

Day to Day Teaching in School

Excerpts from a Needs Analysis of four public-funded schools in South India

[Note: The identity of the schools, the administrative body and the grant agency has been masked throughout these excerpts to preserve confidentiality.]

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Obligations towards students

**“Makes planned and systematic efforts to facilitate the child to actualize his/her potential and talent.
Adapts his/her teaching to the individual needs of students.”**

Code of Professional Ethics for School Teachers, National Council for Teacher Education, Dec. 2010 (p. 6, points 1.5, 1.7)

Mismatch between Teaching Input and Learning Needs

A common theme found in observer notes on classroom transactions was the distance between the learning needs of the children and the assumptions of student level made by the teacher. The mismatch was at the level of concepts, language usage, the cultural contexts being described and the pace of moving from one topic to another. An example of conceptual and cultural mismatch is the following session on lesson planning for the topic ‘Modes of Transport’ for Std. 1:

Teacher XX ... at times she would drift away from the child’s levels of understanding. For example, she said she would discuss about the fuel used in the aircraft, the cost of travel and that only ‘rich’ could afford to travel by air.

Observer notes from an in-school mentoring session.

A common practice seen across all classes and all schools was the use of choral sing-song lessons (e.g., children repeating after the teacher numbers 1- 100 in UKG, five times tables in Std. 4 and reading from the textbook in Std. 7). The pedagogical practice of repeating and reciting after the teacher appeared to be based on a strong belief amongst teachers that children’s working memories are small and hence they should be fed in small chunks. Passages to be repeated from lesson chapters were therefore broken down word by word. This practice denuded the text entirely of meaning and turned the lesson disjointed. One target during the teacher training session was to discuss why such a practice was not meaningful. At this point it also became clear to us that teachers were uncertain about how best to chunk the text, the natural borders between phrases for example, were not spontaneously clear to them. This is one example of the ‘how’ of language pedagogy in the four schools that needs significant attention.

The nurturing of basic learning skills became less and less of a priority as the child moved up the school grades. Hence, while there was some amount of focus on teaching basic skills for word recognition and number operations in Std. 2 and 3, these teaching targets disappeared by Std. 4. Children who were underachieving were often offered extra time by teachers, but the transactions were merely to repeat the lesson back to the child. Drill and copywriting were intrinsic to the process, and while both of these practices do not need to be hounded out of the system, the over-use of these methods meant children were not learning through comprehension but through a mechanical internalisation of idea units. Dialogue and active inference making were not seen in the sessions, and when these pedagogical practices were introduced in teacher training they were perceived as distant from the daily targets that teachers have to meet.

Exclusive use of the methods of drill and copywriting with poorly explained material can lead to low student attainments. These outcomes also lead to teacher frustration because children are unable to make inferences if new information is added. Children's confusion on one side and teacher annoyance on the other are seen for example in the following observer notes. The notes are from an exam day, when we found the mismatch re-play class after class.

The students were clearly baffled with the questions like how old they were and what was their place of birth, and their gender. One student had a doubt with what True / False meant. There was so much buzz around these questions that it seemed like a high level of confusion and distress. This was in spite of a vigorous revision (of test questions) having been done just half an hour before the start of the exam. It was very evident that the students' English language sense was very poor. The English teacher was clearly irritated with the students over their lack of learning in spite of her teaching. Was there a clear strategy to teach the English language to first generation learners? It did not seem evident.

Observer Notes from English test for Std. 4, 5 & 7, XXX.

Shaky Content Knowledge and Pedagogical Training

As the process of working with teachers unfolded, shaky teacher knowledge about concepts in lessons became evident. An illustration of gaps in knowledge documented in English and Science is given below:

- In English for example, none of the English teachers know the phonetic symbols (e.g., lessons in Std. 5, pages 45 – 59). English teachers read the phonetic symbols as regular letters of the English alphabet; others simply thought there had been a printing error.
- Std. 6, English, use of the words 'and' and 'but' is another area of confusion. For example, an activity in the book is to link sentence pairs using 'and' and a second activity is to link sentence pairs using 'but' (page 65). When the sentences were mixed up from the two exercises and given to the teachers, they were unable to pick out which ones needed 'and' and which ones needed 'but'. One misconception repeatedly heard was that 'and' must be used when both sentences refer to the same person and 'but' when referring to different persons.
- In Science for example, technical terms like 'potential energy', 'kinetic energy', 'turbine' and 'hydroelectric power generation' from the chapter on Energy (Std. 5,

Nag, S., Ramkumar, S., Miranda, R., Sutar, L., Krishna, M., Aravind, S., Kala, B., and Arulmani, G. (October, 2014). *Home and school learning environment: field notes from eight urban, public-funded nursery and primary schools*. Working Paper. Bangalore: The Promise Foundation.

second semester) were difficult for teachers. Specific gaps in knowledge made it difficult for teachers to discuss the chapter content in a meaningful manner with students. While the gobar gas process was known, the type of energy present in the gobar gas (bio energy, page 36) was not known. While the textbook gives information on the water turbine, generator, transformers, and end-point electricity supply to houses, no explicit connection is made in the chapter between these units. Making the connections however was outside the knowledge level of the teachers.

- Understanding of the atom, the shells of the atom and the composition of the atom, are essential (almost common sense level) knowledge necessary to teach the concept of chemical bonding for the Chapter on Chemical Bonding (Std. 7). However teachers did not know what an atom was.

It must be mentioned that all teachers are new to the textbooks in use over 2014-2015. This is the first year of introduction of the textbooks, although the topics themselves are rarely new. The absence of spontaneous or structured discussions on the new textbooks was not seen. The culture of the teaching community in the four schools did not include professional development tools such as staff meetings, lesson plan discussions and textbook analysis. An overview of the course content was missing within the teacher group in each school. Associations across grades in concept teaching had not yet been discovered (e.g., the building blocks for the Std. 7 electrolysis chapter was available in the Std. 6 first and second semester lessons on conductors, insulators, acids, salts and alkali, and examples of electrolytes and non-electrolytes). It is clear that the teachers are floundering against a background of poor knowledge levels and the absence of strong educational leadership.

At the same time, it is important to acknowledge that teachers were candid in their admission of feeling unsure about these (and other) concepts when teacher training and mentoring sessions began. Professional development inputs around these topics were met with enthusiasm and responsible participation.

Comparison of Performance on the Needs Analysis Test Battery and in-school CCE ratings

Comprehensive Continuous Evaluation (CCE) was introduced in all participating schools at around the time this Need Analysis was being conducted. We examined the extent to which there is an agreement in the student rating done by the teacher and the external evaluation done through the Needs Analysis Test Battery. We found a high correlation of CCE ratings with performance on domain-relevant tests in the Needs Analysis Test Battery. What this means is that there is a substantial degree of agreement between the way the Needs Analysis Tests rank children relative to each other, and the way the CCE done by teachers rank the child. But below the surface, agreement between the Needs Analysis and the teachers' assessment in rank-ordering the children, there is enormous difference in rating: children's scores on CCE are almost always higher than scores on the Needs Analysis Test. The Needs Analysis Test Battery is based on items developed from a word corpus based on the school textbook. Children's performance on these tests was between 30 and 50% lower than their

performance on specific units recorded in the school-managed CCE assessment. It is possible that the Needs Analysis Test Battery is too difficult or is demanding of skills not yet taught to the child, but our item analysis does not give us any reason to accept this argument. It is also possible that the school-managed CCE assessment is very targeted to a topic and children may be able to perform much better on narrow-band, highly-practiced test items (such as the questions in Image below). A further reason may be that teacher skills for CCE are low, and the assessment process in school needs improvement. Teachers seem to be at a loss when frequent assessment of student progress is called for. The role of formative assessment itself is unclear to most teachers and the exam days often deteriorate into coaching days. See Appendix for observation notes from the exam week in September. The reliability of such testing routines is unconvincing at best. One conclusion that emerges from observations such as these is that the exam process in all four schools needs transformation.

The Needs Analysis Test Battery did not include a science and social science test. We however found a strong correlation between the First Language Literacy scores in the Needs Analysis Test Battery and both the Science CCE scores and the Social Science CCE scores. This means that the relative ratings on the First Language tests in the Needs Analysis Test Battery are consistent with the relative rating on the science and social tests. Put differently, it is possible to predict children's performance on the science and social science tests based on how they do on the First Language tests in the Needs Analysis Test Battery. This is because performance on Science and Social Science topics are closely linked to comprehension of subject-specific concepts which are all explained through a middle-school (and higher) level of First Language proficiency in the textbooks. One strong implication of this finding is the critical role that children's language and literacy skills play across the curriculum. Improving children's skills for reading with comprehension and general spoken language through vocabulary building can have an immediate effect on children's performance in other subjects.

Image: A Std. 4 English Test Paper

Class IV	Total Marks: 10
I. Answer the following (2x1 = 2)	
<ol style="list-style-type: none"> 1. Where was Santosh studying? 2. What did Gopu buy from the market? 	
II. Give plurals of (4 x 1/2 = 2)	III. Give the opposites of (4 x 1/2 = 2)
<ol style="list-style-type: none"> 1. Cow 2. Flower 3. Lion 4. Kite 	<ol style="list-style-type: none"> 1. Strong 2. Short 3. Fast 4. Give
IV. Fill in the blanks (4 x 1 = 4)	
1. This is _____ book.	3. These _____ benches.
2. This is _____ apple.	4. The cat is _____ the well.

A Vision and Purpose for Positive Action

The Needs Analysis has shown that the families who enrol their children in the schools under the purview of this study, do so with the hope of receiving quality education. The Analysis also shows that the school system is failing them. Teachers are under-performing, the learning environment in school is poor, and enabling conditions for teaching processes to stabilise are missing. The points of intervention are clear. It is also clear that should these interventions be effectively introduced, the probability of gradual, but positive change is high. However, for the interventions to sustain it is essential that the XXX takes ownership for the change the XXX project wishes to see in the next four years. There is a need for a shared vision. Without this, the purpose for positive action will remain only that of implementing agencies that step in to fill the gap.

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Appendix: A Mathematics Exam in September

- School: XXX
- Classes: V, VI and VII.
- Number of students in class V: 3.
- Number of students in class VI: 9.
- Number of students in class VII: 4.
- Date: 23/09/2014.
- Exam subject: Mathematics.
- Duration of examination: 2 hours.
- Duration of Observation: 1 hour.
- Time: 10.30- 11.30 a.m.
- Teachers Supervising: Teacher 1, Teacher 2.

It was the Mathematics examination for all the three classes.
The seating arrangement was as follows.

	VII	VI	V		VI	VI	VI
	S9	S8	S7		S3	S2	S1
	V	VI	VI		V	VII	VII
	S12	S11	S10		S6	S5	S4
VII	VI	VI	VI				
S16	S15	S14	S13				

- S represents students who are numbered from 1 to 16.
- T represents teachers who are numbered 1 and 2.
- V, VI and VII represent the classes that the students belong to.
- The conversations were all in First Language.

Initially there was a little bit of confusion as the wrong paper had been distributed to the wrong class. Some students were sitting in places that had not been assigned to them. A student who had joined the school the previous day walked into the room. She was given a question paper and a place to sit (S5).

As student S5 settled into her place, S1 turned around and told her not to worry that it was an examination but to write whatever S4 wrote. S4 also reassured her.

With the new student walking in, there was one more student added to the last bench on the left.

T1: Write your name, subject and date.

T1 walked around the classroom.

Appendix: Maths Exam (cont'd)

S14, 15 and S16 carried on a discussion.
S11 and S12 conversed.

S16 had made a copy of the question paper for the new girl. He gave it to her and took the photocopied sheet from her.

S1 spoke in Urdu to S5 since S5 was a North Indian girl (she was actually a Nepali). She told her again to just write whatever S4 was writing and not to worry.

S3 peered into S2's answer sheet.
S14 and S15 continued to converse.

T2: Shhhh
S13's pencil point broke. He started writing with a pen.
T2: Write the question numbers correctly.
T2 was busy at his desk making a book entry.

S10 took his protractor to T2 and asked him how he could make an angle of 95 degrees.
T2 showed him how to do it.
S10 came back to his seat and explained how to do it to S13, S14 and S15.
T2: Don't talk

S1 and S2 consulted.
S3 continued to look into S2's paper to write her answers.
S13 sharpened his pencils.

Another teacher looked into the class from the window.
The new girl S5 continued to look into S4's answer sheet to write.

S1 went to the teacher with her protractor.
T2 passed an attendance sheet around for students to mark against their names.

S6 had a doubt and called the teacher.
T2 said that he could not help.
S6 said that he only wanted to clear a doubt.
S6 asked S1.
S3 also consulted S1.

S4 and S5 had struck a friendly equation though quite wordless. S4 willingly shared his work for S5 to copy from.

T2 asked S5 her name.
S5: Bhagmati.

S12 consulted S9, S8 also consulted S9.
S13 muttered loudly to himself as he wrote.

Appendix: Maths Exam (cont'd)

S14 asked for a protractor.
S2 corrected the work of S3.

S7 cleared a doubt in the question paper with the teacher.
S8 asked for a notebook to keep under his answer sheet.
S2 and S3 talked to each other.
S13 was in open consultation with S14 and S15 about the use of the protractor.
S12 turned around often to consult them.
There was a buzz in the classroom.
S13 went to consult the teacher.

S1, S2, S3 were in conversation as they continued with their work.
S8 asked the teacher an answer to a question.
T2 replied that he did not know.

S13, S14 and S15 continued to converse.
T2: Aaai!! What are you three doing?
S13, S14 and S15 continued talking.
T2: I will separate the three of you.
S13: I don't have a protractor.

S3 looked into S10's book.
S8 stretched and leaned back.
T2: What are you doing; have you come to lie down or what?

S9 hits S8 on his ear and glares at him.
S13, S14, S15, S16 continued to interact as also S4 and S5.

S11: How do I make out 360 degrees?
T2: Think, use your brain.
S9: He took out his protractor and showed S11 where it was.

T2 opened his book and started reading.
S1 turned around to see if all was well with S4 and S5.
S3 leaned over to look into S1's work.

S15 and S16 were in active conversation as also S14 and S15.
S6 and S7 made signs to each other.

S2 asked teacher about 360 degrees.
T2 told her quietly

S13 and S14 asked the teacher a question.
T1 walked out of the room.
S11 and S12 conversed with each other.
T2 stood at the entrance to the class.
S4, S10 and S13 walked up to the teacher

Appendix: Maths Exam (cont'd)

T2 asked S13 what he was doing with a small piece of paper.
S13 said that he was practicing.

S4 and S5 had struck up a conversation. They seemed more comfortable with each other.
S13 got up to borrow a protractor from S10.
S13 actively supervised its use by S10.
T2 whacked S10.

S7 asked the teacher what to write.
T2: Whatever you want.

S1 leaned over and borrowed a rubber from S6.
S6 talked to S5.
T2 touched S6 on her head and asked her to do her own work.

S11 and S12 were deep in conversation.
S6 wanted a pencil. She asked the teacher who asked S1 and S2 who did not have one to spare.
S6 got up and went to get her pencil box from her bag.
She sharpened her pencil and came and sat down.

S13, S14, S15 and S16 continued to converse.
S2 drew for S3 with her protractor.
S4 explained something to S5. S6 participated in the conversation.

S3 peered into S2's work and noted down something.
S8 and S9 asked the teacher what bricks were.
T2 drew a brick on the black board.
T2: Ask me any doubts you have.
Shhhh.

S14 and S15 went to the teacher with a doubt about a question.
T2 explained.
S2 also asked the teacher a doubt.
T2 explained.
T2: Do you want extra sheets?
S15: What should I do?
T2: Match.

T1 walked into the room. T2 requested him to come in as he had work to do.
T2 left the room.

S14 called out to the teacher and pointed to a problem.
T1 walked to S14 and told him to add and then do the calculation.

Appendix: Maths Exam (cont'd)

S14 had his arm around S13.
S10 and S11 used their fingers to calculate.

T1 was talking on his cell phone.

S11 was counting loudly.
T1: Who's counting?

T1 asked for the question paper of S4 and S5. He made a change in it and gave it to them. S8 noticed this and asked S16 who was also in the same class as S4 and S5 to give his question paper for the correction to be made. S8 was leaning on the teacher's table while all of these transactions were going on. The teacher made the correction to S16's paper and gave it to S8 who returned it to S16.

At this juncture, the observer left the classroom to observe the way the examination was conducted in another room where the teacher was known to be strict and very orderly.