

# THE CHALLENGES OF PROVIDING ONLINE SCHOOLING TO STUDENTS AT THE BOTTOM OF THE PYRAMID

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## Abstract

In a world already experiencing a growing gap between the haves and the have-nots, the CoVid pandemic and related lockdown has only served to hasten the growth of that gap. Education has been one area where children from under-served communities have largely been left behind their peers, who have easily moved onto online learning.

As we write this, millions of students attending Government run schools in India have been out of school for more than three months; it is unlikely that these schools will open before September, which would mean that the children have not had any education for 5+ months. Given the impoverished backgrounds that these children come from, there is little academic or mental stimulation available at home, making the goal of catching up with their more affluent peers an increasingly distant one.

Parikrma Humanity Foundation, a non-profit running 4 free schools for children from the poorest slums of Bangalore city in India since 2003, has been determined not to let its students suffer a similar fate as the students attending Government schools. To this end, ReachV©, Parikrma's virtual school was started on the 22<sup>nd</sup> May, in an attempt to ensure continued education for all of Parikrma's students.

The challenges of running an online school for children from such under-resourced families seemed initially insurmountable, ranging from a lack of internet connectivity and 'smart' devices to technologically challenged teachers and skeptical parents. However, the need to quickly bring the children back to the discipline of school was clear – some of them had already been pushed into jobs by their parents and the rest were spending most of their time unsupervised in the harsh environments of the slums in which they live. Thus, once the decision to start a virtual school had been taken, the Parikrma team has tackled each of the problems as they arose, using a range of innovative ideas to suit the needs of the students. ReachV© is now a reality with attendance running at 90%+.

This paper will talk about how the ReachV© school was set up and the solutions found to each of the problems typically faced by those running schools for children from the most under-served communities. In addition, it will provide some metrics of success, based on both learning outcomes as well as satisfaction with the learning process among all the key stakeholder groups, namely, students, teachers and parents. We hope that the learnings of the Parikrma team will be of use to educators working with similar populations across the world.

Keywords: ReachV©, Parikrma, online education, under-served children.

## 1 INTRODUCTION

The difficulties of ensuring education during the lockdown have been the topic of many academic and media articles over the past few months. Globally, at least 31 per cent of students from pre-primary to upper secondary schools cannot be reached due to either a lack of policies supporting digital and broadcast remote learning, or a lack of the household assets needed to receive digital or broadcast instruction[1]. In India, as in most developing economies, the situation is one of crisis proportions. The majority of Indian school-going children (65%) attend Government run schools. These schools have been shut since the third week of March, and it is not clear when they will be able to open up again and return to their normal model of education delivery. Thus, these children have been out of school for almost 6 months, a situation with serious consequences on both their physical and mental well-being. Given that Indian Government schools cater to children at the lowest end of the socio-economic ladder, their parents are typically incapable of providing any academic inputs, or access to other modes of educational delivery. Thus, while their more affluent peers have easily moved onto online classes, these children have had very little schooling during this time. The Government has made no concerted attempts at providing schooling, other than a few scattered and sporadic attempts at delivering content through public broadcasting channels on the radio or the television. The quality of

this content is usually poor, and unlikely to draw children into attending the sessions. There is little data on how many children actually access these sessions and their impact on learning outcomes.

While online education is no longer viewed as a panacea that can substitute for face-to-face schooling, it is still the model of choice. However, for the approximately 120 million children enrolled in Government schools in India, without access to the basic prerequisites of an online education, namely smart devices and internet connectivity, even virtual schooling with all its problems, is not an option. In addition to the Government school children, there are thousands of others too, who attend low-end privately run schools, where the situation is not much better. For all these millions of children, the consequences are grave; even if schools are re-opened in the next couple of months, there are big questions to be answered relating to how a year's worth of schooling can be compressed into 4-5 months, how curricula must be truncated and so on. And even if they open, will they be able to return to full-strength classes given the need for social distancing?

With so many grave issues remaining unresolved, children from under-served communities are falling further behind their peers from more affluent backgrounds. The longer this situation persists, the lower the likelihood of these students ever catching up with their more affluent peers and narrowing the growing societal inequality.

This paper is a case-study on how a small non-profit organization, based in the South Indian city of Bangalore, has overcome the monumental challenges of taking online education to children at the lowest end of the pyramid, and how the model that has been developed may be replicated in a larger context, to ensure that no child is left behind.

## 2 PARIKRMA HUMANITY FOUNDATION

Parikrma Humanity Foundation, started in 2003, runs 4 free K-12 schools for 1500 children from 87 slums and 5 orphanages in Bangalore. The children come from 1100 families residing in slums in and around areas of urban Bangalore. The children are first generation learners from uneducated families, where the chief wage earners are typically daily wage laborers, unskilled workers and petty shop owners; the monthly family income is in the range of Rs.10000-12000 (135\$-160\$) per month.

Parikrma's 360-degree development model covers every aspect of the child's life, which besides education, also includes nutrition, comprehensive healthcare and family care to ensure a stable home environment. Education includes an English language curriculum, along with exposure to sports, art, theater, dance and music. Built around an end-to-end model, Parikrma looks after a child from kindergarten until he/she completes a professional degree leading to a job.

### Parikrma 360° Model

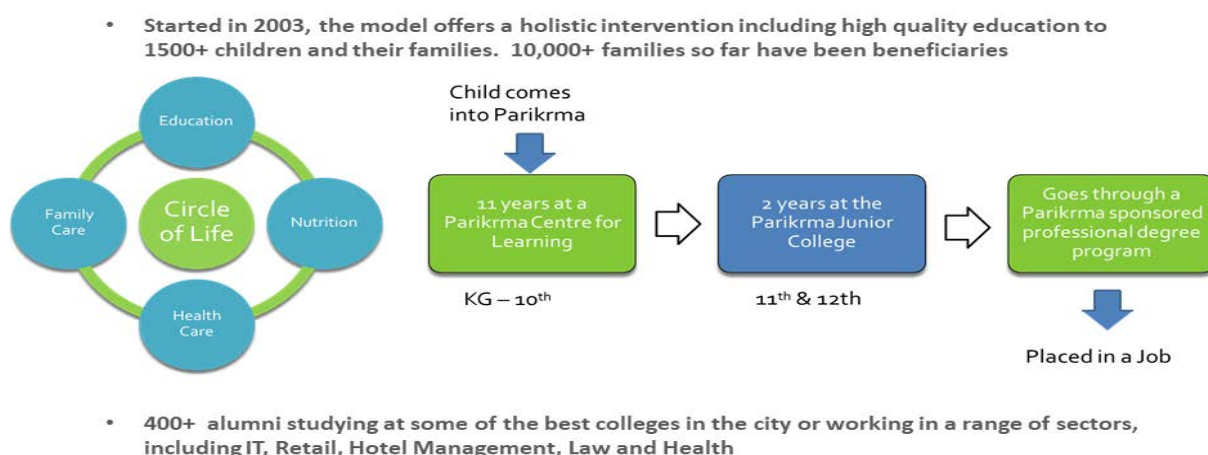


Figure 1. The Parikrma Model

### 2.1 Parikrma's response to the pandemic

The CoVid related lockdown in the city of Bangalore, where Parikrma is based, has devastated the already vulnerable Parikrma community. Almost all the parents found themselves out of work or saw a

severe fall in earnings, rendering them unable to take care of even basic necessities like food and hygiene.

With the very real possibility of students not getting enough food to survive, Parikrma began supplying weekly food ration kits to all the families, to take them through the unprecedented tough times. These rations were packed in small cloth bags and distributed at each of the 4 schools, by Parikrma's team of community service workers and some of the teachers who live near the schools. In an attempt to provide employment and income to the families, the making of the cloth bags was outsourced to Parikrma mothers with basic tailoring skills. Parikrma supplied the mothers with old clothes, obtained through a charity drive among friends and donors. These old clothes were converted into the bags used for food distribution. This allowed the mothers to earn with dignity while meeting Parikrma's requirements as well.

However, even as they distributed the rations, the Parikrma team realized that while ensuring physical survival was obviously critical, it was equally important to engage students' minds. Following Government directives, the schools had been shut down before the end of the academic year; the children, with no mental and academic stimulation within their slum environments, were running wild and forgetting most of what had been taught them during the school year. There were other grave concerns as well – some students were being put to work as runners within the slum by desperate parents looking for some income – there is considerable research showing clearly that once children began earning money, the likelihood of dropping out of school is high[2]. Some of Parikrma's older girl students were being forced into early marriages, in an attempt to get them out of the house and decrease the number of mouths to feed.

Parikrma started handing out story books, magazines, art material and school work assignments for the children, through the parents when they came to collect their weekly rations. While this served to engage the children partially, a more comprehensive plan was clearly required. Parents and children were continuously reaching out to teachers, asking when school would reopen. Used to summer school during the months of April and May, the children were feeling isolated and needed reassurance. Given the wide-spread job losses, they were also not getting the food that they were used to daily. Parikrma clearly had to let them know that they had not been abandoned. This was the genesis of Reach-V©; when the obviously disastrous consequences of not opening an online school galvanized the Parikrma leadership into action, in spite of the obvious challenges.

### **3 REACH-V©, PARIKRMA'S ONLINE SCHOOL**

Once the decision to begin Reach-V© had been taken, the enormity of the challenges had to be faced and solutions devised.

#### **3.1 The internet access challenge**

How does one bring online schooling to a population of school children that has no access to smart devices and comes from households with no Wifi or internet connectivity of any sort? While a few of the parents did have smart phones, these phones were typically not available to their children for regular use.

Parikrma began a series of campaigns over social media as well as more traditional routes. While one set of campaigns centred around getting people to donate their used smart devices, another set of campaigns centred around raising funds for the purchase of new devices as well as providing internet connectivity, a cost ranging from Rs.250-300 per month per device.

These campaigns began in early April and are ongoing. By late May, Parikrma had managed to gather about 300 devices, both used and new. This was obviously not sufficient for all students but necessity, as they say, is the mother of invention. Long before 'learning pods' became fashionable, Parikrma was grouping students into clusters of 3, sharing one device between them. Since students in each of the 4 Parikrma schools come from a common set of slums within each school's catchment area, it was possible to create the clusters based on students' grades and the proximity of their homes. The most stable of the 3 households in each cluster was chosen as cluster centre; the device was handed over to the parents of this household and the other children in the cluster would visit this house daily.

Campaigning for obtaining more devices, used or new, continues. Currently, the clusters of 3 have been reduced to 2 children sharing a device, and the hope is to ultimately get one device into each student's hand.

There has been some learning along the way. Initially, tabs were preferred for their larger screens; however, they were found to be less reliable than smart phones which are easier to connect with and manifest fewer technical issues.

In addition to the devices, students also needed to be provided with internet access. Low-income households in India typically do not access the internet through the Wifi or broadband subscription route. Instead, they buy monthly prepaid data packs for their smart phones, where the amount of data is pre-specified. For e.g. a 50GB pack would cost about Rs.250 (\$3.25) per month.

Since May, Parikrma has been providing students with Rs.250 worth of 'mobile data recharge' per month, allowing them to stay logged in for about 3-4 hours per day, 5 days a week. However, as Parikrma gets deeper into the school year, and students have to prepare for exams, access more online material in the absence of library books etc., it might now be necessary to raise the value of the data pack. Also, since low-cost mobile data packs come with daily download limits, there are an increasing number of complaints from teachers, that students are dropping off in the last 30-45 minutes of each school day, because they have exceeded their daily data limit.

However, as parents slowly regain their jobs after the lockdown, some of them are starting to pay for internet access on their own. This allows Parikrma to focus on those students whose families continue to be in financial trouble, so that they can be provided with whatever they need to continue online school.

### **3.2 The teacher challenge**

Parikrma was faced with two issues with regard to teachers. The first and larger issue involved the overcoming of a deep-rooted fear of and wariness with regard to technology amongst almost the entire academic body, including the most senior and experienced teachers. The second issue related to actually training them on using technology to reach out to their students. Rather than launching straight into tactical classes on how to use various distance learning platforms, Parikrma started off by discussing larger issues relating to virtual learning, the difficulties involved in bringing virtual learning to low income households, the global picture with regard to out-of-school students, the nature of attempts to address the issue etc. Teachers were invited to contribute with suggestions on how Parikrma could tackle the upcoming challenges. Thus, teachers were slowly moved into a frame of mind where they began to think of themselves as pioneers. This attitude snowballed into one where Parikrma teachers and schools were competing with each other to identify new methods of reaching out to students, produce the most innovative content and so on. Once this mind-set had been achieved, training teachers on Google Meet and Google Classrooms (which the teachers themselves had identified as being the most appropriate for Parikrma students) was an easier task, and even the oldest and most tech-averse teacher picked up the basic skills involved over the 3 weeks of training. All training was conducted in-house by Parikrma's tech team.

The positive manner in which Parikrma teachers have stepped up to embrace this new teaching model also has to be understood in the context of a key decision made by the Parikrma leadership, early in the lockdown phase. While organizations all around, including educational institutions, were announcing salary cuts and/or layoffs, Parikrma actually announced that employees would neither be laid off, nor experience any reduction in salaries. More than anything else that the organization could have done, this announcement served to galvanize employees, motivating them and filling them with pride in working for Parikrma. In many households, Parikrma teachers became the sole bread-winners as spouses lost their jobs. This has played a big role in ensuring that teachers entered the Reach-V© training with a sense of pride and purpose, determined to play a role in the online school's success.

### **3.3 The challenge of identifying the right technology platforms**

With a plethora of online teaching and e-learning platforms available, it was difficult to identify the ones that would best suit the needs of Parikrma children. During the first days of training, the complexities of each option threatened to overwhelm teachers, until it was decided that the decision should revolve less around the technical capability of the platform than its ability to suit the peculiar needs of Parikrma students.

Given their often dysfunctional and abusive family backgrounds, Parikrma students are extremely close to their teachers and have a relationship that goes beyond the normal student-teacher interaction seen in most schools. All teachers are addressed as 'Akka' or 'Anna' meaning elder sister or elder brother. Teachers joining Parikrma are soon made to understand that their role goes beyond

teaching academics. They also need to fill in the gaps left by the lack of learning and exposure at home, given that most Parikrma parents are poorly educated and too focused on survival to address their children's emotional and social needs. Thus, Parikrma teachers are often required to teach even the basic social skills that might be taken for granted in other schools. They need to stay alert to student distress and are trained to carry out some basic emotional counselling as well. Keeping this level of student-teacher bonding in mind, it was decided that the platform selected must allow live student interactions, such that Parikrma students could actually see and interact with their teachers throughout the process. Live classes need a higher level of speed and connectivity and cost more than just sending sessions pre-recorded by teachers. However, it was decided that the additional cost was worth accepting in order to give students the chance to interact with their teachers live. Thus, Google Meet was selected as the platform to use.

Teachers are encouraged to either pre-record their own or search for content that strengthens students' understanding of the concepts being taught. These are shown to students during the live classes, and are also sent to students through the WhatsApp medium later. WhatsApp groups have been created for every class of 30 children, so that their teachers can interact with them easily. In a face-to-face session, most teachers can gauge the level of understanding among students of the concept or content being taught. This is harder to do in a virtual environment. Thus, every class is followed by a small assessment sent through WhatsApp. This assessment exercise is carried out at home by students, photographed and sent back to the teacher. At the beginning of each class, the teacher discusses answers to the previous day's assessment so that students understand where they may have gone wrong. This combination of live classroom and pre-recorded content using Google Meet and WhatsApp seems to be working well.

There are a few modifications made for younger students of Grades Kindergarten to 3. It was felt that they might not be able to manage the complexities of logging in to Meet, even with parents to help them. For these students, teachers create videos of themselves teaching and send these videos through WhatsApp.

### **3.4 The parent challenge**

The average Parikrma parent has only about 6-7 years of formal school education. Educating them on the need for Reach-V© and eliciting their cooperation required a great deal of effort from Parikrma, especially from the ladies in the organization's Community Development Services (CDS) team. As with everything else, the effort was thought out and planned to the last detail.

It began with the CDS team meeting each parent face to face. Since the parents were coming to Parikrma every week to collect their rations, these occasions were utilized for the initial counselling sessions. During these one-on-one sessions, parents were briefed on Parikrma's plans for online school, and their cooperation requested. They were told that they would be given detailed training on how to use the smart devices given to their children to access the online school. Finally, they were given an agreement form to sign, as a gesture of their commitment to Reach-V©. This form sets down what is expected from parents in terms of their own behaviour, their responsibility for the devices lent to their children, the need to get their children ready for classes daily, on time and wearing their school uniforms and so on. While this signed agreement has no legal standing, it served to impress on Parikrma parents the significance of Reach-V© and their own role in it. On the whole, parents were extremely happy to cooperate; it was obvious to them that most children in their neighbourhoods attending local Government schools, were running wild with absolutely no chance of any education during the CoVid times. Largely their attitude has been one of gratitude and cooperation. The few recalcitrant parents, who either did not want to commit to Reach-V© or had other, less salubrious plans for their children, were brought around by other Parikrma parents living in the neighbourhood.

The next stage was the actual training of the parents in handling the smart devices given to their children. While many were familiar with accessing the internet through the devices, they needed detailed coaching on downloading Google Meet and using it to connect to Reach-V©. This training was done online by Parikrma's tech team and took almost 2 weeks of daily sessions before the trainers and parents felt confident enough to log on and stay connected for the entire duration of the daily classes.

In spite of the training, there were plenty of hiccups once the school actually began on May 22<sup>nd</sup>, 2020. Parikrma's solution was to use its alumni; many Parikrma alumni who were working pre-pandemic, had lost their jobs during the lockdown, while those still in college did not have classes. These alumni

were brought in as mobile technology problem solvers, moving around the slums during the school hours and helping parents and children fix whatever issues they were facing.

### **3.5 The question of curriculum coverage**

A key decision taken early by Parikrma's senior leadership, influenced the entire character of Reach-V©. This was the decision that Reach-V© would not be in any way a stop-gap or compromise project carried out only to keep students occupied until such time as the face-to-face schools could be reopened. Faced with the reality that pre-CoVid models pertaining to education were about to be upturned, and that there was no way of just returning to the way things were, Parikrma decided that Reach-V© would be a complete solution. This meant that it would strive to provide to the greatest extent, the entire educational experience given earlier by the face-to-face schools. It also meant that even after the CoVid threat is reduced and face-to-face schools allowed to reopen, Parikrma would not return completely to the way things were. The earlier educational model would be modified to incorporate the best of the offline and online processes, such that Parikrma's original mission of providing the highest quality, holistic educational experience continues to be met.

Thus, the academic curriculum to be followed at Reach-V© has been exactly the same as it would have been otherwise. In addition, all the co-curricular elements that distinguish Parikrma because they are so rarely seen in education provided to students at the bottom of the pyramid, such as art, music, dance, drama, sports etc. are being maintained in Reach-V©. The daily Enrichment Hour, from 4 to 5.30 pm is used to provide the additional exposure that Parikrma students have always received through talks and demonstrations given by eminent invitees from various spheres. This time is also used by students to put up plays, compete in intra-Parikrma competitions and participate in educational or just fun activities conducted by volunteers. Students across all grades may log in to Enrichment hour.

However, it has been tricky to manage all of this with the time limitations imposed by the costs of internet connectivity. Initially, Reach-V© began with 7 study periods across 4 ½ hours of school. However, it was soon obvious that the cost of ensuring connectivity for so many hours was higher than Parikrma or the parents could afford, and certain changes were made.

The duration of each class was reduced to 35 minutes from the normal 40 minutes, so that school hours could be shortened. In order to ensure that the required level of learning was still achieved, teachers were asked to devote live class time to explanation and discussion. Any written work was sent through WhatsApp to be done at home. From the earlier practice of homework given twice a week, homework is now being sent daily through WhatsApp. Students take pictures of their completed assignments and WhatsApp them back to their teachers.

Study periods have been reduced to five - one period each for the core subjects of Math, Science and Social studies, one period for Language and one period for co-curricular activities or Life-skills. The Life-skill class has always been an essential feature of Parikrma. This is a time when soft skills are taught, and when the Parikrma team of psychologists and counsellors meets students. Reach-V© is ensuring that every grade has at least 2-3 Life-skill classes per week.

Along the way, there have been other learnings, as Reach-V© has evolved. For instance, the format of the PE classes had to be modified to take into account the very limited spaces in which Parikrma students live. Students' homes typically consist of 1 room, covering between 100-150 square feet and shared with 3-4 other people. Thus exercises were modified so that they did not involve much movement but could be done in one spot.

Since art materials are not available or difficult to distribute to students, Art teachers have modified their classes such that students use the floor as their palette and available cooking items such as turmeric or chilli powder as colouring agents. Similarly, science teachers have learnt to modify science experiments and practical lab work such that activities may be done in student homes using available materials. Classes on solvents are demonstrated using sugar and salt, while the concepts of evaporation and condensation are done using kitchen utensils over the stove. These modifications have also served to excite the children and they now compete with each other in demonstrating to each other and their teachers what they can achieve at home.

### **3.6 The challenge of maintaining teacher quality and motivation**

Virtual school is actually helping the Quality Heads at Parikrma in their task of maintaining teaching quality. They are able to enter any class any time without warning and this has kept teachers aware

and conscious of the quality of both their content as well as their teaching. Teachers have also been made conscious of the need to mentally tune into their 'school-mode'. Thus, they have to log in at a specific time – even if they don't have a teaching period, they must work on other tasks such as content creation or assessment. They are also required to dress formally, as they would during regular school days. Group level and individual feedback is provided to teachers at the end of each school day, just as it would when schools were face-to-face.

Parikrma has implemented a few other innovations aimed at keeping teacher motivation high:

- Parikrma's 'Listening Post' brings groups of 10-12 teachers into a round table discussion format with Parikrma's team of psychologists, either during or after school hours. They are encouraged to discuss their fears and insecurities about the pandemic, their ability to handle online teaching and any other problems. The Listening Post has been a key factor in keeping teacher motivation high, since they are not only able to open up about their own problems, but also realise that they are not alone in their fears.
- In any large project, the middle level management team is crucial to ensuring proper implementation of policy decisions taken by the senior leadership. Realising this, Parikrma conducted a 3 day Online Lab for its Unit Heads in July, in order to help them get in touch with themselves and work as a more cohesive unit

## 4 THE IMPACT OF REACH-V©

### 4.1 On mental health

The impact of Reach-V© has been significant, experienced not only by the students of Parikrma, but by the parents and teachers too. During the isolation and difficulties of the lockdown in April and May, Parikrma's response through the distribution of rations, schoolwork, reading and art materials contributed to helping parents and students feel less abandoned[3]. With the opening of Reach-V© on May 22nd, there was a sense of hope among them and a feeling that things were returning to some semblance of normality. Anecdotal evidence suggests that this sense of reassurance was critical in ensuring a lower incidence of depression and other mental illnesses among the Parikrma families, compared to non-Parikrma families from the same communities. There is also a feeling of appreciation and gratitude because they see so many children in the neighborhood, who are getting no education at all during these times, because they have been enrolled in Government schools. Now that the stringent lockdown has been lifted and parents are starting to return to work, they also feel better about leaving their children at home alone, since they know that they are productively engaged at Reach-V©, unlike their friends in the neighborhood. Some verbatim quotes from Parikrma parents and students have been presented below, and serve to capture the spirit within the community

*'From Parikrma we are getting a lot of help. Since the Corona we haven't faced any problem since there has been a lot of help from Parikrma and on top of it they are providing online classes to our children. I have not seen anyone else or school providing this kind of help' (Parent – translated from Kannada)*

*'My child studies in 9th Grade. Life has become difficult due to CoVid. In this situation Parikrma has started Reach V school and are teaching students. No other school has provided this solution. Shukla Akka considers us all as family and every week she provides ration to all of us. My child is attending online class regularly and has improved his concentration. Teachers are providing the concepts really well. As a single parent I am facing financial and social difficulties, my son sends me to work and tells me not to worry about his studies. My son is staying independent and doing all the house work when I am working. I am a house-nurse, so I guide him on all the work when I leave. We both are each other's best friends. In such difficulty, Parikrma is providing us a lot of help. Thank you to all in Parikrma' (Parent – translated from Tamil)*

*'I love online classes. We get to learn stories and crafts. Art teacher helps us with drawings. I love each class and logging in every day. I am also doing homework every day' (Grade 5 student)*

*'I attend everyday online classes. They give us new crafts and I get new activities and short stories. Everyone is nice and we enjoy a lot. There are no fights and we learn new things from online classes. We are quiet when teachers talk and I like that in online classes. Thank you Parikrma' (Grade 8 student)*

'I am really glad school is taking such a great initiative of online classes. It is very useful during this pandemic. We are able to concentrate even better and feel the classes should continue so we can cope with the syllabus. The classes and sessions are going well and we are able to have good interactive sessions with teachers and friends. I would like to thank teachers, principal and Shukla Akka for making it such a success' (Grade 10 student)

Another positive fall-out of Reach-V© has been in nudging parents to maintain cleaner homes. The embarrassment felt when they realized that their children's' classmates and teachers could now see into their homes has moved them to improve their home environments to the extent possible. They also speak softer in deference to their children's education, and fight less among themselves, at least during school hours. Some of the mothers who are not working are actually sitting alongside their children in an attempt to educate themselves.

Among teachers too, there is a sense of motivation and pride in being part of a team that has achieved something that few other organizations have, especially when they see their peers from Government schools.

'Change can be difficult, especially when it is unknown and uncertain. But this change brings in a lot of opportunities- to grow, to learn, to inspire and to motivate; that's what Reach V has done for us. It has broadened our mindset and outlook towards education' (Teacher, Nandini Layout school)

'I am proud to be a Parikrma Teacher; even in this pandemic we are able to reach our children through Reach V classes. Our students are very happy to learn through online classes and learning has not stopped. Even co-curricular classes like Arts, PE, and life skills are happening. We have started online classes before other schools were even thinking about them. There are a few challenges in Reach V classes, but we shall overcome' (Teacher, Jayanagar school)

## 4.2 On learning outcomes

Table 1. Comparing FA1 (Formative Assessment 1) marks in 2019 and 2020

| 1 <sup>st</sup> assessment marks on 40 | Junior School (Grades 1-3) |            | Middle School (Grades 4-7) |            | High School (Grades 8-10) |            |
|--|----------------------------|------------|----------------------------|------------|---------------------------|------------|
|  | 2019                       | 2020       | 2019                       | 2020       | 2019                      | 2020       |
| <b>Base</b>                            | <b>447</b>                 | <b>432</b> | <b>348</b>                 | <b>298</b> | <b>301</b>                | <b>277</b> |
| <b>SCIENCE</b>                         |                            |            |                            |            |                           |            |
| Avg mark/40                            | 26                         | 24.8       | 25.8*                      | 20.3*      | 24                        | 23.7       |
| % 71-100                               | 43.6                       | 37.3       | 44.5                       | 22.8       | 37.5                      | 34.3       |
| <b>MATHEMATICS</b>                     |                            |            |                            |            |                           |            |
| Avg mark/40                            | 28.8                       | 26.3       | 26.4*                      | 18.3*      | 22.7                      | 21.5       |
| % 71-100                               | 59.7                       | 45.7       | 45.4                       | 21.1       | 37.2                      | 25.1       |
| <b>SOCIAL SCIENCE</b>                  |                            |            |                            |            |                           |            |
| Avg mark/40                            | NA                         | NA         | 23.0                       | 21.3       | 24.4                      | 22.5       |
| % 71-100                               | NA                         | NA         | 31.9                       | 31.9       | 37.2                      | 32.5       |
| <b>English</b>                         |                            |            |                            |            |                           |            |
| Avg mark/40                            | 25.2*                      | 22.2*      | 25.0*                      | 19.1*      | 25.0                      | 25.6       |
| % 71-100                               | 41.4                       | 27.2       | 33.9                       | 17.9       | 33.9                      | 41.3       |

\*difference significant at the 95% level using t-test of independent means

Some conclusions that might be made from the above table:

- Reach-V© is certainly ensuring that learning related to the 2020-21 curriculum content continues for Parikrma students, unlike their peer-group enrolled in Government schools
- There seems to have been some decline in the absolute marks obtained this year, when compared to those obtained by students of the same grade in 2019, especially in middle school



- High school students seem to have adapted well to virtual school, showing little decline in their marks
- Among the entire student body, the % of students scoring high marks (71%+) has dropped
- Similar patterns are seen in all 4 subjects

It is too early to come to any definitive conclusions on learning outcomes based on a single formative assessment. The drop in middle school marks may be the result of an unusual number of resignations seen among Parikrma's middle school teachers recently, rather than in the ability of these students to adapt to online school. The better performance of high school students may be due to the extra attention given to them given the proximity of the mandatory board exams in Grade 10. What is clear, however, is that schooling for Parikrma students continues effectively, mirroring to a great extent, the learning that they were receiving prior to the lockdown. Compared to the millions of children enrolled in the Indian public school system, who have had no access to any form of learning over the last 6 months, Reach-V© students have suffered minimal disruption and can realistically hope to continue receiving quality education, irrespective of pandemic related fallout.

### 4.3 On other school metrics

Attendance levels were initially lower than normal at about 70%, as students struggled with mastering their devices, poor connectivity etc. Some students also took the opportunity to play games and browse the net. In response, Parikrma teachers have done extensive counseling and training of parents on the importance of the online classes and how to monitor their children's attendance and attention. They have also begun sending daily attendance data to parents; these efforts have resulted in attendance figures of 85- 90% since June. Internal data also shows that student engagement stays high through the day, as evinced by the fact that the number of log-ins continues to stay at similar levels through the day. Only in the last session are drop-offs seen as students run out of data and experience connectivity issues

## 5 CONCLUSIONS

Parikrma's Reach-V© exemplifies incremental process innovation - a series of creative solutions designed to ensure quality education even during the pandemic, to children who would otherwise have no access to education at all; children for whom sustained time out of school can be dangerous to their physical and mental well-being

Going forward, as existing educational paradigms are being reconsidered, the Reach-V© model shows clearly that not only can online education be taken to children at the bottom of the pyramid; it has also identified practices that might be productively used to enhance normal offline schools, especially those catering to under-served students. For instance, the Parikrma Study-Room overcomes the problem faced by teachers in providing extra, after school help to students who need it. Teachers and students, instead of reluctantly staying back at school, can continue to work together from their homes. It also keeps students effectively occupied and addresses the challenge of keeping them indoors instead of loitering on the streets participating in anti- social activity or getting infected by the current pandemic. Parikrma can now harness better the skills of volunteers, many of whom are keen to help but are deterred by distances. Volunteers have played a large role in the all-round development of Parikrma students over the years, giving them access to learning that they are unable to otherwise afford. Reach-V© has helped Parikrma understand how volunteers' skills might be better used. The Math Magician program is an example; it is a weekend math class for students of grades 8, 9 and 10, designed to provide additional support in their math learning, take away their fear of the subject and inspire them to develop a love for Mathematics. Classes are held on Saturday evening and Sunday mornings and are run by volunteers from around the world.

Notices from the Indian Government's Department of Education suggest that schools will be permitted to open their doors to students in the next few weeks. However, a return to pre-pandemic models seems unlikely, given the requirements for social distancing. This is especially relevant in the case of schools like Parikrma which cater to under-served students. Early malnutrition and exposure to insalubrious environments have rendered many of them physically weak and vulnerable to infection. Lack of adequate funding also has such schools operating out of small and cramped classrooms without adequate ventilation. Thus, Parikrma anticipates that there will be a need for online-education to continue in part, though the format is not clear. For instance, face to face classes may be held in batches to avoid over-crowding within classrooms. Half of a class of 30 students might attend school

in the morning while the other half attends in the afternoon. Or Parikrma may experiment with alternate day school for different batches. In such a situation, those students staying at home will continue studying online. Parikrma's experience with online schooling has been positive and it is proposed that some level of online education be continued, not just because of social distancing requirements, but also because the organization is seeing some genuine gains. Tech-averse teachers have adapted to technology with alacrity and shown great creativity in teaching methods and content-creation. They are reluctant to revert to a completely face to face mode and wish to include online work modules for students. Administratively too, the advantages of using technology to overcome issues such as teacher absence and substitution have become clear.

The costs of running Reach-V© have actually been lower than the normal operational costs incurred by Parikrma in running its face-to-face schools. Except for purchasing devices and mobile data packages from external sources, Parikrma has developed all other processes and content internally. It is anticipated that even when the regular schools open over the next couple of months, the incremental costs of simultaneously running Reach-V© are likely to be minimal.

Over the next 12-24 months, Parikrma proposes to develop and evolve the hybrid model into one that is stable and truly responsive to students' learning needs. The next 2 years will see a steep learning curve within the organization, as it attempts to meld the best aspects of virtual and physical schools. Within this time period, Parikrma also proposes to document the hybrid model in detail, while beginning the process of obtaining required documentation and permissions, so as to take Reach-V© to other schools catering to students at the bottom of the pyramid.

## **ACKNOWLEDGEMENTS**

The authors acknowledge the brilliant efforts of the Parikrma team – teachers, CDS team members , the administrative staff and the Resource Mobilization team – who have worked in a concerted manner over the last 6 months to develop and run the Reach-V© model. They have made possible the unimaginable.

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