MISSION DIGITAL SCHOOL

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Pashtepada is a small hamlet, situated 40 kms from block headquarters Shahapur and 80 kms from district headquarters Thane. Mr. Sandeep Gund got his first posting in this village in 2009, with 350 populations, as a Zilla Parishad Primary teacher. The village was hard to reach; from last bus halt it took 2 kms of walk to reach Pashtepada. Nevertheless, the teacher was eager to start his work. When he reached his destination, he saw a neglected school building, and barely fifty present attendance of the enrolled children. Neither children nor the parents expected much from the school and its teachers. But Mr. Gund had high hopes and bright dreams for his students.

When he joined the school there were only 9 students in Class 1-4. That too all 9 were not regular. While he was doing a course Diploma in teacher education he has made one presentation in the form of PPT for teaching one concept to students and that PPT was so impressive that it was shared with whole class and other students of the college. From this he was motivated to take interest in technology in education.

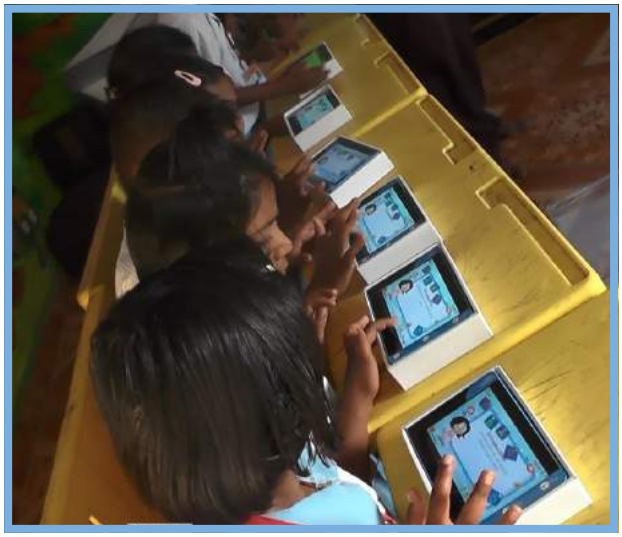
Student using smartboard

"As *a teacher I decided to focus in what children take interest the most. Self-interest leads to wilful learning, ensures physical and mental participation and concentration, which is crucial in the learning process.*"

Bringing students to the school was the main challenge and since he had an interest in teaching with the use of technology, he started using his laptop for teaching. As there were only 9 students it was easy to teach them in a group and laptop screen size was enough for the group. The students were amazed by the method of teaching and started talking about the laptop, videos and PPTs at their homes. He thought that this can be presented at district level and should be implemented in the other schools also.

Then he searched for ways of using technology and found more interactive ways of teaching through technology and for that some tools and digital equipment were required at the school level. So he started contacting NGOs. With the help of NGOs and donations from individuals he created child theatre in the school in the year 2010. In that he had interactive smart board, IR camera, laptop, speakers and self-generated content. Now school strength was 21. His work spread to the teacher community. Some teachers started inviting him in their school to develop the children theatre. But the main problem was funding for the same. He . prepared one Document named Mission digital school, wrote his school experience in it, put the budget and pointed down benefits of digital education.

Now there was a tea.cm of 5–6 teachers who were going to nearby villages on the basis of invitations of the schools and doing "Ratri Sabhas" with them. Village people come to the Ratri Sabha and team of teachers used to do presentations before them, shared the journey of their school



School students using tablets

with them and welcomed them for crowed funding for making village school digitally equipped. Like this he went to around 200 villages and all 200 schools got digital classrooms. In some villages there was a problem of electricity so solar panels were set up.

As there was no internet facility in the Pasthepada Mr. Gund used to go to taluka place for making/downloading content for students. According to Mr. Gund teacher must generate content for the student themselves. In the beginning he could not get Marathi content from open sources so he scanned all text books and used to show on the smart board in the classroom. In 2010 they have got tablets from donations for all students. Experimenting on computer he developed simple learning lessons, got films, and made PPTs to show to children

Mr. Gund prepared a blue print of Digital Smart School, but the upgradation took place step by step, with gradual fundraising. This initiative is primarily supported by community, who donated in cash and through labour, and support also came from NGOs and other donors. Mr. Gund was a member of the Solapur Innovation and Research Foundation, a group of government school teachers that was supported by IIM Ahmedabad. His work was popularized by SIRF.

Mr. Gund's model was presented in 3rd International Conference on Creativity and Innovations at the Grassroots (ICCIG) at IIMA in January 2015. In ICCIG conference, Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI, www.sristi.org) recognized it. The model was exhibited in Rashtrapati Bhavan by SRISTI in March 2015. Then, the model was appreciated by Government of Maharashtra. A letter (GR) on this (Digital Model) was sent to all primary government school to digitalize their classrooms on 22nd June 2015. After this letter, many innovative teachers and Principals started setting up digital classrooms in their Schools. After his visit to Pashtepada School in April 2017 Mr. Anil Swarup, Secretary, Department of School Education and Literacy, GoI, promoted Mr. Gund's initiative stating "His digital revolution is exemplary" and shared his story to inspire digital initiatives elsewhere.

In June 2015 Maharashtra State Government launched "Pragat Shaikshanik Maharashtra" — a program to enhance learning achievements of school children. PSM was conceived in response to the appeal by Mr. Devendra Phadanvis, Chief Minister, GoM, who focused on quality education as one major goal in KRAs set for the state. Accordingly Mr. Vinod Tawade, Education Minister, GoM initiated formation of a comprehensive program PSM with Mr. Nand Kumar, Principal Secretary, School Education.

Today the students in Pashtepada School are free from schoolbags as each child has a tablet with pdf text books and references uploaded on them. Individual tablets also store student's worksheets and any projects they do in the school, so that they are accessible for evaluation. Examinations are online exam, therefore results are instant. The students do their homework in notebooks, so that their writing skills are retained and improved.

Self-learning is encouraged. Screen sharing by teacher and students, as well as sharing of e-content among one other takes place. Learning from surrounding environment is also encouraged. Students also create videos based on their field projects.

Tabs are also used as recording devices to record answers by students in their own voices, some classroom activities and lectures. Sometimes they are allowed to take the tablet home, so that family can see the content and performance of their children on tab or by connecting it to their TV. It is equally important to share what goes on in the school with parents.

The school is well equipped with digital devices like — Interactive Smart Boards, IR Camera, Interactive Projector, Interactive Monitor, E-Desk, E-Podium, and also has Digital Content library with Wi-Fi connectivity accessible to students. The school also has a Content Development Studio. Global virtual classes and tours also take place.

All these systems run on solar energy, a onetime investment of Rs. 1.25 lakh. The solar unit is portable, as the panels are foldable. Once charged the school devices can run for 5-6 hours.

This digital Classroom solution uses in-built content library comprising of 2D-3D images and multimedia content of almost all subjects which makes the learning process more interactive, student-centered and enjoyable. Some of the features are given below:

- **Visual Touch.** Visual touch technology is far superior to other portable technologies available in the market today like ultrasound-based triangulations, because of the speed of tracking and the multi-touch multi-user features.
- **Gesture Based.** This provides the user an ability to execute smartphone like gestures on the interactive workspace like pinch, zoom, pan, tilt and so on. This not only makes the teaching experience and the presentations fun and more interesting.
- **Real Time Writing experience.** A lot of users of traditional interactive whiteboard solutions complain about the writing quality of the digital screen. Based on its cutting-edge smooth writing algorithms, EyeRIS offers a pleasant writing experience to the users, which makes the use of digital workspace more fun and life-like.
- **Feature Rich.** Despite its simplified form, EyeRIS provides you an unprecedented interactivity, features and tools for creating your own Digital Workspace. It's like having an interactive whiteboard solution on steroids. Not only does it give you industry's largest surface area of beyond 160", but also an unmatched 255 simultaneous points Multi-touch Multi-user experience, fastest response time, and extraordinary cost-effectiveness.

Based on his research of student's performances Mr. Gund has noted benefits of digital learning. ABDL helps to accelerate grasping, improves retention, and reduces absenteeism. Parents and community are happy with these changes, as they feel assured that their children's future will be brighter with digital education.

PSM showcased best practices of learning across the state. Mr. Gund became one of the active members of the "Techno-savvy Teacher's" — a group of self-motivated digital teachers in the school who led the digital school movement in Maharashtra.

Earlier Mr. Gund organised training on request for teachers in his block and district. With support and encouragement from Mr. Nand Kumar, who shared success story of Pashtepada in his interaction with teachers, he reached out to other districts. Mr. Gund started getting invitations from other districts, and through 200 workshops he reached out to over 2,00,000 teachers, Cluster Heads, and Block and District Officers.

In his one-day workshops he made teachers familiar with digital learning, addressed their inhibitions of using technology, and convinced them about its benefits. "Do not teach computer handling to children, instead use them as learning medium for them — this is what I tell to all teachers, and build their confidence to handle digital devices", says Mr. Gund. Making his own journey a case study, Mr. Gund shared both major aspects — technology and community participation — integral to his initiative.

Children studying in a smart classroom

Digital School Mission inspires teachers to learn to use these tools and also provides necessary training and digital content. It allows for exploratory learning, which ensured students engagement in the learning process. Digital technology can be effectively used to enrich learning process and to make evaluation process efficient and effective. Mission Digital School has promoted digital literacy and appropriation of technology to facilitate children's learning process.

At a very basic level, for a small number of students, a mobile can be turned into a learning device. More advanced devices, such as interactive boards, projectors, access to wi-fi network etc. require more investment.

Challenges and obstacles

At the initial level teachers hesitated to learn to use technology, series of trainings helped to increase the number of willing teachers gradually.

Along with getting various devices, appropriate digital content also needs to be made available, which is one of the tasks assigned to tech-savvy team members in every district.

List Of Hardware/Software And Its Estimated Cost Required For Implementing "Interactive Tablet Class" Concept

SR NO	PARTICULAR	QUAN-TITY	PER UNIT COST, RS	TOTAL AMOUNT, RS
1	Interactive device IR Camera, Cybernetic model no.: 8090	1	35 000	35 000
2	Projector Sony Dx220 Display Type: LCD Light Output: 3200 Lumens Warranty: 2 Year(s) Features: HDMI Input Life of Lamp — Full Usage: 10000 Hours Life of Lamp — Eco Usage: 5000 Hours	1	31 500	31 500
3	Laptop Configuration Laptop i3 processor Ram: 4 Gb Hard disk: 1000 GB, Screen: 15.6" Colour: Black Acer OR Asus	1	28 000	28 000
4	Master Tablet iball Q1026-18 Processor: Quad core, Screen: 10.1" Resolution: 1024X600 Ram: 1GB Storage: 8Gb Battery: 4600Mah Android 4.4 kitkat	1	9 000	9 000
5	Students Tablet or Lenovo tab3	20	5 000	1 00 000
6	Digital Content Library for networking between master tablet and students tablet	1	28 ,500	28 500
7	Any cast Wifi Dongle for screen Sharing	1	1 500	1 500
8	Komkin Educational syllabus for 1st to 8th standard (Windows based)	1	8 000	8000
9	Komkin Educational syllabus for 1st to 8th standard (Android based)	20	4 000	80 000
10	Projector Mount Kit	1	1 500	1 500
11	HDMI Cable (10 meter)	1	1 000	1 000
12	Power cable (10 meter)	1	1 000	1 000
13	Speaker 2.1	1	2 500	2 500
14	Web Cam	1	8 000	8 000
Total amount, RS				335 500

Impact and Key learning

Today Digital School Movement in Maharashtra has picked up. Over 89% of government schools are equipped with digital learning and over Rs. 326 crores have been raised through crowdsourcing to upgrade the schools (figures as updated by August 2017). This success owes its credit to persistent efforts of teachers like Mr. Sandeep Gund, who paved the way for digital education in government school when it was beyond imagination for many.

All this together has contributed in widening the scope of learning experience for children, children interacted with students from other countries through virtual classes and trips, and learning process has become more enjoyable for them.

QUESTIONS FOR TEACHERS

1. What steps should be taken to ensure that more and more technology is used for teaching in schools?
2. How does studying in a digital classroom change children's learning ability?
3. How should planning be done to maintain coherence between study by blackboard and study by digital technology?

QUESTIONS FOR TRAINEES

1. What can be done to encourage children to use e-learning?
2. What activities can be undertaken to develop functional skills in children?
3. What kind of care should be taken while using ICT?