicated below:

Performance on General Indicators

From the data collated, one can see that the performance of two control schools is comparable to 5 schools selected before, on the general pedagogy indicators regarding

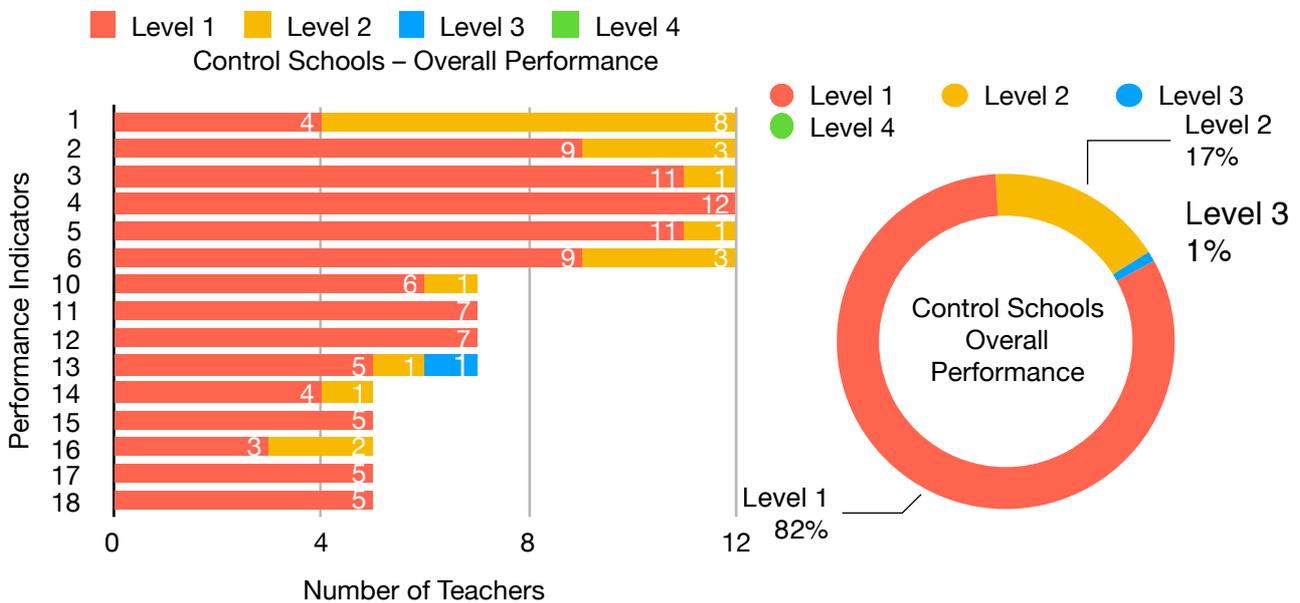
learning assurance for all children. The two control schools however, are better in building a classroom ethos conducive to learning.

Performance on Mathematics Indicators

In mathematics indicators, the two schools are comparable to the five schools selected before on including contextual material and examples for teaching of mathematics. The new control school is performing better on teaching of maths using a variety of examples and language of maths.

Performance on English language Indicators

The teachers in the two schools performed better on use of home language for teaching English. However, the pedagogical methods employed relied almost entirely on translation and learning by rote.



Overall, the similarities in terms of the infrastructure, pupil-teacher ratio, number of children and their backgrounds, the additional schools will lend a better comparative against the intervention schools at the end of the session.

Project Issues and Limitations

Issues with the programme design

The initial choice of control schools was not found to be fit for comparison in the present study as those schools generally lacked in performance in comparison to the treatment schools. Taking note of this, the implementing organisation updated the control school sample by including two new well-established schools from the area. These schools were found to be much more comparable to the treatment schools. However, comparing treatment schools to control schools is only one aspect of this research study. *The other more important facet is of tracking the performance of the treatment schools from baseline to end-line.* Witnessing an improvement there is the litmus test of the success of the programme.

Issues on ground

Some issues observed during the school visits are mentioned in the bullet points below. These have been detailed in the previous sections and the subsequent sections contain suggestions for the same.

- As of now, the general perception of the teachers is that it is their job to “make your (Sterlite’s) programme a success”. Their understanding the programme’s scope and intentions is lacklustre at best with one school head teacher assuming that the television will showcase educational programmes akin to those on Doordarshan.
- Some teachers displayed a tendency towards the captive audience phenomenon wherein technology is used as a child-minding device. This should be seen as a strategic caution.
- It was also expressed by the teachers that they were unable to fully comprehend the training conducted by the Sterlite team in September since the trainers spoke mostly in English.
- What is being written in the lesson plans and teacher diaries, what is being actually done in the class, and what is being asked for or provided in the programmes (the expectations) are three disparate items.
- There is no continuity in CCE. Summative assessments, formative assessments with portfolios and their integration into lesson plans are seen as three distinct activities instead of a continuous progression towards a same end-goal. The planning activities have to be seen as a whole and not as a supplement.
- Learning outcomes are not central anywhere.
- Teaching of English as a foreign language to disadvantaged groups is a serious activity. Drawing a parallel with learning of second language is inappropriate. Teachers require a lot of training to be able to tackle this properly since their own English language skills are not too high.
- Alignment with state training is necessary to create lasting, scalable impact.

- The material being made available is created for a different (a more middle-class) audience. The students in the schools are from disadvantaged communities. They will not relate to most of this content. This is the same problem as that of a textbook.
- The SMCs are powerless in most cases since the migrant population doesn't voice their concerns.

Perspective of Head Teachers and Teachers about Project Pragyan

Perspective on Sterlite School Tech

Interview with teachers and Head Teachers show that Sterlite School Tech is seen as a provisioning agency that will provide smart TVs and content for teaching in the classroom. As of now, the general perception of the teachers and Head Teachers is that the project will benefit the children as they will be attracted to audio-visual media and will learn from the content shown. The stakeholders have not owned the project as yet and see it is their job to make Sterlite's programme a success.

Perspective on Training

The teachers shared that the training was difficult to understand as the technical trainer from Bangalore spoke in English. All they understood from the training was what they saw, not what they heard. They shared the concern regarding the trainer who spoke about content as they felt that the trainer was not an Early Grade Trainer. They shared that they wanted to see demonstrations, do activities as they were expected to conduct in class and also get their own issues addressed as they teach multi-level classrooms with children belonging to disadvantaged groups.

Perspective on Supervision

The Head Teachers were appreciative of the regular visits of the supervisory team but they do not see the team as an academic resource that can help in making teaching easier and better for their teachers. They perceive the team's inputs as limited to the technological and administrative issues of the programme.

Way Forward for Sterlite School Tech

This section presents a number of key considerations emerging from our analysis of teacher performance, interactions with stakeholders, discussions with SST team and our understanding and experience of intervention in state school systems. A large number of suggestions is listed here – however, SST would need to prioritize as well as identify those which are feasible as well as needed at this stage.

The major challenge for Sterlite School Tech at this moment is to convert the perception that stakeholders have of Sterlite School Tech from a provisioning organization to an organization focused at improving quality of education. Sterlite School Tech needs to come across as an influencer, not a provider. For doing this, the Pragyan team has to come across as an academic resource for the teachers. The points below could help bring about the same.

Implications for Programme Design

The demographic make-up of control schools is mostly that of disadvantaged communities as is the case with the treatment schools as well. The infrastructure, number of students and pupil-teacher-ratio are also similar. However, the control schools do not have tech-enabled classrooms, except one school (GUPS, Sanganer), but there too computer classes haven't started owing to unavailability of a computer teacher. Of course these control schools will not receive capacity building inputs from Project Pragyan.

The end-line comparison therefore, will compare the performance of teachers in project implementation schools versus control schools using teacher performance indicators. This will be seen across the three categories i.e., high-touch, low-touch and control schools in General Pedagogy indicators and in the three categories in Maths and English indicators. The project objective thus can be surmised by verifying the hypothesis that the performance of a teacher in a school that receives supportive supervision from Project Pragyan will be better than that of a teacher who does not receive this additional input; all other variables and state mandated trainings and programmes remaining same across the board.

The percentage of improvement in the three categories of schools will be compared against the facilitation provided by the supportive supervisors. Studying this correlation will require the supportive supervisors to maintain records of supervision that include general and specific inputs given to the teachers as well as changes observed in teacher performance.

Primary suggestions

- The team could focus on how to enable teachers do more by getting suggestive frames from the Sterlite Tech Team. This applies to creating activity frameworks and helping teachers be more effective and efficient.
- The team could try to change the student-teacher relationship rather than laying complete emphasis on teacher performance, as the teacher learner relationship translating to learning outcomes will make teachers experience success.
- Sterlite School Tech long term-vision is based more or less on positioning and scaling right now. This needs to be focused on building a sustainable project that can benefit the teachers and improve learning outcomes by a supportive supervision design.
- Teacher professional development should be connected to the teacher's pedagogical performance and not her ability to use the equipment provided to them. Therefore,

training needs to be aimed at enhancing teachers capacity to teach and develop professionally. The boxes in the earlier analysis of teacher performance contain many insights into what training may focus on in the earlier and later parts of the project.

- The team may develop performance assurance for each stakeholder in the programme especially the Sterlite School Tech field team with the help of mutually decided targets and guidelines. This implies: discussing the various performance indicators and agreeing on the ones to be focused on, agreeing on the desired levels to be attained in a given time period, and the various actions as well as support needed in order to get there (i.e. a *plan*), including the kind of monitoring (by self or peer as well as an external observer) that needs to take place, to be followed by action.
- The monitoring and supervision plan could entail physical and qualitative aspects that are phased over time. Physical aspects have to do with events, supplied materials etc. (e.g. training workshop or number of participants or number of schools that have received equipment by the time intended). Qualitative aspects are related to the process indicators used in this Assessment or others that may be decided upon later. Sequencing these over phases of shorter durations (such as 2 month phases) implies that only a limited aspects may be taken over each phase, focusing an achievable degree of improvement.
- Instead of viewing technology as a supplement or add on, there is a need to integrate it into the existing structure of learning-teaching method so that it can engage the learner and enhance the learning. For technology to be really useful, it needs to enable engagement, collaboration and contextualization (and at a later stage, even personalization). That is, instead of merely acting as a source of information or 'content', technology should set interesting challenges that involve children and require them to think. An important aspect would be to make use of the child's or the community's fund of knowledge to create activities or mathematical problems.
- There is always a risk that the different components might be seen as discrete activities. Thus it is important to view and even foreground the linkages lesson planning, regular assessment and record keeping. With this holistic view, the team should be able to help the teachers in subject-wise planning of managing the physical space, time and processes.

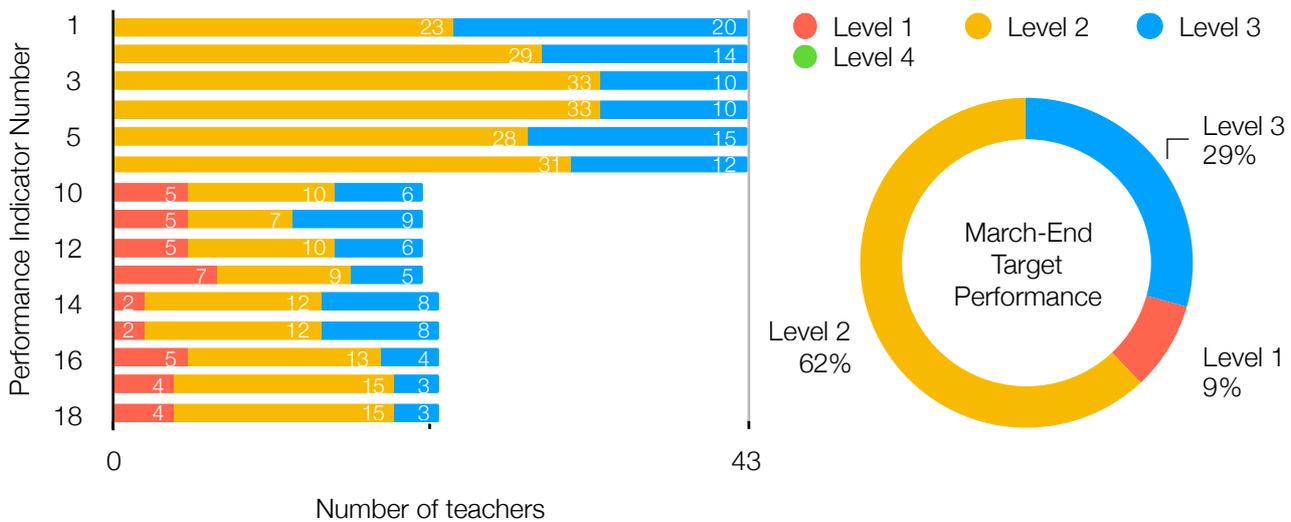
Setting targets with purpose

There are two types of targets that need to be set at the school and organizational level: tolerance target (or the minimum target) and ambition (where one would aspire to reach). An example of a tolerance target could be that 'there will be no teacher who has at level 1 in indicator X' – i.e. the project will not tolerate performance below a certain level. An ambition target, i.e. an aspirational one, could be that 'at least 60% teachers will be at Level 3 by the end of the year on indicator Y or on at least 3 indicators'.

For a teacher, the tolerance target could be achieving the expected performance level at the indicator that she is already good at or perhaps going one level above on a few basic performance indicators. The ambition could then be achieving a minimum of level 2 on at least 6 different indicators (spread across the general, technology and subject categories). Looking at the performance indicator data it is suggested that the General Pedagogy Indicators be focused first and subject specific indicators be focused through regular academic inputs and training.

Similarly, at the organizational level, these objectives help strategise the flow of inputs and design a roadmap. An example of the two types of target is presented below –

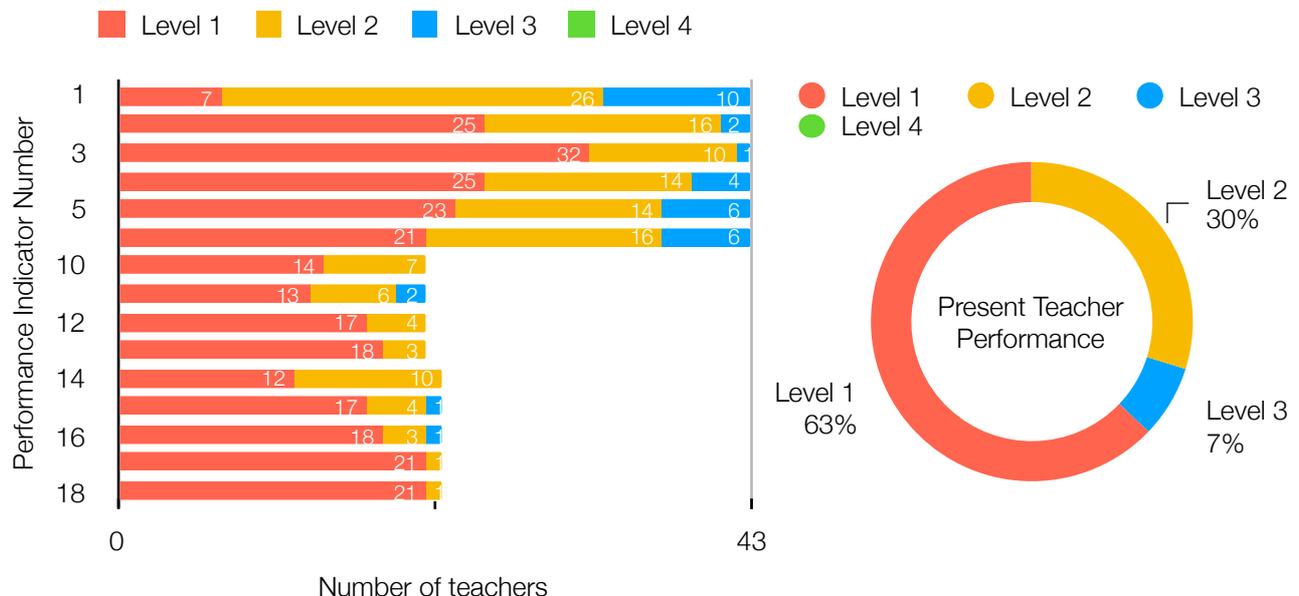
Level 1 Level 2 Level 3 Level 4



Status Quo: Combined Overall Performance of Treatment Schools

- Tolerance level: For each indicator in the general and technology categories all teachers are above level 1.
- Ambition: Of some core indicators (pre-decided) at least one teacher per school is at level 3. Or a certain percentage of teachers are at level 3.

In the chart below, we present this in the form of a prospective projected performance breakdown. To make the comparison easier we first provide the combined overall performance charts of treatment schools as found in the present baseline study and then we present the targeted charts.



Target Performance of Treatment Schools by March 2019

As can be easily interpreted from the above two sets of charts, the suggested target to be achieved by March 2019 is to ensure that all the teachers in treatment schools are able to

perform at Level 2 or above in terms of general pedagogy. The aim is to work initially with a primacy on teacher motivation with the help of demonstrations of what is possible with a simple shift in teaching technique. Based on this, a phasing of the project for the upcoming months can be created.

Phasing the Support

Pragyan needs to plan strategically for the three-year duration of the programme. The targets of relationships, processes and outcomes need to be constructed with the involvement of the key stakeholders. A three-year perspective is also needed because many of the inputs need a longer gestation period (e.g. some of the Year 2 inputs *already need to be in the development stage in order to be available at the time needed*).

Phase 1 (Sep 2018 to Mar 2019)

The aim in this initial phase should be to provide generic inputs to the teachers in order to give them a sense of success. These inputs should be made with the intention of helping them move beyond Level 1 in at least all general pedagogy indicators by the end of the calendar year. Along with this, all teachers should move to Level 2 in terms of technology usage.

Since the performance in English is visibly behind that in Mathematics, the support team in the field should look at devoting twice as much time to English than to Mathematics during their school visits. Since high touch schools receive at least 3 visits per month, 2 of these should be focussed on English teachers.

At the same time, the team should provide targeted inputs for the ambition indicators to teachers who are already performing at Level 2 or above. Though one may not see any visible improvement at this stage, it will set a solid groundwork for the next phase.

To this effect, the training and on-site support should help the teachers identify what changes they need to make in order to achieve targets. The changes come both ways – activities/habits that need to be adopted, and those that need to be curbed.

Phase 2 (Apr 2019 and beyond)

This is where the intervention tries to get improvement in the ambition targets while at the same time gaining significant advancement at the lower levels. A few suggested targets are –

- 70% of the teachers in all treatment schools are at level 3 in general indicators
- One teacher in every school is at level 3 across the board in all general indicators and in at least 2-3 subject indicators
- No teacher is at level 1 in any indicator – whether general or subject-specific

As the project will also scale in terms of number of schools, it would make sense to view the schools in terms of batches. The original 40 schools could be considered to be Batch 1, while each subsequent expansion takes on iterative numbers. A suitable target for the first level of expansion could be to ensure that 50% of teachers, combining both Batch 1 and 2, perform at level 2 across all indicators (category-wise, i.e., 50% of general indicators / subject / technology).

During the further phases of the project, the targets of original batch should apply to Batch 2 (and so on). Batch 1 should at this time work on advancing the minimum level from 2 to 3.

At the same time, the internal quality team should go on expanding. The initial team would likely consist of the present Sterlite/Pragyan team, some external resource persons, as well as 3-4 better performing teachers from the current batch. Going further, the team could grow with new members of Sterlite/Pragyan and teachers from subsequent batches also joining in. A suitable criterion would be to consider those teachers who are at least at Level 3 across all indicators.

Modifying stakeholder perception

As mentioned earlier, Sterlite School Tech(SST) needs to convert the perception of the stakeholders from that of a provisioning organization to an organization focused at improving the quality of education. For this, SST could look at organizing 'listening exercises' where teachers and administrators come together to mutually set targets and chalk out an improvement plan.

The MoU for this project has been through the infrastructural or administrative unit of the Education Department rather than the quality and innovation units (the SCERT, DIETs). This gap will need to be bridged. Tie ups with the quality and training cell should be sought by exploring possible partnerships from that end.

Background research

Going forward, there is a need to research on a number of aspects. Some of these are listed below:

- Get more information on government or corporate-sponsored allied technology and capacity building interventions in the region which the Project Pragyan could leverage. For example, Azim Premji Foundation's library programme looks to establish libraries in English in some of the schools under the project purview. These books can be utilized by Pragyan ground team when visiting schools in order to give suggestions to teachers.
- In order to better align inputs in the field, the team should look at conducting a demographic analysis of the students in the treatment schools. From the schools visited in the present study it was found that a fair proportion of the students come from migratory families from the states of UP and Bihar. Their families are engaged in professions such as manual labour, scavenging, street vending. Each of these backgrounds gives the child a certain set of skills and abilities that makes understanding certain aspects of mathematics and language easier for them. For example, the child of a vegetable vendor would likely be more adept at measuring, counting and fractions owing to the use of weights and currency. Exploring such possibilities would make the inputs in the schools targeted and bring a sense of newness and achievement for both the teachers and the students.
- In the same vein, children, regardless of their background and abilities, have their own knowledge resource which they bring to the classroom. The content team should utilise this when designing resource materials.

To this effect the content team should look at answering the following questions when creating content for a particular learning topic –

- What is the daily life connect of this topic to the particular context of the learners in purview?
- Is there something about this topic that the child can explore by herself or through participation with peers?
- What are the items related to this topic that children find interesting?
- What items do they find boring or difficult?

Delivering variable inputs to achieve fixed targets

Instead of providing a fixed set of non-variable inputs throughout the project, the materials and assistance provided should be dynamic. In order to maximize effectiveness it is necessary that a variable focus is provided. There are two facets to this –

- Firstly, the field team should get a commitment from the teachers on which particular indicator they would personally like to focus on first. Based on this a growth chart for each teacher should be created which should help track her needs and objectives, as well as the inputs provided to her. This is also detailed in the section on setting objectives with purpose.

To achieve this, the following points should help –

- Prepare before visiting schools. If the quality of inputs provided is good, the teachers will likely ask questions regarding practical application of suggestions and such. If the team is well-prepared and is able to handle the queries well, the teachers will be more receptive to future inputs.
- Deliver inputs as soon as possible. The momentum is high and there is a demand from the stakeholders for quality inputs. While the provisioning and content creation aspects of the programme are being worked out, STF's on-ground project team should deliver some degree of immediate inputs.
- The focus of the inputs should be on higher order learning outcomes. For example, in English, instead of limiting to the ability to read words and make sentences, the focus should be on improving the ability to formulate and express thoughts. Similarly, in Mathematics, instead of stopping at ability to answer questions in the textbook, the ability of the learners to understand, appreciate and examine mathematical concepts in their everyday life should be worked on.
- The classrooms tend to have students with multiple learning levels. The Pragyan team should look at leveraging technology in order to create a participatory learning experience in the class, in particular those that involve cooperation among students at different levels.
- Rather than limiting itself to assisting the teachers in making use of technological equipment in the classroom, Pragyan should look at providing subject-specific inputs. This is also what the teachers were seen to demand during the school visits. The team should prepare ideas for activities, and demonstrate how reflective discussion questions can be used for bolstering conceptual understanding. *Once teachers have decided what method or approach or practice they want to adopt, they will figure out (or ask for help in figuring out) how to use the technology to implement it. Thus, instead of having the technology and wondering what to do with it (i.e. having a 'solution' and then looking for the 'problem') they should have the intent and then look for the means to attaining it.*

When providing on-site supportive inputs the following questions that generally arise in a teacher's mind should be addressed –

1. What do I have to do? Provide a clarification on the expectations.

2. Why do I have to do it? Why in this particular manner? Demonstrate to the teacher how it will impact the students' learning and the teacher's efficiency and effectiveness. This should be not done simply through cold facts, figures and logic, but through an emotional connect as well.
3. How do I do it – in my particular classroom? Contextualise your inputs and address site-specific questions. Help the teacher prioritise and sequence her tasks. Sometimes a high priority task may be the most difficult to achieve, therefore, a comparatively low effort task should be sequenced first in order to boost morale by delivering a sense of achievement.
4. How do I know that I am doing it well? Help the teacher set benchmarks with the help of the teacher observation tool.

Developing activities and demonstrating

- Activities should be developed as a manual (or a framework), and not a stockpile of resources to be used as is. Activities developed this way serve two purposes – one, they can be simply used in a plug and play manner; two, the collection of activities doesn't need to be humongous as the same framework can be utilised to serve the purposes of different topics and subjects.
- Teachers would appreciate and find it more useful if a demonstrative video was made available than a descriptive text. Even about the training, the teachers suggested that the Sterlite Tech Team should have demonstrated how to use the TV and tablet in an actual teaching environment. Teachers suggested that they would have understood the lesson plans better had they got the opportunity to develop a plan based on the App at the workshop. The team needs to realize the process of how teachers learn and also how teachers could plan and implement lessons keeping in mind how children learn.
- Communicate to the teachers that if they use TLM and activities, it can actually bring in *efficiency* into learning. It is not something that has to be done in place of or in addition to their regular way of teaching.

Teacher motivation

- Create a space for teachers to shine. The organization itself should be secondary. Very often, the advocacy and brand building efforts of a project highlight the work of the project team rather than the successes of the teachers it supports. This may be avoided.
- Motivation and acclamation does not exist in the current governmental setup. Sterlite could look at setting up an alternate system of appreciation. Then a common target can be set with the teachers wherein a mutual beneficial situation is setup as the teachers will feel that the team has a genuine concern in their professional improvement.

Invest in internal team capacity building

- It would be useful for the team to develop a deeper understanding of critical issues in education such as equity, disadvantages and resources. A regular discussion with the team could help develop a pedagogical model that is unique to the organization and acts as a reference point and guideline.
- Create a self-assessment tool for Pragyan field team. The driving question for such a tool should be – in order to bring about **this** level of improvement in the teacher in **this** particular performance indicator, what should I be doing?

- Theme-specific teams should be created within the organization. The various possible themes could be – monitoring, academic inputs (subject-wise and general pedagogy), IT support, data and research etc. These teams should work on an organizational level and provide guidance to the ground team as and when required, along with engaging in their professional development.
- Dos and Don'ts for visits on-ground – How to talk to the teacher (what topic should the conversation start on, incorporate pedagogy and not focus only on technology); How to appear helpful and build trust (have good academic discussions with teachers and heads, more supportive rather than monitoring). Essentially, protocols for various activities that involve interphase with stakeholders. Later, during upscaling, this will help support the expansion process.

Monitoring Strategy

There are two facets to the monitoring –

- Generic/Logistical: Checking whether the equipment is available and is in working condition; whether the teacher is using it regularly and that she is being assisted regularly for achieving the targets.
- Time based: The teacher gets targeted inputs based on the requirements of the teacher and her students.

In addition, a time bound plan of processes to be engaged in when visiting the schools should be created and followed. This allows in creating a streamlined and equivalent flow of inputs.

Advocacy and Community Involvement

- Create a one-pager/poster to be circulated in the community or put up in the schools to make people aware of the project.
- The team needs to consider how it will reach out to the community. In the existing school system, the SMC is powerless as the members of SMC are disadvantaged background parents who are called to the SMC to be given information about events and processes at school. In order to involve the community, the team will have to prepare the school for the intervention as the school will have to cede its space and power which will be challenging.
- In addition, the community should be treated as a knowledge partner. Just like students, they too have a fund of knowledge which is naturally contextual to the students and can thus be easily leveraged for improving learning outcomes by creating an engaging environment.

Identify a Core Pedagogy + Tech-based Pedagogy

A clear statement is needed what the project's pedagogical approach is – a statement that can be used by the field teams, the content team, and the IQT (Internal Quality Team). There is traditional pedagogy but how should tech-based pedagogy be used?

It is also important to have a theory of how children learn and how teachers learn. What triggers them from one stage to the next? For example, government teachers face a tough situation of having to teach the same thing to students of multiple abilities from different backgrounds and then get the same level of results. When they fail at this, they become cynical. Then how do you modify the behaviour of these teachers? What is the theory of change?

Documentation and Dissemination

This is critical for scale. Codification of processes is necessary. In education, however, codification has to be based on research and evidence, and has to focus on flexible, contextual implementation. This helps create a basis as well as a positive climate for later expansion.

The documentation should also look at creating internal standards of quality. This will create a filter for judging the qualitative aspects of the programme such as the e-content, activities shared with teachers, the performance of stakeholders etc.

To conclude, Pragyan is now poised for a more intensive phase of implementation in the 40 schools covered in the pilot stage. Given that only a few more months of active school time is available, it would be advisable to consolidate the ongoing inputs and focus on getting a few classroom process changes (indicators) to take root in the classes. Alongside, strengthening the project team, developing an Internal Quality Team that includes teachers from the project schools, and capacity building of all concerned around a set of core capabilities would be of immediate as well as long-term benefit.

Annexures

Annexure 1 - Tools and Techniques

The tools used for baseline assessment were:

- Classroom Observation
- Documents
- Semi-structured interview
- Field-notes

IgnusERG developed teacher performance indicators with observable descriptors to enable an objective assessment of classroom observation. These indicators were made keeping in view the expected higher order learning outcomes of classes 3 and 5 in English and Maths (including use of technology) and teacher professional development indicators drawn from ADEPTS (model of professional development evolved through a consultative process with 25 states for MHRD and UNICEF in 2007), as well as the later Performance Indicators developed by the NCERT. This looked at the three stages of professional development, which have implications for monitoring:

- Competence: what a person has learnt and has the ability to do
- Performance: what a person actually does
- Effectiveness: the results that a person's actions bring about

Certain documents were studied to understand the project Pragyan, teacher planning and organization considering classroom diversity, alignment of plans with the learning outcomes, student assessment and learning assurance. These documents included the project brief, training workshop report, MoU with the Rajasthan Government, teacher lesson plan diaries, children profiles and daily diaries of teachers.

The semi-structured interviews were designed on set of questions pertaining to each stakeholder namely, teachers of English and Maths, Head Teacher, Children, BEO and the Sterlite Tech Team. These questions were framed on the basis of role of each stakeholder and their involvement in the process of supporting the teacher in enhancing learning outcomes for the children.

Field notes on school ethos, background of the children and observations in the school and classroom were written in form of daily reports for analyzing the social, institutional, cognitive and organizational dimensions of the school.

All tools and techniques were triangulated to analyze the data emerging from the performance indicators.

These analyses form the basis of strategic inputs for the planning team, capacity building team and monitoring and supervision team.

Teacher Observation Format – Short note on Performance Indicators

The teacher observation format consists of 18 performance indicators classified into four categories – general pedagogy, use of technology, and two subject-specific categories for

Mathematics and English. Each indicator is further broken down into four descriptive levels ranked from 1 to 4. The purpose behind creating these descriptors is to bring in a certain amount of measurability and comparability in what is naturally a very subjective exercise. The underlying assumption behind these descriptors is that the teacher is present and is involved in teaching the class to some extent. This circumvents the need of a Level Zero which could be used to describe the situation wherein the teacher is not present in the class or is not involved in teaching the lesson to any extent.

The four describing levels for each indicator can be broadly understood in the following manner –

- **Level 1:** This describes the situation where the teacher is performing in a traditional, orthodox manner with virtually no inclination towards contemporary constructivist teaching methodology. If a teacher is found at this level, s/he will probably require a fair amount of motivation and persuasion to move towards the intended direction.
- **Level 2:** At this level the teacher displays a modicum of inclination of engaging in a child-centred learning methodology but likely lacks either the knowhow or the motivation to centre these efforts towards ensuring effective learning. A teacher at this level requires to be shown what could be achieved with a simple realignment of efforts. Most of the efforts here have to be qualitative with an understanding of pedagogical techniques as the teacher already displays a certain disposition towards the intended direction.
- (Expected) **Level 3:** This level is the expected target for all teachers. At this level the teacher is able to create an effective, child-friendly atmosphere in the classroom with the help of materials augmented by prior planning. A teacher at this level should aim to bring their overall performance across all indicators to the expected level. In order to move beyond this level the teacher requires specific inputs.
- **Level 4:** This is an outstanding level of performance wherein the teacher goes a few steps beyond what is expected and makes sustained, planned efforts to create a truly child-centred, constructivist learning environment with the help of a variety of techniques and materials. A teacher at this level displays a competent level of understanding of pedagogy.

Annexure 2 - Sample Selection

The list of schools under the purview of Project Pragyan includes 40 intervention schools (divided into two equal groups) and 7 control schools. The schools fall under two administrative blocks – Jaipur West and Sanganer. While majority of the schools lie in urban areas, 5 schools are in Sanganer rural.

The intervention schools consist of two categories of 20 schools each – High touch and Low touch. The terms high touch and low touch are based on number of visits. In terms of the total population, they are evenly distributed on the four criteria of interest of the teachers and Head Teacher, exceptional teachers (pedagogically good and tech savvy), doubt on teachers' capability but the teachers are tech savvy and not falling in either of the categories. After putting the teachers in these categories and dividing the schools into two blocks it was decided to take almost equal numbers of high touch and low touch from each based on four categories and teachers of each category in both high touch and low touch to keep the sample random. High touch refers to schools that are supervised once a week and low touch schools refer to schools that are visited once a month.

The details of schools are provided in the table below –

Block	High Touch – Count	Low Touch – Count
Jaipur West	11	8
Sanganer	9	12

20 schools of the 40 were selected for Baseline Assessment. Since the population is homogenous in characteristics a randomised selection process was utilised using a random number generator. This assured a minimal bias in the sample selection.

List of selected schools for Baseline Study

S. No.	High Touch		Low Touch		Control	
	School Name	Block	School Name	Block	School Name	Block
1	Govt. UPS New Hatwada Santosh Nagar	Jaipur West	Govt. Sanskrit UPS Sanjay Nagar	Jaipur West	Govt. UPS Gandhi Nagar	Jaipur West
2	Govt. PS Naven Jyoti Nagar Sahkar Marg	Jaipur West	Govt. UPS Mansarovar Old	Jaipur West	Govt. Sanskrit B-10, Triveni Nagar	Jaipur West
3	Govt. UPS Manyawas	Sanganer	Govt. UPS Sanganer town	Sanganer	Govt. UPS Sanskrit Prempura	Jaipur West
4	Govt. PS Surya Nagar	Jaipur West	Govt. Girls UPS Lakhesara	Sanganer	Govt. PS Jalupura Urdu Medium	Jaipur West
5	Govt. Girls UPS Jagganathpura	Jaipur West	Govt. UPS Pratap Nagar Sector 29	Sanganer	Govt UPS Basti Shamiyan	Jaipur West
6	Govt. Girls UPS Vidyadhar Nagar	Jaipur West	Govt. UPS Kartarpura	Jaipur West	Govt UPS Airport	Jaipur West
7	Govt. UPS Madrampura	Sanganer	Govt. UPS Dholai	Sanganer	Govt UPS Sanganer	Sanganer
8	Govt. UPS Vasundhra Colony	Jaipur West	Govt. Girls UPS A. Circle Jagatpura	Sanganer		
9	Govt. UPS Pratap Nagar, Sector 8	Sanganer	Govt. Girls UPS Jyoti Nagar	Jaipur West		

10	Govt. UPS Badhmohanpura	Sanganer	Govt. UPS Manoharpura K. Basti		
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Annexure 3 – School Visit Plan

A school visit plan was developed for conducting the Baseline Assessment

S. No.	Task	Estimated Time
1	Informal Interview with the Head Teacher	10 minutes
2	Classroom Observation	35 minutes + 35 minutes
3	Interview with Children	15 minutes
4	Semi-structured Interview with the Teacher	15 minutes
5	Semi-structured Interview with the Head Teacher	20 minutes

The process was followed keeping in consideration that a school, as an institution is guided by covert norms that have a bearing on teacher support and classroom processes. There were certain considerations guiding the process of observation and interviews.

These were, members of the research team will,

- Seek permission for all processes i.e., classroom observation, interviews and photographs (if any).
- Teacher performance indicators will be filled by the team after teacher interview with the team members as certain performance indicators require the team to see teacher records and conduct teacher interviews.

Annexure 4 – Other documents

4A. Questions for Sterlite team

1. By engaging in the Pragyan programme, will the teacher's workload increase or decrease? Will it make her more efficient? Does Pragyan have anything to offer to bring about efficiency in her work?
2. Will the Pragyan make the teacher's performance more effective? Will it ensure that no learners are left out?
3. Since the programme only looks at two subjects in classes 3 and 5, what is the response strategy for other classes and subjects? How will the spillover effect be managed?
4. How does Pragyan connect with Rajasthan state's data systems – CCE portfolios under SIQE? Is there a strategy to make that task easier or relevant for both the teachers and the learners?

The SIQE planning diary is different from what is expected under Pragyan. The registers being filled (post-facto) in the class do not translate to what is actually happening in the class. If Pragyan plans on merging the two activities then such an understanding will need to be built in the training. The teachers will have to realise that planning has to be documented before the lesson is taught and the processes and inferences related to it should be written down afterwards.

5. What are the various stage-wise objectives of processes, relationships and targets that Sterlite aims to achieve with Pragyan? These objectives have less to do with the logistical and administrative/organizational aspect of the programme and more with the quality of inputs and outputs.
6. What is the strategy for dealing with maintenance issues of the equipment being provided? Will it technical support be provided by the field team as well? Issues of security, storage, insurance and support should be considered. Who will be held responsible if the equipment is lost or damaged?
7. How will interns and new employees be trained? How will it be ensured that the team is able to not only learn on-site but also deliver under trying circumstances?

4B. FAQs and beliefs of teachers

Some of the questions that teachers asked our team included the following:

1. How to teach this English chapter with activities? (Chapter on Vivekananda especially)
2. How to use technology?
3. How to improve engagement in the classroom?
4. If the students watch the content on the TV then they won't study as they will be too distracted.
5. How will the digital study translate to "offline work" (which is where the real learning takes place)?

Annexure 5 – About IgnusERG

IgnusERG is a group of professionals that came together in 1998 to work on improving the quality of government school system in India. The group is led by Subir Shukla, former Educational Quality Advisor-SSA and Chief Consultant to MHRD, Government of India. Members are located in different parts of the country, with intensive fieldwork being undertaken in Varanasi, UP.

With a view to enabling quality education for the marginalized and 'restoring pride in government schools' members of IgnusERG have engaged extensively with the government education system over the last two decades.

- The group has been involved in the development of elementary level curricula and textbooks for the state governments in Assam, Bihar, Gujarat, Haryana, Kerala, Maharashtra (ongoing), Nagaland, Tamil Nadu, Uttar Pradesh, and Uttarakhand.
- Members of IgnusERG have also facilitated state-wide in-service training through DPEP and SSA in Andhra Pradesh, Assam, Bihar (also with SPEED – Bihar), Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh (2007, Saajhi Samajh), Maharashtra (ongoing), Nagaland, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.
- The group facilitated the first nation-wide initiative to develop performance standards for teachers and the teacher support systems, ADEPTS, a joint effort of MHRD and Unicef).

IgnusERG has also worked with the NGO sector extensively across India and UP. We led the development of Care-India's educational programmes in UP (Formal Equivalent Centres,

Udaan programme in Hardoi), CRS' work with low-fee private schools and the Tsunami Rehabilitation Program in coastal AP and TN, and the successful development of the UP-Mahila Samakhya's KGBV model, and Kusuma Foundation's Udbhav programme in UP and Odisha.

In 2009 and 2010, Subir Shukla and other members worked with the MHRD to orient all State Education Secretaries, State Project Directors, and Directors of SCERTs across the country on the quality aspect of RTE, through a series of Regional Workshops on Education of Equitable Quality. This led to the development of the Quality Framework for the RTE, currently being implemented through SSA. We also oriented state educational leadership of the country on the version of CCE advocated by the MHRD (different from the one promoted by CBSE) and facilitated the process of CCE development in Bihar. Subir led the Comprehensive Evaluation of ABL in Tamil Nadu on behalf of the GoTN, covering around 2000 schools and involving 1500 evaluators, in 2011-12 (supported by Unicef). In addition, working with the NCERT and RMSA-TCA on Secondary School Readiness, IgnusERG trained state level officials of RMSA in Bihar, MP and Odisha on student learning levels at entry in class 9 (i.e. learning attained in elementary level). Over the years, members of IgnusERG have had occasion to participate in several Joint Review Missions of SSA and RMSA (usually on behalf of GoI) where interaction with state officials on different aspects of quality improvement have been to the fore.

As a programme evaluation agency, IgnusERG has been involved with the evaluation of projects of different organizations including CRS, Aga Khan Foundation, Kusuma Foundation, Unicef, GSK-Rajasthan, and Educo (for evaluation of Pratham and Save The Children – India).

The group registered as a company, IgnusERG Education Resource Private Limited, in Jan 2013.