EQUIP project Site Visit Notes (by Lakshminarayanan Subramanian)

I visited three rural schools in Tiruvannamalai district as well as went to two AID offices and met with various volunteers who are all working as part of the EQUIP project. The first school I visited was Uratchi Primary School in Vandavasi, Kizhakkucheemangam. The school has till grade V. Here, I saw the reading program of the EQUIP project being administered to kids. After this school, I went to the local AID office in Vandavasi to interact with some of the AID volunteers who operate and manage different schools within the district. Next, I went to Uratchi Middle School which consists of students from grade VI onwards. In this school, I saw the science experiment program of the EQUIP project in action. Finally, I went to an AID run school within the district. Here, I met with teachers and discussed about their perspectives on the current status of the project and which aspects have been working well.

EQUIP project is a massive project which tries to improve basic education (primarily focus on basic reading skills) and improving the level of maths and science education in higher education levels (current focus on science education, maths is on the works). The current coverage is very impressive: 17 districts, about 2500 schools and reach of over 100K children. Among all Asha projects that I have seen, this definitely stood out as the very best I have ever seen in action.

Motivation for EQUIP project:
40-50% of kids in rural schools in Tamilnadu who have passed 5th grade cannot recognize basic characters. TN boasts of 100% enrollment but the kids who go to school do not get proper education.

Multiple reasons for this problem:
a. Teaching methodology has some basic flaws in that it is not quite tailored to making kids learn.
b. Indian govt has brought in initiative about activity based learning with no exams where kids learn based on activities. The activity based materials are not tailored to teach properly. One of the problems is that the system can be gamed such that the kids end up not learning anything but yet end up passing; its like learning by heart a few songs and claiming one is a music expert! (bad analogy but gets the level of discrepancy between being able to read as opposed to knowing a specific problem after having tried the same problem 10+ times!).

Ingredients of EQUIP's success
1. Balaji Sampath and his huge track record of large-scale successful ventures
2. Great volunteer base under Balaji.. many are actually employed by Balaji as part of the project
3. Fantastic model of operation (explained below).

How EQUIP started?

Balaji has worked on several projects in rural Tamilnadu and has had enormous penetration in many of his prior works in many rural places. Balaji identifies critical problems in these villages and searches for scalable solutions for these problems.

Balaji identified the reading problem prevalent in many villages and wanted to tackle this issue. Balaji was previously active in the Eureka noolagam project which set up libraries in villages to promote literacy. Thru the library and the experiences in rural villages, Balaji and his team developed the "Padippu Minikkum" reading program as a fast track course to improve education.

The EQUIP project deployment started in a specific district where Balaji knew the collector of the district (friend from IIT-Madras) to kick start and test/refine the Padippu Minikkum program within specific schools within the district.

How does EQUIP work within a specific district? How do they scale to an entire district?

Step 1: Senior Aid representative visits village and parks there for 3-4 months to understand the ground reality. This person rents a house with 2-3 rooms which can act as local AID office.

Step 2: Aid volunteer identifies 5-10 active young representatives within the district who can help out with the program. These volunteers are carefully picked. These volunteers are also given training in the Padippu minikkum program - on how it should be taught, conducted etc.

Step 3: Volunteers visit schools in the district and classify them into 3 categories: A (cooperative), B (they are ok), C (not so cooperative). The key is to focus first on A schools and then focus on B schools. For C schools, we would need either huge success in other schools or support from the district administration to move forward.

Step 4: The EQUIP program is inclusive with the curriculum taught in schools. So volunteers work with school teachers in A and B schools training them to use the Padippu Minikkum kit as a teaching aid for kids. First, the volunteers themselves get field training; then volunteers are allowed to train the teachers.

Step 5: Padippu Minikkum is a 6 month program where there are 5 levels (*level 0*: recognizing characters, *level 1*: recognizing words; level 2: reading sentences; *level 3*: able to understand sentences to form a story; *level 4*: able to read stories). Volunteers are assigned specific schools and each volunteer monitors the progress level of every kid under the program. So at the end of each week, the students get graded on their level. We declare success if a large fraction reach level 4 by 6 months time period. At this

stage, volunteers monitor school progress in the A and some B schools.

Step 6: Based on initial success, present it to district administration and try to convince them to adopt this throughout the district. If so, then C schools have to follow suit. If no support, then AID works at a block level with schools willing to cooperate.

Step 7: Expanding from initial set to a much larger school set within the district. At this point, the role of the volunteers
is to primarily train teachers and monitor the growth within the district.

Step 8: Work with schools to integrate Padippu Minikkum as part of their curriculum.

Step 9: Once reading problems significantly addressed, the next focus is on more advanced education. Next focus is on science experiments and a new curriculum for math being developed.

Step 10: Once a district is largely functional, the main AID volunteer who acted as a catalyst leaves to take care of the next district or next important catalyst role.

What makes Padippu Minikkum successful and attain high reading rates in 6 months?

The key idea used here is a careful design of "activity based games" which make reading fun as well as makes children quickly grasp and learn how to read.

From a mathematical perspective, one key idea is that of a "large statistical sample" for the reading material. If a child can prove that he/she has the capability to read a random element from a large pool, then with a very high chance, the kid's reading skills are good. In traditional activity based learning, the large statistical sample was a key missing ingredient. So kids could easily game the system since the set of assigned tasks had been fixed and predetermined. This is very crucial for EQUIP's success.

Level 0: Have a large pool of characters and play a game where one kid picks a random character and the other kid has to recognize it.

Level 1: Large pool of words where kids have to recognize random words

Level 2: Read sentences of varying complexity. Also arrange words to form sentences.

Level 3: Very critical stage...Split a story into sentences. The kid is supposed to read each sentence, understand it and then arrange them logically to form a story. Again large statistical sample of stories.

Level 4: 150 different stories of different levels of difficulty. Students must read stories to other students and explain what it means.

Overall, the "fun" aspect, the "collective learning" aspect and the large sample are the crucial ingredients which makes this program successful.

The reason why they have been able to achieve dramatic results in 6 months is that they are targeting kids who are already in school. So this is a very good learning aid to kids who have some sort of exposure to what reading is about. Over a more general population, the time taken would probably be more. For example, before playing level 0 games, it is essential to teach what the various basic characters are.

What about the A-B-C formula?

A key aspect of EQUIP's success is the ABC formula which they apply in all settings. A- situations which are conducive, B- possibly conducive, C- not very conducive. By quickly identifying "A-type" situations, the program gets maximum impact in the shortest period of time within a district. Focus on C situations is the last since the time taken to break the ice can be very high in certain situations. This is also used for identifying which is the next district to target.

About the science program

AID has developed a very innovative science experiment program whose goal is to promote science education in higher secondary school. This is the next step following the Padippu Minikkum program and the target range is the next level of students (beyond 5th grade).

They have developed a "Rs. 500" toolkit with simple tools to demonstrate 100 different science experiments of a variety of concepts at an ultra-low cost.

One ingenious experiment I was amazed by - how to show reflection of light:
Take an empty translucent plastic box, burn camphor or any material that produces smoke and fill the box with smoke... Shine red light thru the box.. one can trace the path of light in smoke.... keep a mirror inside the box to show reflection of light.

This experiment is a very cheap but ingenious experiment. Several such experiments have been carefully constructed by a panel of experts.

A similar thing is currently on the works to develop an activity based toolkit to teach Mathematics. I loved the program so much that my mother (who has been a Math teacher for 20+ years) is now working with them on the Math teaching methodology.

The impact on the kids has been enormous:

1. Prior to these experiments, if you were to ask a kid where do you see science being applied - the common answer used to be aircraft, train, satellite etc. After these experiments, the kids state that many of their activities in normal life has science embedded in them... remarkable change in attitude and thinking about what science means

2. Prior to this, there have been no experimental science programs. This is first of its kind and is extremely affordable.

3. Kids are super motivated and design their own experiments based on tools at home and school.

4. Kids are motivated to learn about science. The energy level in the school I saw was really fabulous.

Current Impact of EQUIP

1. 2500 schools in 17 districts covering 100-200K kids.
2. Balaji does the science program on Sun TV every week once.
3. Karunanidhi, Center and TN Education minister is aware of the reading problem prevalent in villages.
4. News has reached Center and other states are interested as well.
5. Govt wants to work with AID to integrate their stuff with the activity based learning curriculum. Still training + monitoring are essential for success.

How do you say EQUIP is successful?

In Padippu Minikkum, they use a grading sheet and assign a certain level to each student. Across grade sheets I have read, nearly 92% of the kids reached level 4 by 6 months. And those that did not reach level 4 where initially at level 0 or 1. Most of these have reached levels 2 or 3 by 6 months. Every kid as far as I am aware of has improved in the levels over the course of the training.

Similar grading sort does not exist for the science program on a thorough basis as far as I am aware of. But then doing a grading for science experiments is hard except that one can test students based on concepts learnt from these experiments. Every student is supposed to finish all the experiments prescribed.

Where did EQUIP get funding from so far?

1. Balaji won Ashoka fellowship which covered a good chunk of the costs for the initial work. This was a substantial amount of money covering over a few million dollars. Now this money is running out and then need support for new districts.

2. Pratham gave some money to EQUIP. Pratham wants to do something similar in Maharashtra.

3. Other local sources have provided some support but this has been fairly minimal as far as I understand.

What do they need?

Rough ballpark budget requirements: $7K per block, $100K or so for a district per year. Would take a few years to complete a district. How many may depend on the district.

Once done with a district, what do they plan to do beyond?

Once Padippu Minikkum is done, the science experiments would be the next focus. After that, the next focus would be on math teaching methodology. They have a dedicated panel of experts working in each of these curriculums and teaching methodology design.

What if a specific methodology does not work on the ground?

Any and every teaching methodology is stress tested on the ground in real schools. If something doesn't work, they revisit that approach, redesign the approach correspondingly and retest it in a different place. This cycle of revision happens until the whole program is successfully designed. Classic example of failure is the stepping stone to success. The first version of math curriculum had many problems which they are currently trying to fix.

Balaji Sampath and AID

Critical to the cause of the success of EQUIP is the stewardship of Balaji and the way the entire AID team operates. It's extremely efficient and very highly mobilized.

Balaji has led enormous such projects in the past:
1. He was instrumental in the growth of AID in the US
2. Won the Indus innovator award from MIT for social work
3. Led the Arogya Iyakkam project where he mobilized 5000 odd volunteers in Tamilnadu Science Forum to improve healthcare in rural villages. Within a very short period, this was voted as top-10 healthcare projects in the world by UNICEF.
4. Balaji led AID India in the tsunami relief efforts. Did massive amount of work here.
5. Won the Ashoka fellowship
6. Led the Eureka Makkal Noolagam project
7. Leading the EQUIP project in several districts

- Lakshmi