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1.0 EXECUTIVE SUMMARY

When Rakshita, grade 5, was asked what she missed about school, she was explicit, wistful. “I want my regular physical classes. I want my teachers. I’m missing a lot of things about school.......I miss all the routines of school – the morning assembly, prayer, the midday meals, my friends.”

Ujwal, grade 5, put it a bit differently, and it is stark. “School is closed. Learning stopped. Learning is difficult now. Last year’s learning all forgotten. I remember nothing......”

Rakshita and Ujwal were recently in Akshara’s digital math learning pilots that lifted them from the purposeless muddle of the COVID months. Rakshita was one among 240 students in grades 4 and 5 selected for it from 15 centres across 14 villages in Nanjangud block, Mysuru District, Karnataka, and Ujwal one of 105 students from 9 villages in Mendhashal Panchayat in Khordha District, Odisha. The pilots ran for four months and the buzz and bustle they generated among children was hard to miss. Many of them felt genuine anguish as they ended. The pilot had rekindled Rakshita’s forgotten enthusiasm for learning. As for Ujwal, prone to bouts of bad behaviour and uninterested in studies, he calmed down and scored 86.6% in the final assessment.

Akshara took it upon itself in these COVID times to design and implement a blended learning model that had innovation as its centrepiece. Called Paryaya Kalika Yojane in Nanjangud and Bridging the Digital Divide in Mendhashal, the pilots are a pioneering model out of Akshara. A combination of the digital route, math workbooks and physical access to a Field Facilitator or Volunteer who was essentially a teacher. It is an Akshara innovation. Taking the lead is an Akshara trait too.

This comes against the backdrop of hard-hitting data that points to India’s education system having taken a battering. UNICEF reports that over 1.5 million schools effectively closed down, affecting 286 million children from pre-primary to secondary levels. A World Bank report estimates India’s subsequent loss in future earnings to be $440 billion (Rs.32.3 lakh crore). Edtech start-up giants are urban miracles. Rural India does not inhabit this exploding space. A 2019 government survey says that only 4% of households there had access to the internet. In 2018, 55,000 villages did not have mobile network coverage and 36% of schools in India as of 2017-18 operated without electricity.

The pilots were not that different. In character and composition there were but minuscule variations, mostly in their method of engaging the children. The 15 Field Facilitators of the Nanjangud pilot went to individual students’ homes and taught them while in Mendhashal the 9 Volunteers gathered their cohorts together in an open-air setting or the verandah of a home or anganwadi.

The Facilitators and Volunteers were a proxy for the teacher. Akshara trained them for their role and it was comprehensive and thorough.
In practice and procedure too, the two pilots were similar – the same syllabus-aligned math course content, the same philosophy, the same drive. A rotational, alternate-day cycle characterised them, on one day digital learning delivered on smartphones to children through Akshara’s Math App, Building Blocks, accessed through the DIKSHA platform. The next day they had self-study assigned to them from the government-prescribed math workbooks for grades 4 and 5 which was corrected before the smartphones were in children’s hands for the progression and excitement of Building Blocks. Weekly tests marked students’ milestones, the concepts learnt, the mastery achieved, the scores enhanced. The Akshara teams monitoring the pilots were problem-solvers, hand-holders and mentors, their guidance sought at Reflection Meetings that were forums for free and frank discussion.

The baseline and end-line assessments that Akshara conducted for the children determined their learning status at the beginning of the pilots and the outcomes at the end of it. The Nanjangud Pilot had grade 4 children making significant gains in the 60-85% score band. By the time of the end-line assessment their number rose from 15% to 46%. And 40% of the students scored over 85% and entered the distinction band by the end-line. Significant learning improvements were noticed in Mendhashal too. For instance, 31 students in grade 4 scored a full 100%. At baseline only two students achieved that score. The pilot helped many of the children acquire proficiency in math.

*While the results were encouraging the assessments were by no means a rigorous process. The pilots were a limited-period endeavour, implemented to prove a process.*

As with any innovation, the key for large-scale adoption will be its economic viability coupled with technical feasibility. The economics of it can be more challenging. Towards the end of this report Akshara establishes the holistic approach and workability of its model, no challenge too daunting to overcome. Eliminating the digital divide, creating thousands of part-time jobs in rural communities and encouraging entrepreneurship are all built into it. Innovations such as this need financial backing. The Nanjangud and Mendhashal Pilots were funded by philanthropic capital. But the scale-up needed is massive. Akshara’s pilots have the scope for expansion and the team lists the sources of potential funding that can be availed from government agencies. A digital learning programme is replicable, doable and can be a public-private partnership - at work and at scale.

Children like Rakshita and Ujwal have aspirations, hopes, dreams, ambitions big and small. They would like agency over their lives. Can we collectively ensure that this recent past and the present we are living through do not overshadow their future? When COVID is over, or at least sufficiently subdued, and schools reopen, restoration begins, and a healing touch given to education, Akshara’s blended learning paradigm can be a dependable master plan to deliver equity and access to children in government schools in village communities so that they too can claim digital awareness and digital literacy and harvest it to learn and progress.
2.0 INTRODUCTION

It has not perhaps sunk deep enough into public consciousness, as Covid-19 has caused so much other trauma that takes centre stage. But the statistics put out from time to time by think tanks, the World Bank, United Nations departments and Indian sources with regard to education are shattering. Academic year 2020-21 can be written off as the year we lost, a year that disappeared for education.

According to UNICEF\(^1\), the Covid-19 pandemic has battered education systems around the world, affecting close to 1.6 billion of the world’s student population.

In India, over 1.5 million schools effectively closed down, affecting 286 million children from pre-primary to secondary levels.

A World Bank report of October 2020, ‘Beaten or Broken? Informality and Covid-19 in South Asia’\(^2\) has quantified the impact of school closures in monetary terms – India is estimated to lose $440 billion (Rs. 32.3 lakh crore) in possible future earnings\(^2\).

A research study by Dr. Pravat Kumar Jena\(^3\) probes further the negative fallout of Covid-19.

- Educational activity has been hampered, with continuity of education disrupted.
  Students will have considerable difficulty resuming schooling again after this gap.

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\(^1\) United Nations Children’s Fund.
\(^3\) Assistant Regional Director, IGNOU Regional Centre, Bhubaneswar.
• Teachers and students are unprepared for online education, for the sudden transition from face-to-face learning to online learning.
• Increased responsibility on parents to teach their children. Educated parents can guide their wards, but many may not have the adequate level of education for it.
• Loss of nutrition due to school closure. Midday meals in government schools are designed to provide nutrition to children, in the absence of which serious implications loom large over the daily sustenance of children.

It needs no elaboration that government schools are the most affected. It is there that India’s vulnerable children go. Education in India is largely governed by the states; it is a state subject and no state government, arguably due to no fault of theirs, has been in a position to take a hard and fast stand on reopening education. The uncertainties Covid-19 has given rise to have elicited vacillating guidelines and directives, administrations having to change their stance time and again. Education has had to play second fiddle in many parts of the country. Government-provided lower primary education in Karnataka, for instance, has all but collapsed. Added to this is the other dimension of accumulated learning loss.

• In Learning Poverty: Global Alliance to Monitor Learning, the World Bank (2019) reports that over half of all 10-year-old children can’t read and understand an age-appropriate story in low- and middle-income countries.
• Another World Bank report says that the Covid-19 pandemic threatens to make educational outcomes even worse.

The longer children stay out of school, the more they forget, the less they know, and in the context of government schools, many students may simply choose to drop out altogether rather than face the uphill task of learning to learn all over again.

3.0 INDIA’S TECHNOLOGY PROWESS AND HOW READY ARE WE?

• Research mentions that the move towards blended learning is one of the positive impacts of the pandemic on education. It is becoming a fast-paced reality in urban settings, with a KPMG and Google study done pre-COVID estimating that the online education market in India was set to grow to $1.96 billion (Rs. 1,870 crore) and 1.6 million users in 2016.

• India has now emerged as the second biggest market for massive open online courses (MOOCs) in the world after the U.S.

A quick look at the giants of online education start-ups in India indicates an escalating fervour, a technology abundance that does not however penetrate the rural parts of the country.

• “The world’s most valued edtech start-up”, the $11 billion BYJU’S, has grown exponentially. “From 2015 till March 2020, BYJU’S had 45 million free users on the platform with 3.5 million paid subscribers – in the last few months, the number has gone up to 70 million users and 4.7 million subscribers.”

• “From 150,000 students in January 2020, today 1 million+ students study every month on the platform (Vedantu) and more than 25 million users every month from 1000+ cities and 40+ countries access free content, tests, videos on Vedantu’s platform and its channels on YouTube.”

• “Unacademy now has 30 million registered users and 350,000 paying subscribers, almost four times as many as in February (2020). The platform has more than 18,000 registered educators.”

While online education is the catchphrase of the times in cities, the country’s internet infrastructure in rural India is far from ready for this seismic shift.

According to a 2019 government survey, only 24% of households in India have access to the internet.

In rural India, the numbers are far lower, with only 4% households having access.

A 2018 NITI Aayog report revealed that 55,000 villages in the country did not have mobile network coverage.

A 2017-18 survey by the Ministry of Rural Development, Government of India found that more than 36% of schools in India operated without electricity.

The emphasis on technology-driven education is also alienating many children from underprivileged sections, preventing them from continuing their studies.

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https://www.thehindubusinessline.com/info-tech/vedantu-raises-100-million-in-series-d-funding/article32103008.ece

8 The Print, Saritha Rai, September 2, 2020, After BYJU’S, Unacademy scores big, gets $150 million funding at $1.45 billion valuation.  
https://theprint.in/economy/after-byjus-unacademy-scores-big-gets-150-million-funding-at-1-45-billion-valuation/494388/

4.0 THE THINGS THAT CHILDREN MISS

What are the things students miss about school?

• The security of school, the emotional bonding.
• Partaking of the midday meals and the collective participation it forged.
• The shrieks of laughter, the tumbling in the forecourt mud during noon recess.
• The order, the sense of clockwork about school.
• The books and the blackboard, the chalk squeaking across it, and the learning, even when some or all of the math sailed right over their heads.
• The social bonhomie with friends and the skirmishes.
• The proximity to teachers whose presence reassured them, whose approval they sought, and in whose trusted hands their fate in school balanced.

I want my regular physical classes. I want my teachers. I’m missing a lot of things about school. I miss all the subjects I was learning in school. I miss all the routines of school – the morning assembly, prayer, the midday meals, my friends.

Rakshita, Grade 5  
Hosakote village, Nanjangud Block, Mysuru District, Karnataka

School is closed. Learning stopped. Learning is difficult now. Last year’s learning all forgotten. I remember nothing. In the test I couldn’t do anything, not even the simplest concept – Number Sense, also forgotten.

Ujwal Kumar Rautray, Grade 5  
Maktab village, Mendhashal Panchayat, Khordha District, Odisha

Ujwal's strand of thinking highlighted the stark dwindling of the COVID months.

5.0 A BLENDED LEARNING MODEL FOR COVID TIMES

Rakshita was a student participating in Akshara Foundation’s blended math learning model called *Paryaya Kalika Yojane* in Karnataka, or Alternative Learning Project, a small pilot implemented in Nanjangud Block in Mysuru District.

Ujwal took part in the same pilot in another state across the borders in Odisha. Forged in the same cast, this small experiment, a pilot with a different name and a few changes to composition, was carried out in Mendhashal Panchayat in Khordha District. It was called *Bridging the Digital Divide*.

Ujwal was referring to the baseline assessment which Akshara conducted for children at the beginning of the project.
While there’s little doubt about the benefits of blended learning, a question mark hangs over its widespread use and adoption. The National Education Policy (NEP) released by the Government of India in July 2020 stresses the importance of online education blended with the traditional mode. The learning losses accumulated over the last academic year which seem all too likely to snowball into the next are too wide a breach to bridge with only digital modes of learning. Paucity of connectivity, mobile phone reach and electricity deficits in rural areas cancel out sole dependence on technology. Even in a technology-surplus environment a tech-only learning format may not be entirely productive.

Akshara works in government schools, its priority area. The universalisation of elementary education and to see Every Child in School and Learning Well are foundational principles. Akshara aims to be part of the solution for the new-normal.

- To resolve to some extent at least the crisis in education Akshara advocated a dual lesson plan strategy for math, part technology, part classroom instruction with a Facilitator or Volunteer. It was an Akshara idea, an innovation, which could perhaps be a pathbreaking formula.

- The solutions it recommended leverage what is available in the public domain such as the DIKSHA\(^{11}\) platform and the best of what it has designed and developed in-house in terms of digital resources and content, the technology assets it has across math activities.

- It proposed a classroom reorganisation in government schools wherein the teacher would teach 15 of her, say, 30 students in class, as always, as she normally would, on Day 1. The other 15 children learn from home with energised textbooks (ETBs), DIKSHA and specially configured smartphones filled with Akshara’s digital content, Building Blocks, on DIKSHA that specifically addresses classroom learning requirements. All other features remain disabled.

- After the home session on Day 1 the 15 children come to school at midday mealtime, hand over the smartphones that are then sanitised and charged in school and given to the children who were in class that day. This cohort will take home the smartphones loaded with content for Day 2 of self-learning.

- A rotational cycle of classroom attendance and technology-based work-from-home will unspool. The teacher can give homework by referring the children to ETBs which link to DIKSHA where the Building Blocks content is available for math and StoryWeaver from Pratham Books for language, both free resources approved by DSERT\(^{12}\).

- How would the smartphones be procured? Another innovation can be applied here, not only for education but also for creating livelihoods - by creating local entrepreneurs who would lease smartphones to the school on a monthly rental, for the school a nominal operating cost with no large capital outlays.

- The local entrepreneurs, funded by impact investors, and through various state and central government schemes devised to encourage entrepreneurship, would provide the smartphones and the logistics, but not the content.

\(^{11}\) Launched by the Ministry of Education, Government of India, DIKSHA serves as the National Digital Infrastructure for Teachers. It helps enable, accelerate and amplify solutions in the realm of teacher education. It aids teachers to learn and train themselves, for which assessment resources are made available. It also helps teachers create training content, in-class resources, assessment aids and connect with the teacher community. Paraphrased from: https://www.india.gov.in/spotlight/diksha-national-digital-infrastructure-teachers

\(^{12}\) Department of State Educational Research and Training.
Finally, the dissemination of children’s performance would be possible through assessment data that can be fed into existing MOE\textsuperscript{13} portals and report cards generated.

This was a weighty concept, even a first-of-a-kind effort were it to be fully realised. Akshara has the technology pieces ready, tested and proven effective in real time situations, in or out of classrooms as the case may be.

5.1 A STRIKINGLY ORIGINAL PROJECT

This was the original blueprint and it sought to implant the model in government schools. But since schools were not opening so fast, the concept evolved, entailing a shift in thinking that led to a smaller model driven by a Field Facilitator or Volunteer as a proxy to the teacher-led model.

That was how \textit{Paryaya Kalika Yojane} and \textit{Bridging the Digital Divide} came about. Akshara has aliases for them, calling them in more familiar, comfortable, well-fitting terms the Nanjangud Pilot and the Mendhashal Pilot. They were tiny for all the scale and breadth Akshara is associated with. But then, big things can start small too. The urgings were simple and lofty.

"Akshara had to think through and and make our content accessible through a concrete process to give the last child access to technology. The process of tech-facilitated learning has to be in her hands," says Ashok Kamath, Chairman, Akshara Foundation.

\textsuperscript{13} Ministry of Education, Government of India.

\textsuperscript{14} Ganitha Kalika Andolana is Akshara’s Mathematics Programme, which, since 2015, has benefited “4 million children studying in government primary schools in Karnataka, Odisha and Andhra Pradesh.
Online learning can’t be about providing information dumps to children. It can’t also be about children learning online all the time. When schools run online classes teachers get children on board and see them as thumbnails on the screen. It’s not enough. We have to think of better ways.

5.2 THE NANJANGUD AND MENDHASHAL PILOTS

• There were a few distinctive features that differentiated the two projects. Bridging the Digital Divide had Volunteers and Paryaya Kalika Yojane, Field Facilitators – just a change of name. Their roles and responsibilities remained the same. They represented the teacher; they took her place there with the children. The pedagogy configuration was unchanged, except for the math workbook that went by a different name too.

• The Mendhashal Pilot was smaller in size and had a different structure of engagement. The Volunteers and their groups of children got together in public spaces in the community, the verandah of a village home or anganwadi or in the Youth Club premises. Often they chose sylvan surroundings outside their villages, under trees, amid greenery, forming a large circle that socially distanced them. The Volunteer took a group class for her students, a module that lasted two hours.

• The Field Facilitators of the Nanjangud Pilot went to each of the students’ homes for personalised coaching of around two hours and they covered eight children in the same individual manner. So their days were longer.

• Until classrooms throw open their doors and government primary schools become the hubs they used to be, swelling with children, learning has to take this other expression.
• The strategy had to be to ensure that children were engaged at home with the learning process. ‘Home as a learning space’, with distancing norms and an adult playing the role of teacher with an individual student or a small group of students was the only option. Against this backdrop, Akshara Foundation designed a project that was piloted with blended learning strategies.

• The pilots were a parallel stream of education, which, as of now, was confined only to math, and even with the limited attempt of a pilot, could do a lot more.

• Anticipating the digital curve in education, Akshara envisaged the pilots to be a half-and-half paradigm. It embraced both, technology and the textbook and workbook, and made of it an interconnected web of study. **It preserved the role of the teacher intact; kept the interface with the Facilitator or Volunteer, the proxy for the teacher, thriving to simulate the socialisation of school, and all this was done never losing sight of the last deprived child in the last underserved village.**

• The project design looked at solutions by leveraging what was available in the public education system such as textbooks and workbooks provided by the Department of Education in the two states and the math digital content developed by Akshara approved by government and available on DIKSHA.

• Children learnt while playing on Building Blocks, Akshara’s Math App, which has progressive learning ladders and primary level concepts arranged in sequential order. The interesting, curiosity-kindling, grade-appropriate games it has align with the syllabus.
5.3 REACH

AREA OF THE NANNJANGUD PILOT:
15 centres across 14 villages in Nanjangud Block of Mysuru District in Karnataka.

Nanjangud is a city and an Educational Block in Mysuru District, Karnataka. It is 20 kms from Mysuru city. While its population is mostly into agriculture, the place is also a busy industrial centre.

NUMBER OF CHILDREN:
• 240, in grades 4 and 5
• ~16 children from each village

NUMBER OF CHILDREN IN:
GRADE 4 | 114
GRADE 5 | 126

NUMBER OF FIELD FACILITATORS:
15 | One allotted to each centre

• Nature of the project: Pilot
• Officially launched on: December 21, 2020
• Duration: Approximately four months
AREA OF THE MENDHASHAL PILOT:
9 villages in Mendhashal Panchayat in Khordha District, Odisha.

Mendhashal is a Panchayat. There is also a village of the same nomenclature. It is an underdeveloped, rural area with mostly poor families who work as daily wage farm labourers. Barapita, part of the project, is a tribal village. Many go to work in the small-scale industries the Government of Odisha has set up around the Panchayat. Tribal families depend on the reserve forest not too far away for their livelihood, gathering firewood and herbs and other forest produce.

Learning levels are low in the pilot’s 9 villages, with 30% of the children faring badly, according to Akshara’s internal assessment. COVID has aggravated the situation.

NUMBER OF CHILDREN:
• 105, in grades 4 and 5
• ~10 children from each village

NUMBER OF VOLUNTEERS:
9 | They managed group classes in the villages

NUMBER OF CHILDREN IN:
GRADE 4 | 57
GRADE 5 | 48

• Nature of the project: Pilot
• Officially launched on: January 22, 2021
• Duration: Approximately four months
6.0 THE BUY-IN

- **Paryaya Kalika Yojane** in Nanjangud was inaugurated in a low-key tone. A formal opening was declared in every village where it operated, and fifteen centres of quiet ceremony marked the occasion.

- **Bridging the Digital Divide** in Odisha received the state government’s approval and it too began its tenure with a formal inauguration that was simple and understated.

- The Akshara teams in Nanjangud and Mendhashal criss-crossed the villages, motivating villagers to participate, explaining the goal and organising the event, making it a community project and a common-purpose get-together. Students, parents, HMs, teachers, School Development and Monitoring Committee (SDMC) members, Gram Panchayat (GP) members, local leaders and Akshara representatives were present at the functions, signalling the importance of what was being unveiled.

- At the Mendhashal inauguration pride of place was given to the Village Sarpanch. “The idea was to set it in motion in the Sarpanch’s office,” says the Akshara State Lead, Odisha. “The Sarpanch, Mamata Behera, is a big support.” The team launched the pilot with an overview and explained why Akshara was doing it.

- Ashok Kamath delved deeper into the modalities and told the audience how **Bridging the Digital Divide** could usher in wide-reaching change. He emphasised the significance of the resources being used in the intervention and the team displayed how Building Blocks works and how it could heighten the connect children feel to the blended learning method through the four months.

- When the inauguration concluded, the parents gathered there approached Ashok Kamath and said, “Sir, we listened to what you were saying about the project. This is definitely one of our important needs. After the shutdown, our children have been misbehaving badly. They’ve been disobedient and uncontrollable. With this project they will engage in the learning process. It will be like going to school and being in class.”

- At the inauguration, the Nanjangud team took the opportunity to drive home the importance of education and the digital route to learning attainment. They informed the audience of the work that was being planned and explained the nature of the pilot, highlighted the role of parents, teachers and students and the interconnectedness of the ecosystem. They laid special emphasis on working together for the larger good. The orientation on Building Blocks was significant as that was the central axis of the pilot. The final act of the inauguration was the distribution of smartphones and workbooks to students and the concluding presentations of community leaders.

6.1 FIELD FACILITATORS AND VOLUNTEERS

- The Akshara teams in Nanjangud and Mendhashal visited schools in the selected villages and requested the managements to give them a list of children who would be willing to participate in the pilots. A three-day household survey was carried out, the teams on a mission to find out who would join.
• In Mendhashal the Team Lead of the pilot sought to ascertain how many children of grades 4 and 5 there were altogether in the Panchayat, then drilled down to the village level. In both places teams found many children were away at work in the fields or on long leave at their grandparents’ homes. They shortlisted the children who could be beneficiaries and came up with a final selection after meeting the parents and securing their support.

• Next, the teams identified candidates from the local community who could take over as Akshara’s Field Facilitators and Volunteers. Akshara’s Math Resource Team from Bangalore visited Nanjangud and Mendhashal to lay the groundwork and scout around for talented, committed people who could steer the pilots.

• In Mendhashal local people got in touch and gave the team the names of potential Volunteers. The team talked to them, got to know their qualifications and attributes, told them about the pilot and requested them for 2-3 hours of their time every day.

• “It was amazing that the women who approached us were all well-educated and qualified,” says the Nanjangud Team Lead. “Thirteen of the 15 Facilitators were women and most of them had done a B.Ed or D.Ed course.” “In Mendhashal some of the Volunteers were taking tuitions, some worked in NGOs. One schoolteacher supported us, she recommended candidates,” says the Team Lead.

• The 15 Field Facilitators in Nanjangud and 9 Volunteers in Mendhashal received a preliminary orientation on the project that discussed how they would run it and their key role in ensuring its success. The Akshara team instilled in them the need for assiduity, commitment and integrity.

• Since no group learning was possible in the current circumstances, the Nanjangud Field Facilitators would instruct their students on an individual basis in their homes with COVID-related safety precautions. Mask-wearing could not be compromised with, though social distancing in a one-to-one setting was mostly a challenge. In Mendhashal too safety protocols were not breached and the group classes took place in spacious settings.

• The teams took the Facilitators and Volunteers to the homes of the children they would teach and familiarised them with their wards and their parents.

6.1.1 TRAINING THE FACILITATORS/Volunteers

The objectives of Akshara’s training for the Field Facilitators/Volunteers were four-fold.

• To understand how to use the Teacher’s Guide/Dual Lesson Plan Handbook.
• To learn how to use the device and navigate content.
• To facilitate a session with children.
• To give concept clarity to Facilitators/Volunteers who probably had no background in math and support them to conduct classes such that they could make the children understand and know what to do and how to do it.
6.1.2 The Mendhashal Training

• The Mendhashal training had a slightly different design than its Nanjangud counterpart though in theory and practice it was not dissimilar. The early induction training covered aspects of the learning crisis in the COVID context, the need for an innovative pilot of this kind, its objectives, the broad pedagogical process involved and the day-to-day engagement of children.

• When training started in earnest, the team provided the Volunteers with a list of the resources of the pilot. They instructed the participants to watch Akshara’s YouTube Teacher Training videos of the concept being taught in a particular week well in advance. The trainers stressed the importance of daily preparation and comfort levels with the concept before attempting a class.

Link to all resources, including the Teacher’s Guide/Dual Lesson Plan Handbook and all YouTube Training videos: https://akshara.org.in/en/resources/ganitha-kalika-andolana-gka-resource/

• “We decided to have a two-day training,” says the State Lead. “One day of concept related knowledge and how to deliver it along with conveying clarity. We brought in two GKA-trained schoolteachers and they imparted a complete day of training.” It concentrated on a clear and precise elucidation of place value, addition, subtraction, multiplication, division and measurement, as suggested by Odisha government’s syllabus for grades 4 and 5. In addition they were given simple classroom techniques to deal with children.

• The second day dwelt on project structure, how to dispense with the digital content, gaining familiarity with technical issues like, for instance, enabling the safety lock feature on the smartphones, how to access the YouTube content, signing up on DIKSHA or the Building Blocks app or charting a smart ascent up Building Blocks’ graded learning scale.
6.1.3 The Nanjangud Training

- The training in Nanjangud did not, all in one go, cover the math concepts that the pilot intended to focus on in its roughly four-month timeframe. The first training dealt only with Number Sense and addition with carry over and the corresponding games to play on Building Blocks, accessed through DIKSHA. Subsequent trainings took the Facilitators through subtraction with borrowing, multiplication, division and measurement.

- The Math Resource Team’s discourse during training was about resourcing the Facilitators. The participants were encouraged to set themselves a time for self-assessment at home to try and solve what the workbook asks and play the appropriate Building Blocks’ games themselves so that they comprehended the material and were qualified to explain it to the children. The team told them, “There will be mistakes. Try and do the corrections yourself. Prepare for your classes at home.”

- “It was a little difficult making them understand the model,” says the team. “We did role plays, explained, drew pictures of the eight houses they would visit during the course of their day and made them walk through to each and conduct a lesson.”

- There was a grade 4 student at the training venue, the sister of a Facilitator, keenly watching the proceedings. “As we explained and posed questions, she would answer,” says the team, “and we got insights into the working of a student’s mind. Some of the questions in the Suvega workbook are way too advanced. She couldn’t understand the problems. It goes to show that children need a guiding lever; a helping hand is required. That’s where the Facilitators came into the picture.”

- “We were surprised that many Facilitators had worked with children before. They knew the dos and don’ts of interacting with them. They showed good interest.”
• Interest and enthusiasm carried through till the end. The Resource Team recalls their third training, two-and-a-half months into the pilot. It was about division, a conundrum that can demoralise even a student with strong mathematical leanings. It can unsettle many an adult too. The Facilitators were sufficiently seasoned by then. “They had gained experience in teaching children,” the Resource Team says. “They knew Akshara’s math methodology.” The team had sent them the GKA training videos for division to watch and imbibe beforehand, asking them to come prepared.

• “During the training that day we didn’t start with division,” says the team. “Instead of explaining it orally we gave them Play Money15 and asked each group to solve one particular division problem with the currency notes. This is when we got to gauge if the Facilitators had actually watched the video, though that wasn’t our intention. What we were doing was providing the Facilitators with a platform to demonstrate their comprehension.”

• Lively discussions erupted all around division. There was not the least trace of fear as they tackled it. Their familiarity with the GKA method of division was clear and comprehensive. It bore resemblance to the procedures in the video, establishing that the Facilitators had watched it with serious intent. There was no shortcut to learning there. This was work they had committed to, the cause they had given themselves to even if for a short duration, and most of them displayed their skills with transparency and sincerity.

• “We gave them problems related to division, asked them to solve it. They came to the board and shared their Play Money experience. It gave them all a chance to exhibit how to do it, how to teach.”

15 One of the teaching-learning materials in the GKA kit which simulates currency notes. Play Money is used to inculcate in children an understanding of money transactions and arithmetic operations.
6.2 THE PROCESS AND HOW IT WORKED

Each village in the Nanjangud Pilot had 9 smartphones allocated to it, 8 to be given to the children every day and one that would remain with the Facilitator for her use.

An alternative framework was designed, with the smartphone on one day and the math textbook and Suvega workbook the next day.

The smartphones were preloaded with content Akshara has created out of its digital resources' portfolio. The content chosen was its Math App, Building Blocks. The Facilitator selected the concept and the students played the games connected to it. The day's lesson plan developed around this concept. The homework the children were assigned from the math workbook aligned with the Building Blocks games they had played. It reinforced their learning.

At the end of a one-hour session with the smartphone, the Facilitator assumed charge of the device, took out the textbook-workbook duo, assigned homework for the student to do in the workbook, explained what had to be done and proceeded to the next student.

She covered her group of 8 students on Day 1. On Day 2 she visited the next set of 8 students while the Day 1 group did its homework. The days turned around, on one occasion smartphone usage and on the next, physical resources. A cycle of learning unfolded.

At day’s end the Facilitator sanitised and charged up the smartphones at home and sat down for some homework of her own with the next section of her course.

The Mendhashal process was much the same, an alternating rhythm of tech-based math learning and workbook practice. Here, the Volunteers took group classes, with two-hour sessions every day. They chose venues where each Volunteer’s group of grade 4 and grade 5 students could congregate. The workbook in Odisha went by the name Ujjwal.

The process in both places was generic. Minor adaptations were made based on local conditions.
6.3 A WEB OF LEARNING

• The Facilitators and Volunteers were instructors, guides and hand-holders. They gave a teacher’s feel, a classroom atmosphere, to the experience and led the way not only to digital competence but to a reacquaintance with math too, most of it buried in the debris of COVID.

• The children at both locations sat in rapt attention, enthralled by the newness of the digital medium in their hands. The thrill of Building Blocks yielded comprehension that parlayed into the workbook effort and the knowledge transfer was seamless.

• Most of the children had only occasionally played the wildly popular games on their parents’ phones. Seldom had the smartphone served an educational purpose. There are not as many free-to-use math apps like Building Blocks which works online and offline and functions on a low-end, minimum capacity, Android-operated smartphone, catering to the rural segment of the population in their language of choice.

7.0 THE PEDAGOGICAL STRUCTURE

7.1 The Dual Approach

• “Our whole emphasis was that we didn’t want to burden the children with too much content,” says the Math Resource Team. “We were mindful of the fact that they had not had any teaching or learning inputs for several months.” The lesson plans for the first phase of a month were structured around Number Sense and addition. “They’re concepts for life and living. Children see and use them in real-world situations. When we saw that despite COVID children had their textbooks and workbooks with them, we thought, ‘Why not make use of them?’”

• The pilots’ course content comprised Number Sense, the arithmetical operations of addition, subtraction, multiplication and division, and measurement. These are course requirements for grades 4 and 5.
• Primary grade children need no special introduction to basic numbers and addition. It’s not too much for them to build on. “Only minimum guidance was needed.” It could start the students on a continuum of learning, digital on one side, the interesting new dimension, and the well-thumbed textbook-workbook combination on the other, a comforting observance from school life. Suvega is the math workbook for grades 4 and 5 in Karnataka’s primary schools and Ujjwal is its equivalent in Odisha’s primary schools.

• Rather than make it a wholly digital effort, the pilots had an easy accommodation of new and old, and a teacher in between, in this case the Facilitator or Volunteer. It was a gentler, more classroom-like approach for children who were not all that tech-exposed.

• The Building Blocks content in the smartphone, as with all of Akshara’s resources, is grade-compatible and aligns with policy guidelines. It follows the mathematics syllabus, completely meshes with the textbook and its problem-solving and goes forward in a linear, systematic manner with the concepts. It provides a supplemental fun opportunity for students to practise math at home in a fun way.

• The smartphones that were distributed to the children had both the Building Blocks and DIKSHA apps. The first priority was to access the Building Blocks games through the DIKSHA App by scanning the QR codes printed in the textbooks. If the children experienced any difficulty accessing the games through DIKSHA (network issues), they played the games directly on the Building Blocks App.
7.2 Suvega and Ujjwal

- The state governments of Karnataka and Odisha have designed grade-compatible math workbooks in conjunction with the syllabus and the textbook. In view of COVID, the Department of Education, Karnataka, printed and distributed Suvega workbooks to government school children in 2020-21 to practise math at home.

- The main features of Suvega and Ujjwal are that they provide students with different levels of learning activities, facilitate the drawing of inferences by understanding the concepts and open opportunities to comprehend them and help students embed the mathematical knowledge in their day-to-day lives.

- Over and above this pedagogical architecture, Akshara developed a Teacher’s Guide for the Nanjangud Pilot and a Dual Lesson Plan Handbook for the Mendhashal Pilot that synchronised with the syllabus.

- The two tools had the dual lesson plans for each concept prescribed in the syllabus and the transactional modalities. “We mentioned everything in our Handbook,” says the State Lead, Odisha, “what to teach, what to expect from children, what the Volunteers had to deliver. Detailed planning went into it.”

- Each Field Facilitator and Volunteer received a copy of Suvega/Ujjwal, the Teacher’s Guide/Dual Lesson Plan Handbook and smartphones preloaded with Building Blocks.
• The Weekly Worksheets Akshara formulated introduced an element of continuous and comprehensive evaluation. They had a different set of 10 questions every week for students to carry out weekend learning sessions with the support of parents, siblings or on their own.

• The objective was to underpin concepts, their comprehension, and reinforce the topics where students fell behind. The worksheet problems were unique in the sense they were neither from the textbook nor from Suvega or Ujjwal. It posed a challenge for children every week, a test for their skills.

• The Field Facilitators and Volunteers corrected the worksheets, noted the scores, made out analysis reports and shared them at the Reflection Meetings or WhatsApp conference calls the projects’ Team Leads organised before sending them to Akshara’s office for data entry.

• To make their transactions smoother and easier, Akshara also developed for the Facilitators and Volunteers a Day-wise Task List, a booklet with the daily tasks and activities they could do. A mentor from Akshara’s Math Resource Team was assigned to each Facilitator and Volunteer to guide them through pedagogical challenges.
8.0 MONITORING

Monitoring sustains the life force of a programme. The wide ambit of Akshara’s field activities is a vibrant factor, an observant third eye, in implementation. By bus, bike, or on foot for part of the distance, teams travel to remote hamlets to propel programmes.

The pilots had an intensive, inbuilt monitoring framework.

“An Hour Here, An Hour There”

In Mendhashal the Team Lead started at daybreak – 6 a.m., and he was out on the roads. “I have a bike,” he says, which smoothened the ride. Each village had its own time dynamics, its own slots, chosen by consensus, the most convenient hours when students could come together. It depended on the parents, the availability of the Volunteers and students, the focus and productivity that could be achieved.

“I would go visit as classes began,” says the Team Lead, “Sometimes 6-8 a.m., 7-9 a.m., 9.30-11.30 a.m. or 10 a.m.-12 p.m. Sometimes afternoon, sometimes evening – 5.30-7.30 p.m. or 6-8 p.m. I aimed to get in two classes before 9 a.m. then broke up for a bit and caught up again. An hour here, an hour there. Some of our Volunteers needed support and reinforcement – help with technology, with Building Blocks, with concepts.”

8.1 A VITAL FEEDBACK LINK

In Nanjangud, the distance between the villages was not too great, a maximum of 6 kms. The Team Lead aimed to visit each of the 15 centres twice a week. He had an action plan; he covered 5-6 villages every day of the week. He too has a bike, and he set off.

The villages were mapped out conveniently and he would assign himself to places that needed amplified attention. This would mean areas where students were finding math, or the model, tough going. Or the Facilitators had trouble with documenting the effort, dealing with parents or engaging with children.

The team was a vital feedback link, conveying data to both Akshara’s Resource Team and the Facilitators. Most of the Facilitators accepted feedback without reluctance or objection and acted upon the suggestions. Some faced a comprehension block and needed further fortifying.

Sometimes it was the children who needed it and the team was frequently explaining the process and the lesson a second or a third time or correcting mistakes in the working of a sum. In most of the villages, Facilitators and students could be seen sitting together in intimate harmony on the front steps of little homes and working it out together.
8.2 REFLECTION MEETINGS

Akshara created the space for introspection, reflection and dialogue, the spaciousness of the forum such that Facilitators/Volunteers, parents and the team got to have free and frank discussions about the issues that hindered progress and the factors that directed momentum.

In Nanjangud the meetings were usually held once a fortnight, but sometimes when urgency demanded, their frequency was boosted to weekly sittings. The Mendhashal team redesigned the template.

THE MENDHASHAL TEMPLATE

Getting everyone together for Reflection Meetings in Mendhashal was not possible, given class hours and logistical difficulties. “We used to have weekly conference calls on WhatsApp with the Volunteers,” says the State Lead. Fifteen minutes was an expanse, they found.

A lot could be achieved, flagging off problems, solving them, or conferring, advice-seeking, sharing stories and experiences and finding equilibrium, especially in the beginning. They did it a few times. “And the Volunteers got into the flow. We didn’t have too many problems.”

Irregular attendance was “the biggest problem – children who didn’t come regularly.” There were inevitably one or two children in a centre who played truant, drifted away, did not take it seriously. Parents could have done better, fulfilled their role better.

But sometimes parents in the tribal belt took their children with them into the forest to collect firewood or produce. Some Volunteers had trouble with the baseline assessment, how to conduct it, and what to do when a student was absent.

THE NANJANGUD MEETINGS

The team met up with 13 Field Facilitators on January 2, 2021 for their first Reflection Meeting, barely two weeks into the pilot. The instructors said they were beginning to understand its nuts and bolts and expressed confidence that they would implement it, even if slowly, but with a steady hand.

They mentioned the following challenges they faced:

- Social issues in the villages affected effective implementation.
- Distance, time and student availability stood in the way at times.
- Better parental participation would help.
- Some of the children were weak in math, their learning capacity too low for a fast pick-up of skills.
- Technical difficulties with the DIKSHA platform were a hurdle.

The Reflection Meetings became a much-anticipated event for Facilitators where they could unwind and unburden themselves without judgment and find support, appreciation and augmentation for their work.
Two glossy braids bound with rubber bands fall on either side of Rakshita’s serene face. She has a lustrous look and keen but somehow soft-focused eyes. A face mask hangs loose around her chin. She wears a neck piece conspicuous for its whiteness, looking as if strung together with pristine thread. This is how she looks when the Akshara team meets her.

Rakshita is in grade 5 in the local government school, from the village of Hosakote in Nanjangud block. The pilot is designed for children like her, bright students, their academic progress languishing without school or learning amidst the COVID shutdown.

Rakshita has a confidence that’s always been there perhaps, but now more visible, more forthcoming, with the daily dose of studying and knowledge-building that’s happening at home. An experience that’s putting a shine on her personality and helping her reclaim to some extent the squandered months without school and education. She gets a smartphone in her hands for online learning with Building Blocks every alternate day and a Field Facilitator tutoring her, taking her through a customised coaching module which involves the textbook and workbook as well.

Rakshita says, “Our school is closed because of coronavirus. I didn’t touch my books. We didn’t study anything. Now a teacher comes from Akshara Foundation. We have the Suvega
workbook with us and she gave us the phone and video lessons and with all that she teaches us. We’re learning very easily with all this material. Thanks.”

School was always a high-purpose part of her life and she misses it. At the baseline assessment, a pen-and-paper test the Akshara team administered to all 240 children before the pilot began, Rakshita made some glaring mistakes in addition with carry over and felt sad, mortified and let down. In the two weeks since, she is able to handle three-digit addition with carry over without external support in a matter of two to three minutes. Rakshita is so energised nowadays she helps Prajwal, her next-door neighbour, in the same grade and school, who struggles with the basics of math.

Kavya is Rakshita’s Field Facilitator, a capable young lady, smart and well informed. Even at the first Akshara training in the early half of December 2020 when the Field Facilitators were new unseasoned recruits, there was something about Kavya that made her stand up and be counted, a stamp of individuality. There are quite a few in the 15-member group of Facilitators who beam out this impression.

Kavya enjoys her one-on-one with Rakshita, sitting with her for an hour and more during every session. Kavya sees the little girl as a keen student with a propensity for learning and a need to get everything she does in math 100% right. The Akshara Team Lead endorses this. Nothing is enough for Rakshita, he says. She wants more. The team is hoping that she will be one of the big names of the Nanjangud Pilot. She has the dynamism for it.

“Rakshita understands well,” says Kavya. “Her work is neat. She works very well. Her homework is also done well.” Rakshita doesn’t cut corners, her math lessons are way too precious for that, and she takes in every word her “akka”, or elder sister, says in every session. Kavya appreciates that Rakshita is “a good listener”.

Rakshita’s parents, farmers both, tilling their own piece of land, the family living in a semi-constructed house of brick and cement that adds new parts incrementally, are jubilant. A low- to middle-income family, “they manage their lives without too much trouble,” says the Team Lead.

Rakshita’s parents despaired that their eldest daughter had forgotten everything from her school days. She had lost her discipline, they said, her studious work methods. They’re happy with the smartphone. Though they were beset by early fears of misuse, worried that Rakshita or her younger brother in 3rd grade might watch undesirable content on the device, they rallied around when the Team Lead reassured them. “We have programmed the phones only for children. Only our content is available on it. We have installed proper safeguards so that children can’t tamper with it.”

There, on the rough cement floor of the verandah, the exterior world of many a village home, Kavya and Rakshita sit together in warm companionship, bonded by their joint activity. The blue-and-white floor mat is pushed aside, the hand sanitiser is conspicuous and both pupil and instructor wear masks. Rakshita is in a striking deep blue-and-yellow floral frock, Kavya in what looks like a salwar kameez with a pink jacket casually worn.

Their class is just beginning and Rakshita is attentive, her books neatly arranged, with a pencil case on top of it. She is one among Kavya’s trio of high-achievers in the group and now she is ready for her math. The day has a design these days, not the pointlessness that characterised it before.
Ujwal Kumar Rautray was five years old when he lost his father. It brought him to a dead-end. Life came to a stop. From an endearing, normal little kid he turned into a bundle of complications. Ujwal would turn violent and beat up his classmates in the government primary school he attended in Mendhashal village. His teachers complained, and, short of threatening him with expulsion, handed out every form of intimidation in their toolkit.

When COVID hit, Ujwal was in grade 5. His academic inclinations had by then waned, while matters at home were far from easy. His aged grandparents and mother rose every predictable day and went to work in their small farm. Paddy cultivation – and Odisha is a predominantly rice-growing state - is back-breaking, labour-intensive work, and they are marginal, subsistence farmers. They also did manual labour. The immediate day, the here and now, was all they could think of, or provide for, that too, sparingly.

Financial hardship was always too close for comfort, says Akshara’s Team Lead. Even the basics were hard-won and yet Ujwal’s grandparents and mother took care of him and his elder sister in grade 10. “They try to earn something,” says the Team Lead, “in the absence of Ujwal’s father who was the main breadwinner. They have to make sure the two kids get a good education.”
In their family education has an exalted significance all its own. Ujwal’s mother was in the village one day when she heard about Akshara’s *Bridging the Digital Divide* pilot and hoped she could send him for it.

Rajalaxmi Behera is one of those fine people – kind, caring, compassionate. She was Ujwal’s Volunteer in the pilot. Being physically challenged herself, she knows fallibility when she sees it, the thing about being broken.

Her role was not only to teach and equip her students with the grade-appropriate skills and mastery required in math, but also to offer guidance and lead her group of nine children through whatever journeys they were on at that point. It was in that way a more profound, heartfelt connection than simply being teacher of the group.

Along with that was the enthusiasm in her class. “I saw a lot of excitement on those kids’ faces,” says the State Lead. Those who studied with Rajalaxmi were genuinely happy. “I attended one complete class as an observer. The kids were excited about learning.” She had an intuitive grip of her students’ capabilities, could fathom their inner strengths and weaknesses. When she gave assignments she instinctively knew which of her group would complete it in double quick time.

A subset of her students would lag behind. She knew at once what they would find easy or difficult. “Rajalaxmi knew how to navigate those two sets of students.” But even the warm-hearted, resourceful Rajalaxmi was a bit taken aback when Ujwal launched into atrocious behaviour. Her complaint was not about that, though. It was that “this kid is not regular.”

Gradually his pent-up anger began to exhaust itself. When he did attend, Ujwal looked around and saw the exhilaration in class. His peers were borne aloft by the smartphones in their hands, playing games with Building Blocks. There was liveliness everywhere. They were all learning new things and it slowly dawned on him that he was missing out. He wanted to be a part of this animation.

At ten, he is old enough to observe and understand. “He realised something good was happening,” says the State Lead. He may be too young to set his mind right, or to work on himself, but subconsciously the vibrant atmosphere in class and Rajalaxmi’s empowering attitude built up his strength.

Ujwal's learning improved. In four months his score went up from 26.6% to 86.6% The team’s approach was paying dividends. They had decided early on that they would act with compassion, not react to Ujwal’s behaviour, but respond with caring and stay calm.

And that is what Ujwal is doing these days – staying calm. The other day he got into a conversation with the Team Lead and revealed his wish list for the future. A 10-year-old’s collection of dreams. It sounded like an adult’s responsibility checklist. “I know my family is in difficulty. I want to get a good job in the future and take care of my family. When I get a job I’ll make sure my sister gets married.”

Then, seeing the Team Lead’s motorbike parked there and giving himself a concession, he said with admiration, “When I get a good job I want to buy a bike like yours.”
9.0 DIGITAL DEVICES: ECONOMICS AND ACCESS

As with any innovation, the key for large-scale adoption will be its economic viability coupled with technical feasibility. Of course the assumption is that the content is of high quality and approved by pedagogy experts within State Educational Research and Training (SERT) units. Non-profits such as Akshara Foundation (and others) have put out all their learning resources in digital form, using a Creative Commons licensing framework. This content, in the case of Akshara, is mapped to the curriculum.

The pilots at Nanjangud and Mendhashal took advantage of existing technology assets inside the country’s educational system. Central to this is the DIKSHA platform. DIKSHA is built on open source technology, made in India and made for India, which incorporates internet scale technologies and enables several use-cases and solutions for teaching and learning. The second technology asset was a unique use case of DIKSHA in the form of energised textbooks – while a completely inexpensive technology, its use in education is very valuable. The use of these two critical assets made the two pilots technologically feasible.

To sum, content is available on platforms such as DIKSHA and all of it is available at no cost and has been approved by state authorities responsible for content.

The economic viability and its financial implementation is much more challenging. There are costs that are incurred before the implementation begins and these include:

a) Mapping the curriculum to a dual lesson plan mode. Effectively, instead of a single lesson plan that was used by teachers hitherto, there is now the need to cast the curriculum into dual lesson plans which effectively brings to the child the advantage of having the support of a teacher in person for at least half the week, and digital access for at least half the week.

b) Training teachers to accept the dual lesson plan strategy moving forward. This calls for a significant amount of investment. It is imperative to equip teachers with the required skills and prepare them to make a paradigm shift in the teaching-learning process.

But, building on and improving the curriculum and training of teachers is part of every state’s Education Department annual plan and they have budgets assigned to these activities. So, financially they need not be an additional ‘burden’.

The ‘burden’ will be in finding solutions to the huge problem of getting digital devices in the hands of the last child. There is need for more creativity and innovation in financing and ensuring sustainability.

From a pure budgetary standpoint, it hinges on the acceptance that an incremental cost of about Rs 175 per child per month will be required to ensure that all children have access to education via digital technologies. Which means that if a state has 5 million children in schools, then an additional amount of Rs. 1050 crore per annum has to be earmarked in the state budget which is far less than the loss incurred by society when children do not have access to schooling.
However, this cost can be offset because:

a) The digital divide can be eliminated once and for all and all children will have access to an equitable education.

b) At full scale implementation, thousands of part-time jobs can be created in rural communities where livelihoods are threatened because of the pandemic. We estimate three part-time jobs being created for every 250 children. The nature of these new jobs would be one of facilitation and managing logistics across a local geography like a Gram Panchayat.

c) Providing local services to schools will also encourage entrepreneurship.

How do we sustain these efforts?

• Largely, the costs would comprise of operations and logistics costs and the costs of device acquisition and their maintenance.

• The total costs need to be offset with a revenue plan that asks the state to pay an estimated Rs 175 per child per month to a ‘service provider’ who could be any form of a Community-Based Organisation (CBO) such as Self-Help Groups (SHGs).

• We have to also assume that the ‘capital costs’ such as purchase of digital devices (smartphones) and accessories are amortised across two years – alternatively, we could factor in the EMIs payable for a 12-month period in the table below.

In such a case, if the ‘capital costs’ are assumed to be half of the number shown on an annual basis, this would total to an annual operating cost of Rs. 5,16,250 which in effect translates to a small surplus for the micro-entrepreneur.

This is for every 250 children. At a scale of 5 million children this means there is a potential to create nearly 40,000 new part-time jobs besides creating an additional 20,000 micro-entrepreneurs.

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<th>EXPENSES FOR 250 CHILDREN, IN INDIAN RUPEES</th>
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<td>Accounting Head</td>
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<tr>
<td>Mobile Phones</td>
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<td>Mobile Accessories - Powerbanks</td>
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<td>Mobile Accessories - Spike Buster</td>
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<td>Operating Costs</td>
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<td>People Cost (Facilitators)</td>
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<td>Local Travel</td>
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<td>TOTAL</td>
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<th>INCOME FOR 250 CHILDREN, IN INDIAN RUPEES</th>
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<tbody>
<tr>
<td>Cost per Child</td>
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<td>Rs 175 per child per month</td>
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Notes:
1. Smartphones will be available for Rs. 3500/- and the cost has been assumed to be allotted equally across two years.
2. 1GB/Day pack with validity for 24 days available at Rs.149/-. 
Over the past couple of years, both the Central and state governments have devised schemes to encourage entrepreneurship and create livelihoods. Some of these schemes are:


4. MUDRA is a refinancing Institution and does not lend directly to micro entrepreneurs/individuals. Mudra loans under Pradhan Mantri Mudra Yojana (PMMY) - can be availed of from nearby branch office of a bank, NBFC, MFIs etc.


### 10.0 ASSESSMENTS

**A Core Function**

Assessments are a sacrosanct part of what Akshara does. Every programme gets to have its day in the sun only when assessments have proved it is worthy of the light. They are crafted even as a programme is in the making. Even when a project is besieged by challenges, not meeting expectations, or its performance is undermined, assessments are not compromised on or done away with.

The need to establish proof and evaluate its work is a core value Akshara does not sacrifice.

Given that *Paryaya Kalika Yojane* and *Bridging the Digital Divide* were new for children, organised around a digital cornerstone, and given the wearing away of learning in the COVID months, Akshara’s Research and Evaluation team set itself with careful forethought to the task of designing simple pre- and post-assessments for the projects.

They kept two simple goals in mind.
- Stick to the competencies of the previous year, which meant grade 4 was assessed for grade 3 competencies and grade 5 for grade 4 competencies.
- Make the test non-intimidating and child-friendly.

The team’s capacity building of Field Facilitators/Volunteers on assessments addressed three key issues: the significance of assessments, the role of assessments in the learning process, and the modalities of test administration. Each of the Field Facilitators/Volunteers was handed over an assessment instruction sheet to follow while they assessed the students. In Nanjangud, during the training, the Research and Evaluation team assembled seven government school children from a nearby village and administered a mock assessment to help the Field Facilitators gauge their comfort levels with the administration of assessments.

Basing the assessment on the previous year’s competencies was a deliberate strategy, the intention being to keep it simple and easy for students who, the team kept reminding itself, had been out of the school system for practically a whole academic year.
The baseline assessment was administered immediately after the pilot was launched in both places. The actual implementation began after that.

**By the time end-line tests were administered in Nanjangud, around six students had migrated from the villages.**

### 10.1 FIELD INSTRUCTIONS

As mentioned earlier, accompanying the question papers was an instruction sheet for Facilitators and Volunteers since they were the administrators of the assessment.

The list underscored the following field instructions:
- Test conditions were to be maintained. Children were not allowed to copy, and adult interference was kept out. Any kind of subjectivity was not allowed to sway the evaluation.
- The Facilitators/Volunteers corrected the answer papers the same day at home, not in front of the students.
- The Akshara team provided answer keys for quick facilitation of the process.
- The Facilitators/Volunteers were exhorted to ensure that their marking of answer sheets was 100% valid.

### 10.2 QUALITY CHECKS

To maintain data integrity the following quality checks were conducted.
- The team administered a mock test during the training of Field Facilitators/Volunteers to ensure that they had understood the assessment process well.
- Spot checks were conducted and support extended where required. The Team Leads and Akshara’s field staff which comprised of members outside the pilots’ purview made unannounced visits to observe the assessment process.
- At Akshara’s office the team carried out a random back-checking of data. After this cross-validation, it was sent for data entry.
- A discussion ensued with the Field Facilitators/Volunteers if errors were detected during data entry and action taken to ensure they were rectified.

### 10.3 WHAT DID WE LEARN FROM THE ASSESSMENTS?

While one focus of the assessment strategy was to ensure that learning did not suffer, the larger goal of the pilots was

(a) to learn if the process of swapping devices between groups of children was difficult and **what we did learn from the pilots was that the process was easy and seamless**;

b) we learnt that community members from the local communities were concerned about education for their children and were willing to be part of processes that would help get access to learning for their children;

c) we refined our thesis that **this process could also create some livelihood options at the grassroots levels**.
The baseline and end-line assessments were conducted in the last week of December 2020 and in the first week of April 2021. They were administered to all the students who participated in the pilots. The analysis considered only those students who appeared for both the baseline and end-line assessments. As previously mentioned, six students present at the time of the baseline had either migrated or were not around during the end-line assessment in Nanjangud, whereas in Mendhashal, all the children who were present for the baseline were present for the end-line too. The test scores were analysed and the tables below present the learning outcomes of grades 4 and 5 across different bands.

**Distribution of students by score bands in math baseline and end-line comparisons - Nanjangud, Karnataka:**

<table>
<thead>
<tr>
<th>Score Bands</th>
<th>Grade 4 (N=110)</th>
<th>Grade 5 (N=124)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline of students (in %)</td>
<td>End-line of students (in %)</td>
</tr>
<tr>
<td>Zero</td>
<td>3(3)</td>
<td>0(0)</td>
</tr>
<tr>
<td>Below 35</td>
<td>61(67)</td>
<td>3(3)</td>
</tr>
<tr>
<td>35-59</td>
<td>21(23)</td>
<td>11(12)</td>
</tr>
<tr>
<td>60-85</td>
<td>15(17)</td>
<td>46(51)</td>
</tr>
<tr>
<td>&gt;85</td>
<td>0(0)</td>
<td>40(44)</td>
</tr>
<tr>
<td>Total</td>
<td>100(110)</td>
<td>100(110)</td>
</tr>
</tbody>
</table>

**Distribution of students by score bands in math baseline and end-line comparisons - Mendhashal, Odisha:**

<table>
<thead>
<tr>
<th>Score Bands</th>
<th>Grade 4 (N=57)</th>
<th>Grade 5 (N=48)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline of students (in %)</td>
<td>End-line of students (in %)</td>
</tr>
<tr>
<td>Below 32</td>
<td>0(0)</td>
<td>0(0)</td>
</tr>
<tr>
<td>33-44</td>
<td>5(3)</td>
<td>0(0)</td>
</tr>
<tr>
<td>45-59</td>
<td>16(9)</td>
<td>0(0)</td>
</tr>
<tr>
<td>&gt;60</td>
<td>79(45)</td>
<td>100(57)</td>
</tr>
<tr>
<td>Total</td>
<td>100(57)</td>
<td>100(57)</td>
</tr>
</tbody>
</table>

Source: Field survey

# Data in parentheses is absolute number of students

The analysis considered only those students who appeared for both baseline and end-line.

Analyzing the data of the Nanjangud students who participated in both the baseline and end-line assessments, we find that at the baseline, around 64% of grade 4 students and 46% of grade 5 were unable to score the ‘pass percentage’ of 35% and therefore could NOT pass the test based on grade 3 and grade 4 competencies. However, the pilot seems to have made a significant difference in the learning process of the participants.

The percentage of grade 4 students making higher-level gains jumped from 15% to 46% by the end-line assessments in the 60-85% levels, while 40% of the students scored over 85% and entered the distinction category. None were in that band at the baseline. Similar results can be seen for grade 5 students as well.

The assessments followed the same fundamental pattern in Mendhashal. At the time of the baseline, only two grade 4 students had scored 100/100. This number increased substantially
to 31 at the end-line assessment. Grade 5 students also moved to a higher score bracket. The pilot helped many of the children acquire proficiency in math.

Disclaimer: While the results were encouraging the assessments were by no means a rigorous process. The pilots themselves were a limited-period endeavour, implemented to prove a process.

11.0 CONVERGING AROUND EDUCATION

“Things happen in villages in informal ways,” says the State Lead, Odisha. The pilot’s template was more or less akin to private tuition. There were teething troubles, community issues. “It took us a little while to understand the dynamics in communities like caste and religion, but in the end everyone agreed on the idea of education for their children. People united on that goal.” They converged around education. At first the Mendhashal Pilot received approval from the ST & SC Department16 for a single village in Mendhashal Panchayat. “The scope of our pilot was to cover at least 100 children,” says the State Lead, “and we had to approach the Odisha School Education Programme Authority to allow us to conduct it in the whole Panchayat.”

“The State Project Director, Bhupendra Singh Poonia IAS17, gave us permission and wrote a letter to the District Education Officer requesting the administration to facilitate implementation.” To quote excerpts from his letter of 27-1-2021 to the District Education Officer, Khorhda: “....I am to inform you that Akshara Foundation has got approval from SCST Development Department to pilot the “Bridging the Digital Divide” pilot in Mendhashal Panchayat of Khordha District for grade 4 and 5 students. As at least 100 children are required to pilot the project, the Foundation has requested to include the students of the schools running under the S&ME18 Department in Mendhashal Panchayat.”

“You are requested to give necessary instructions to the schools of Mendhashal Panchayat ........ to share the student data of their schools with Akshara Foundation’s field team and extend coordination for implementation of the pilot project.” It goes to show what a proactive administration can do for schools, children and learning. This was another example of the convergence the team was able to mobilise around education.

11.1 THE MOBILE PHONE AS A LEARNING TOOL

- Aimlessness and a feeling of being unmoored must have characterised 2020-21 for most village children, a year frittered away. They did not realise it in precisely those terms, but going past their school, they sensed the emptiness within its walls and a passing sadness.

- The pilot helped the children rediscover a lost purpose. It helped them acclimate to blended learning without a jarring note in between. The traditional and contemporary ways interlaced to form a whole package of teaching and learning.

- “The mobile phone is also a learning tool,” says the Operations and Community Initiatives Head at Akshara. And it was not children alone who were uncovering this reality but the larger community as well.

- In rural areas the mobile phone is a medium of communication and entertainment. The same device can be effectively used for learning. That was something people were beginning to understand.

16 ST & SC Development, Minorities and Backward Classes Welfare Department.
17 Bhupendra Singh Poonia is also Chairperson of the Council of Higher Secondary Education, Odisha.
18 School and Mass Education Department.
11.2 A MAJOR VICTORY

- For the Nanjangud Team Lead the 15 centres in his charge were his energy field. For the four months of the pilot he was immersed in it and felt buoyed by the fruits of what it had sown. There were many reasons. For one, math learning levels improved. In the short period of time at their disposal, children achieved a proficiency no one really thought possible. More than that, after a year that had vanished without a trace of education and a school regimen, he found that children could be harnessed, brought to stillness and concentration and a disciplined work ethic. Particularly rewarding was the involvement of the parents.

- “Schoolteachers were impressed by our process. They kept pressing us to expand the coverage of children and include other subjects.” This support did not materialise from Day 1. It was wrested in a slow and steady manner, every pace, every stride hard-fought.

- “Initially it wasn’t there.” There was scepticism, resistance and resentment. Some in the community said, “When schools are closed, what are these people doing here? Why do all this?” Later they became convinced. They would arrange everything for the smooth progress of the pilot. They would set up the space, ensure that the children were available on time, reach out with a sense of community to the Team Lead and Field Facilitators and began to appreciate what the pilot was doing. It was a major victory for the Team Lead, a huge positive factor.

12.0 CONCLUSION

Innovations such as this, if they have to reach Rakshita, Ujwal and millions of children like them in rural hamlets, need financial backing. Civil society seldom lets opportunities in the gloom go to waste. The Nanjangud and Mendhashal Pilots were funded by philanthropic capital. But as pilots go, they were miniaturised versions. The territory is vast, and the scale-up needed massive.

All hope is not lost, though. A few years ago, Government of India initiated BharatNet, or Bharat Broadband Network Limited, which aims to provide broadband to 250,000 Gram Panchayats through optical fibre connectivity. It is expected to help rural schools provide online education to students who have no internet access at home. This is a work in progress, a dream being realised. And there is the interim to tide through.

The Nanjangud and Mendhashal Pilots were small, short models. But they have the scope for expansion – a few districts to begin with, and if hope can be stretched that far, maybe a state or two. In a previous chapter Akshara has worked out the cost per child, the financial model for 250 children, the ‘capital costs’ involved.

Funding an innovation need not be a heaven-and-earth matter. The Akshara team has listed the sources of potential funding that can be availed from government agencies like Shyama Prasad Mukherji Rurban Mission, Pradhan Mantri Gramin Digital Saksharta Abhiyan, or in Karnataka, the Chief Minister Grama Vikasa Yojane. In light of this, it can safely be said that a digital learning programme lends itself to the times we are living in, is replicable, doable, and can be a public-private partnership (PPP) – at work and at scale.

COVID 19 fallout: the impact on education in India, Kaushik Deka and Shelly Anand, January 3, 2021
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