

Project Sangamam Kanini Phase II
Employing Computers and Internet to Enhance Education in Govt Schools
Asha Chennai Proposal – Year 2016-17
Nov 13th 2015

Background

The Asha Chennai chapter of Asha for Education has been working with government schools to try and improve the quality of education since 2003. Our primary strategy has been to appoint teachers in schools that have insufficient number of teachers, provide training to our teachers and to government teachers, provide materials to aid the teaching at the school, and improve the infrastructure at the school to make it effective.

Using technology to improve the education has always been part of our goal. In the years 2005 to 2008 we developed ECTAL (Educational Contents for Technology Aided Learning), a comprehensive set of presentations to teach more difficult concepts in all subjects from 3rd to 8th standard. In 2008 we donated 100 computers from Inautix to the schools we support. We have been maintaining computer labs in these schools and have been using these to teach the children about how to use computers.

In 2015 we started more actively engaging with the classroom process. With support from Oracle Foundation we took up the Phase I of the project described below. We provided laptops to 24 teachers from 15 schools. We have been maintaining the computer labs in these schools and have also provided content materials and guided the teachers on how they can use them in the classes. These are described in more details below.

In 2016-17 we will implement Phase II of this project.

Proposal

Computers in a classroom can be effectively used for a variety of purposes. We intend to use them for the following purposes,

1. Delivering lesson plans to the teachers to instruct them how to teach a specific lesson.
2. Guide for pronunciation, meaning, grammar etc. for English lessons.
3. Augmenting that with content like videos to aid them in understanding how to teach the lesson or in conducting activities related to that lesson.
4. Content that can be viewed by the whole class to learn a lesson or a related topic better.
5. Provide materials for the teachers that would be useful while teaching the class including,
 - Worksheets.
 - Materials to be used during activities including offline games.
 - Assessments.
6. Contents such as games and simulations that can be used by small groups of students directly on the computer to learn a lesson.
7. Allow teacher to enter marks from assessments so that good analytics can be done on the same.
8. Use computers for introducing Computer Science to the primary school children.

The following will be implemented in subsequent phases.

9. Allow students to work on worksheets.

10. Allow students to take diagnostic tests and assessments directly on the computer.

Besides these the computers can also be used to empower the teacher. The teachers are empowered by gaining knowledge on how to use the computer and the internet. Further the computers are also used to teach computer science to the students.

The work will be broken into multiple phases. The different phases envisioned are as follows.

Phase	Time Period	Schools and Teachers Impacted	What would be done.
I – Proof of Concept	Academic year 2015-16	Asha Chennai supported and partner schools – Asha teachers only at govt. schools. Sangamam – 14. Poorna Vidhya – 2. Olcott Memorial School – 8. Total – 24.	<ul style="list-style-type: none"> - Provide computers and internet connections to our teachers and through them Internet connection to the schools. - Provide schools the mechanisms to display content for whole classroom. - Provide minimal content for just Maths and English (described below). - Ensure smooth operation (computers, network connections and our software work well under operational conditions). Conduct baseline assessments of the learning levels at these schools. - Collect data on how the content materials are being used in the classes to help us refine these. - Ensure the contents and materials are being used by our teachers.
II – Field Trial	Academic year 2016-17	<p>Remaining Asha Chennai supported schools (Pearl – 3, Senji – 5, Chennai – 2).</p> <p>Extend support to all primary schools in Poondi block of Thiruvallur dist. We will support between 40 and 80 extra schools with additional 10 to 20 computer teachers.</p> <p>Current proposal proposes for 40 schools to be managed by 10 computer teachers appointed in two tranches – 5 starting in June 2016 and 5 starting in Oct 2016. These will be monitored by one Lead academic coordinator.</p>	<ul style="list-style-type: none"> - Extend the proof of concept work (done in Phase I) to the remaining Asha Chennai supported schools. - Broaden the scope to schools where we do not have Asha teachers working full time. We will have computer teachers travelling to these schools to help facilitate the use of computers at all these schools. - Ensure atleast one computer at each school we work with. Wait to see if the government itself is providing and only fill in the holes. Provide internet connections to all our computer teachers. - Enhance the contents provided to all subjects and to cover all areas mentioned above. Impact actual educational process at these schools incl. instruction and assessments. - Refine the software based on feedback to ensure ease of use. - Get the computers, our software and contents

			to be used by government teachers even in the absence of Asha computer teachers. Eliminate any problems for them in this regard.
III- Limited Deployment	Academic yes 2016-17	About 200 classrooms total.	This will be the main test where we are deploying our system where there is no Asha presence. This will be the main test to see whether it can be used without our active presence/support.

The content materials to be provided in Phase I were focused on English and Maths. It included the following,

1. Instructions on teaching for Maths.
2. Recordings of all English lessons.
3. Khan academy contents for Maths in English and Tamil.
4. ECTAL (Education Contents for Technology Aided Learning) presentation developed earlier by Asha Chennai.
5. Contents from the Azim Premji Foundation CDs.
6. Maths games from MathIsFun.com, MathGames.com etc.
7. Manipulatives/simulations from PhET.Colorado.edu, NLVM etc.
8. Offline activities like word search and other word puzzles, Math bingo games, and games from MathPickle.com.
9. Several contents are provided by the state government to the schools like Simply English, Hello English, E-Speak, etc. We will provide these packaged with our laptops and thus make it easy to use.

There are several other resources available on the Internet. As the project progresses, we will be mapping a lot of these contents to the lessons in TN state board text books as well.

The following additional educational content materials will be provided in Phase II.

1. Read along software with all the English lesson recordings mapped so that these can be viewed by the classes along with the text.
2. Worksheets for English and Maths lessons.

Software and Content Development Work

As a volunteer based organization, our main effort will be to get as much of the work done using voluntary effort of people from Chennai and the rest of the world. In particular we hope to get most of the software development and content development work done for free using volunteers. In Phase I all the software work and some of the content work was done by volunteers. We hope to continue using volunteer work for some of these efforts. However without a core team to coordinate the software and content development work,

driving it completely through volunteer effort proved to be difficult in Phase I. In Phase II we hope to have such a core group to pull all the work together and coordinate things with the teachers.

Budget for Phase II

SNo	Work Description	Cost and Modification Details	Total Cost for Asha
1	Laptops and Wifi 3G hotspots for each of the 10 computer teachers. Minimal i3 based configuration with 4GB RAM, 1 TB hard disk, webcam and Wifi.	10 * Rs 32,000 per laptop + hotspot.	Rs 3.2 Lakhs
2	10 computer teachers salary incl. conveyance, bonus etc. I am assuming we start 5 of them in June and 5 in October.	Rs 7000 * 5 * 12. Rs 7000 * 5 * 8.	Rs 7 Lakhs.
3	Printing supplies, Xeroxing, laminating etc. of offline materials for schools.		Rs 25,000
4	Data plan for all the teachers (incl the existing 25 teachers). Note this ramp up for the new teachers will be over the year. Hence putting a lower number of teachers. We will also attempt to get a bulk discount from Airtel/Vodaphone.	Approx Rs 800 * 31 * 12.	Rs 3 Lakhs
5	Laptops and Wifi 3G hotspots for each of the 8 teachers in additional Asha Chennai projects. Minimal i3 based configuration with 4GB RAM, 1 TB hard disk, webcam and Wifi.	8 * Rs 32,000 per laptop + hotspot.	Rs 2.6 Lakhs
6	Data plan these 8 teachers. Note this ramp up for the new teachers will be over the year. Hence putting a lower number of teachers. We will also attempt to get a bulk discount from Airtel/Vodaphone.	Rs 800 * 5 * 12.	Rs 48,000
7	System / Network administrator for managing the network and machines.	Rs 15,000 * 12	Rs 180,000
8	Assessment creation, execution, grading and other work.		Rs 50,000
9	Miscellaneous costs (repairs, failed experiment with some hardware etc.)		Rs 50,000
10	Provision for purchase of contents, content translation and recording.		Rs 50,000
11	Administration (Documentation, Conveyance etc.)		Rs 25,000
12	Scooter at Thiruvallur office for computer maintenance visits and other occasional use by teachers (when there are transportation problems)	Scooter: Rs 60,000. Petrol and maintenance: Rs 2000 * 12.	Rs 84,000
Total Amount Requested from Oracle		Rs 20.92 Lakhs	
Items Asha will fund using its own funds.			

13	One lead academic coordinator to coordinate the 10 computer teachers (incl. conveyance and bonus)	Rs 9000 * 12.	Rs 108,000.
14	One software engineer incl office cost.	Rs 40,000 * 12	Rs 480,000.
15	Two content experts incl office cost.	2 * Rs 30,000 * 12	Rs 7.2 Lakhs
16	Computers and accessories for the software developer and 2 content developers.	Rs 40,000 * 3	Rs 1.2 Lakhs
Total Amount to be funded by Asha from other funds		Rs 14.28 Lakhs	