Together in Development & Education (India wing)

SARAL KADAM PRE-PILOT REPORT

August, 2019 – October, 2019

Acknowledgments

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- Dr MN Patel, District Primary Education Officer
- Mr Pratap Gedia, principal, Jodhpur prathmik shala 1
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- Mr Chirag, principal, Thaltej prathmik shala 2
- Mr Takhtesh Yadav, principal, Sola prathmik shala
- Mr Amrish Patel, principal, Memnagar prathmik shala

Executive Summary

This project proposes to enhance the basic education of students who need remedial teaching. Saral Kadam Program (SKP) is an intensive effort that aims to be a scalable program to reach out to all government schools; we conducted did our pre-pilot at five schools namely: Jodhpur Prathmik Shala, Thaltej Prathmik Shala 1, Thaltej Prathmik Shala 2, Sola Prathmik Shala, and Memnagar Prathmik Shala. We divided students into three different levels based on teacher recommendation and ASER test. We discovered that ASER tests failed to determine accurate information. We also gave them a pre-test to check their previous knowledge after which we began with level 1 booklets, games and worksheets.

Our booklets captured students' attention and interest due to the visual and graphical nature for e.g. visuals of animals, people and vehicles for ascending-descending, greater than-lesser than exercises. However, the pre-pilot also highlighted a few changes that are required (and now made) in terms of the instructions for the children. After every booklet, they played educational games such as snake and ladders and flash cards and thereafter, solved worksheets based on booklets.

Towards the end of this pre-pilot, we gave a post-test to the students in order to check their progress through the program. We learnt that the students had an improved set of academic skills and along with it we found qualitative evidence for the development of non-academic skills. We received a warm feedback from their teachers, friends and principals who asked us to keep visiting after the level 1 of program completed.

Introduction

Statement and significance of the problem

The educational problem- lack of minimal learning levels. The recent Gunotsav found that nearly 30% of class 6th to 8th students can't solve $2 + 2 = 4$ or write / comprehend simple sentences like "my name is Rakesh". In our experience the problem in urban slum isn't this dire, however, nearly 60-75% of our students in grade 8th cannot do two-digit subtraction or division. Despite there being problems in foundational literacy and numeracy, schools and the teachers are forced to go on with other concepts including subtraction of fractions, LCM, HCF, stories and poems.

Project Goals

The basic idea revolves around working with students in grades 3 – 5 and school teachers conducting short spanned effective subject enrichment classes with a group of not more than 20 students (as opposed to their usual 60, for grant in aid schools, or 40, for government schools, in a class room). The ideal goal would be to get the students to a level where they have their foundational skills in place (the neev). We used teacher recommendation and our own tests to divide students into levels (based on their ability to recognize numbers, carry out subtraction and division; recognize words, comprehend and write simple sentences, and comprehend and write paragraphs) and have developed a series of tools whereby students go up a level in a month's time.

We have also developed an assessment tool that helps point out the exact problem that a child with basic mathematics and English language (for example a child usually makes one of 7 commonly made mistakes in division). These assessments are supported by basic teaching content that the teacher can use but more importantly a series of conceptual understanding based self learning booklets, a set of application-based worksheets and interactive games that a teacher can administer to aid the learning process. The personalization (due to the assessment) allows the intervention to be short spanned and a lot more targeted.
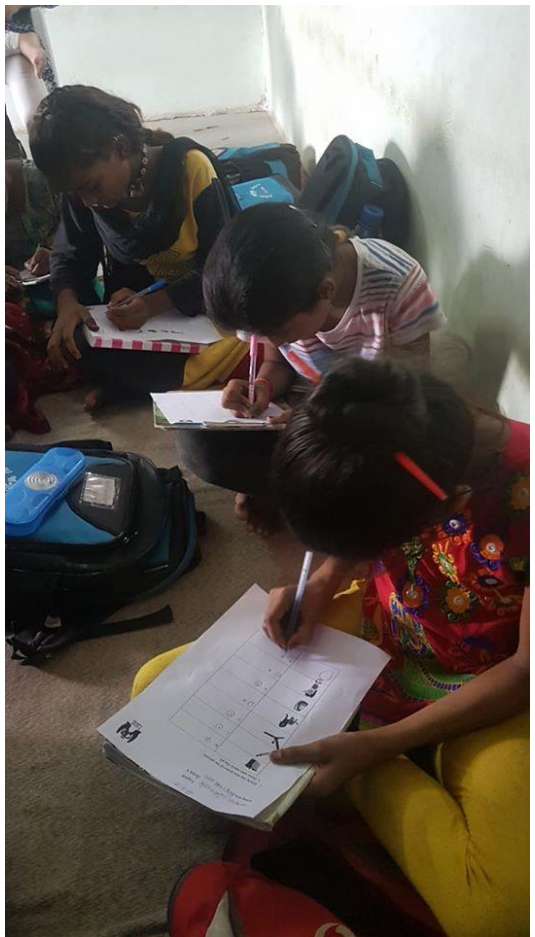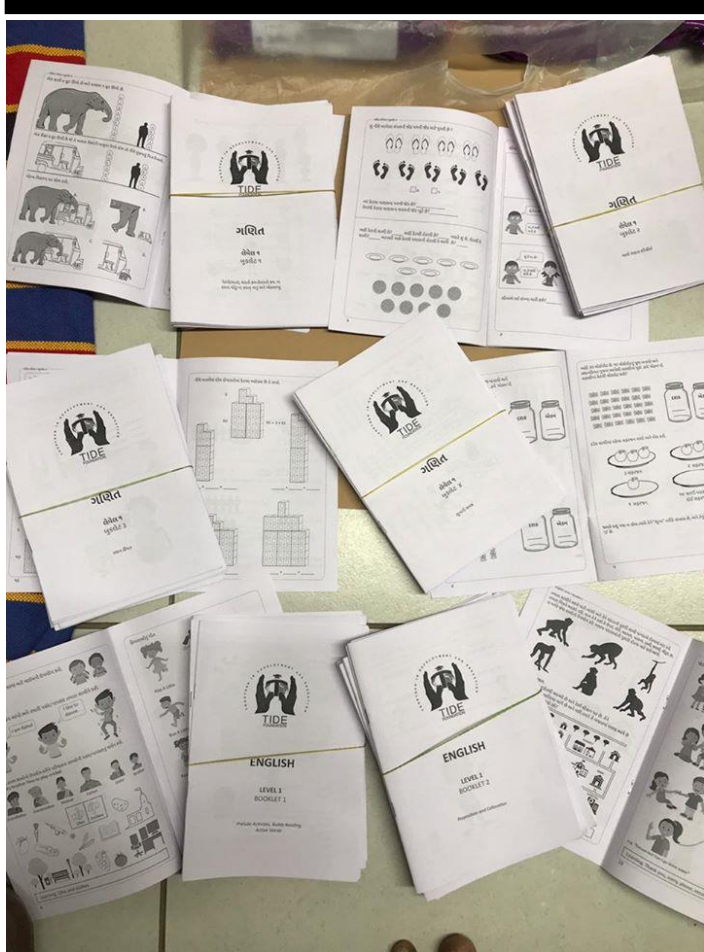
Purpose of the Pre-pilot

A pre-pilot study tests the methods and procedures to be used on a larger scale. The fundamental purpose of conducting a pre-pilot study was to examine the feasibility of our approach that is intended to ultimately be used in a larger scale pilot study. We conducted the pre-pilot to enable us to affirm the validity of the project; to provide insights to the efficiency and adaptability of the tools we will be using next. We found out materials and areas within them that need to restructured in order to suit the academic requirements of children. In this pre-pilot, we only conducted level 1, which essentially had counting from 1 to 100 and no mathematical operations in order to suit to the needs of our target audience (the next level cover addition and subtraction while the level 3 covers multiplication and division). In English sessions, we delimited the content till word level keeping the remedial goals in mind.

We conducted pre-test before piloting where we learnt that a majority of kids needed support for level 1. We identified the problem and thus we decided to conduct level 1 sessions for all students who took the pre-test. We gave one booklet to each group to encourage peer learning among the students. The booklets we have designed, are filled with visuals and the students found them to be very helpful as they could understand concepts based on the examples and instructions, which were provided for their reference. Students were keen to solve activities on units such as patterns, counting on and ascending and descending order all of which improved their understanding. It also created a healthy competition among these peers which increased their motivation to solve activities from the booklets.

Along with booklets we have also designed worksheets and educational games which students solve and play after every booklet. These games are based on content in the booklets. Children had great fun while playing "Snake and Ladders" and flashcards because everyone was spirited and everybody wanted to win. Losing in this sense became learning so the children were excited to play the games regardless.

Towards the end of four booklets, we designed a post-test in order to judge their progress through the pre-pilot. We found out that about 90% of students had improved from their pre-test results. The gathered data including basic quantitative analyses, feedback from students, school teachers and principals and classroom observations suggest that the teaching-learning pedagogy is feasible and successful.

Results of Pre-pilot

Academic outcomes

Our intervention is targeted towards decreasing the learning gap at primary level and enabling them to learn better and learn more effectively. We made a good progress in learning outcomes based on the post-test and student engagement in our sessions and in their regular classrooms. Although, our tools focused on number recognition, it also helped them with other things we didn't teach. Teachers resonated that students had a better understanding of the basics; they were able to understand things in the classroom and this means that they may have started studying independently. For example:

> "Vikas and Prakash have improved so much in the weekly test! They recognize numbers which has made it quite helpful for them to solve problems based on addition. They no longer come to me asking what number is what. They just solve the problems and they were all correct this time!"~ Sola prathmik shala

Many teachers commonly suggested that their students had improved in their class, on weekly tests and were quick to respond to questions for example

> "It is very refreshing to see an NGO coming forward to teach Mathematics which is such an important subject and requires support. I am more than happy that TIDE took their sessions at our school."~ Jodhpur prathmik shala

There was a marked difference in students' academic learning levels; this was demonstrated by their pre and post-tests. However, more importantly, students improved in many dimensions apart from reading and writing; their conceptual understanding and dialogic discussion on the content.

> "We couldn't tell the difference between the greater than sign and smaller than sign or even the terms earlier but now, we know exactly what it is!" shared Sheetal and Kinjal from Sola Prathmik Shala when we asked them if they learnt anything new after coming to SKP.

When we asked the same question at Jodhpur prathmik shala, Vinay from grade 5, fondly said:

"I know of so many patterns now! I know what a square, rectangle, triangle and circle is!" ("મને હવે કેટલી બધી પેટર્નો આવડે છે જેવી કે: ચોરસ, લમ્બ્ચોરસ,ત્રિકોણ અને ગોળ! ")

SKP, due to its activity-based learning pedagogy, encouraged and engaged children various ways. This was demonstrated in the students' enthusiasm for the sessions, for the next booklet, regularity in attendance and willingness to complete basic worksheet-based homework for reinforcement. This enthusiasm and attentiveness seemed to have renewed their love for learning as teachers (unrelated to the subject remedial they came to) commented that the students had become increasingly attentive in their classes too.

Non-academic outcomes

We incorporated and encouraged self-directed learning processes, which would let children be independent and in charge of their own learning. This allowed students to define their own pace without competing with other students. Additionally, in the absence of competition, absence of trying to keep up with others and confidence in their ability to learn their basic self-confidence and self-esteem seemed to have improved. These effects transferred to other classes (in their normal school days).

> "After SKP started in our school, the kids who come to you are participating more than usual and even though they are wrong sometimes, their effort to be right is a huge success. I am very happy with the way this program came about!" conveyed an English teacher from Memnagar prathmik shala when we asked her if they noticed any difference in children's classroom behaviour after coming to SKP.

> Another teacher at Memnagar commented "they make up for the missed classed with help of their friends and ask us that what they can do in particular chapter", suggesting that students were taking responsibility for their own learning in other classes too.

This increased confidence also transferred to non-academic domains like quizzes. However, more importantly it increased students' engagement, involvement and participation in other school activities that they previously avoided due to shyness and a lack of foundational understanding.

"Students in my class signed up for Maths quiz. I've been teaching them since past two years, so I know they are shy and they don't participate much but their behaviour has changed since they came for your sessions. They talk to me about what they learnt during your sessions and have grown thrilled about participating in workshops held at schools."~ Maths teacher at Sola prathmik shala

Through the prepilot the students learned to monitor their own learning, and many were able to identify areas that they needed further support on. Once again, these effects transferred to other classes in their school day.

"Students from my class have so many doubts that they raise in my lecture now! Vinay for example was asking me what is the shape of a duster and blackboard. He knew they were similar, but he didn't know what to call it. I was amazed at his curiosity!" ~ Thaltej prathmik shala.

Initially, students were hesitant to share their work with others but after the first few sessions the students opened up to each other. They frequently shared, discussed and helped each other (there was an increasing frequency of positive affect and the absence of negative affect observed in the sessions). The peer directed learning experience helped them collaborate and work with each other; in turn helping them develop soft skills, cooperative skills and self-regulation. Students frequently commented that they made new friends during the sessions, indicating that by the end of it we were able to establish strong bonds within the group. There were marked behavioural changes in terms regulating their own and their friends' punctuality. They were quick to settle down, form their groups, transitioning quickly between activities and cooperating to instruction. Children also helped regulate and motivate each other.

Final reflections

Learnings from the pre-pilot

The prepilot has informed a series of changes and improvements to the intervention. We observed that ASER had failed to demonstrate the level of learners. While documenting some necessary takeaways from the ASER test, it is prudent to mention that the complexity of its authenticity was alarming, therefore now onwards we will base the selection on the basis of teacher recommendation and an in-depth pre-level test.

We also made some edits in our booklets to make the content more helpful for the students and to make it more effective. We shortened the instructions to match students' attention spans, which was quite low as some of the students gave up on the longer activities and needed to be supported by the facilitators. Student bonding remained an exigent problem. We had to make sure that the students interacted and bonded in order to learn better. In the future we aim to conduct bonding sessions before starting with the intervention materials.

We received a warm feedback from the school, which keeps us motivated. However, they also had some powerful suggestions around the engagement of parents in the interventions. Teachers recommended (and we plan to incorporate their suggestion in the pilot) to integrate interaction with parents as a part of the intervention, in order to keep the parents informed, gather support from the parents and involve parents in motivating the students to solve practice worksheets.

Challenges and limitations

It was challenging because we faced irregularity and inconsistency at the beginning partly due to the multiple Shravan based holidays, however, in time once students engaged with the materials, they became more punctual. Gradually, we managed to elevate their attention span from mere ten minutes to an increasing thirty minutes along with productivity and responsiveness from 95 per cent of students.

Another challenge that we faced initially was getting a physical space to teach the students at in the school. Government schools have a good number of children in every class hence it was a task to find a space for our sessions with most of the classrooms occupied. Although, we ended up common spaces like corridors, principal's cabin or teaching under a tree it made some of the sessions harder to work through.

Challenges are a part of any task when we are working in education especially where learning outcome is a chief priority. We believe that the tools that we have crafted are evident and effective to analyse learner's growth. Our concepts inherently generate pedagogical content knowledge and innovative instructional methods in our sessions every now and then.

Next steps and Proposed Timeline

The pilot study is designed for approximately 320 students across 8 schools. We plan to conduct 2 batches of sessions of 20 students at each school i.e. 320 students. We hope to run an introductory session with teachers, identify students for the remedials and conduct introductory bonding activities with students from 9th – 12th December.

Levels	Tools	Date(Mon-Fri)
1	Pre-test	13 Dec
	Booklet 1	16 – 20 Dec
	Worksheet\Games	23 Dec
	Booklet 2	24 Dec – 30 Dec
	Worksheet\Games	31 Jan
	Booklet 3	1 Feb – 7 Feb
	Worksheet\Games	8 Feb
	Booklet 4	9 – 16 Jan
	Worksheet\Games\Post test	17- 20 Jan
2	Booklet 1	21 – 27 Jan
	Worksheet\Games	28 Jan
	Booklet 2	29 Jan – 4 Feb
	Worksheet\Games	5 Feb
	Booklet 3	6 -12 Feb
	Worksheet\Games	13 Feb
	Booklet 4	14 – 20 Feb
	Worksheet\Games\Post test	24 – 25 Feb
3	Booklet 1	26 Feb – 3 Mar
	Worksheet\Games	4 Mar
	Booklet 2	5 – 12 Mar
	Worksheet\Games	13 Mar
	Booklet 3	16 – 20 Mar
	Worksheet\Games	23 Mar
	Booklet 4	24 – 31 Mar
	Worksheet\Games\Post test	1 Apr

Summary and Conclusions

SKP aims to be a short-term intervention targeted at minimal learning levels. Through this prepilot, we examined the feasibility of the intervention and its potential impact. We found a remarkably strong and robust outcome of the intervention on: a) learning, b) student engagement in learning (within and outside the intervention), c) behaviour and self-regulation (of both behaviour and learning) and e) self-efficacy of these children. The intervention warrants a careful and thorough examination of a child's conceptual learning. After studying learner's progress in our pre-pilot program, SKP has impacted over 200 children in 5 government schools in the span of 45 days. The course content made the students more apt in combating their fundamental queries. We are planning on extending on a thorough pilot study in the coming few months before we are ready to, we scale the program.

All students deserve to understand and enjoy Mathematics and English. We hope to move to self and peer directed learning models through predefined rich materials, this would hopefully have rippled effects where learning can be more independent. The intervention also moves away from rote based learning models to conceptual understanding and in turn lead to active student engagement, self- reflection and self- directed learning. SKP has the ingredients- knowledge, capacity and skills required to support teaching and learning for diverse range of students who need remedial teaching.
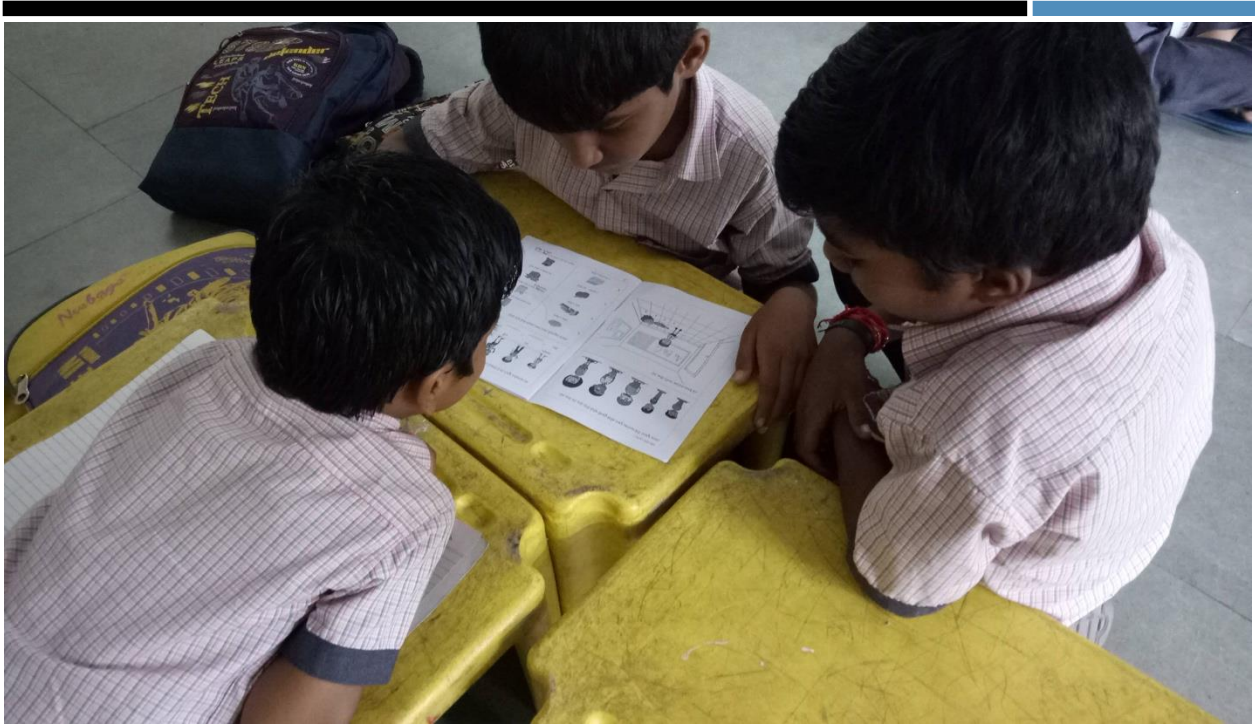
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