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STUDY ON TECH-BASED DISTANCE EDUCATION FOR PRIMARY SCHOOL STUDENTS IN MAHARASHTRA DURING COVID-19:
APPROACHES, CHALLENGES & IMPLICATIONS

SUMMARY REPORT
2020-2021

Acknowledgement

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Whenever there is talk of COVID-19, we immediately think of the grave losses incurred, which are manifold- the loss of lives, health, income, and something equally precious…. the loss of learning! What's more heart-breaking is that the loss of learning has been greatly suffered by our most vulnerable citizens …our children. Blissfully ignorant of their loss, all they yearn is for their regular school to reopen so that they can laugh, play, and study with their friends.

In all these months of school closure, there have been numerous studies carried out nation-wide to assess and comment on the effectiveness of tech-based distance education (TBDE) rolled out by all the state governments. In the case of Maharashtra, one notable study was done by the MSCERT along with UNICEF, a little before June 2020, to gauge the readiness of the stakeholders to participate in the TBDE programme. The study was conducted on the students of government schools studying in grades 1-8. It threw light on inherently differing aspects such as the availability of tech resources in the urban and rural households and the numerous challenges affecting access to these tech resources, as well as the quality of learning imparted through them.

It was a subject of great interest for the Shantilal Muttha Foundation which has been so deeply involved in matters of school education, to delve deeper and do a more focused study of the state's TBDE programme especially in the context of primary school children belonging to the economically weaker sections. Thus, the students from the government as well as the budget private schools across urban, rural, and tribal locations were considered for the study. The study was also deemed to be extremely relevant at a time when the TBDE programme had already been underway for six months. Hence, the intent was to understand the ways in which this programme was being adopted and adapted at the local levels for all the children, given the present day constraints of the availability and access to the tech infrastructure in the state.

Another important reason for the study being so critical is from a futuristic viewpoint. The writing is on the wall; the fact that technology will play an increasing role in school education with blended learning as the way forward, can't be ignored and the state government needs to be well prepared to usher in this shift towards a tech-enabled education system in due course. In order to do so, one of the vital aspects is to understand and highlight the practical constraints faced by the stakeholders across the board. It will pave the way for more informed decision-making while planning for the road ahead.

It gives me satisfaction to note that despite all the challenges posed due to the suddenness of the need to move to a TBDE programme for ensuring continuity in learning, the education system in the state, especially the MSCERT and the teacher community have done a noteworthy job of providing academic engagement to the children wherever it has been possible to do so. Given the paucity of time, lack of finances, limited human resource and the lack of a proper action plan, the

results have been encouraging on several fronts with certain exemplar teacher practices coming to the fore. This study has attempted to bring out and acknowledge these efforts as well.

On the basis of the reported statistic of 50% students without access to digital learning as per the UNICEF-MSCERT study, the present study tried to probe into the field conditions hampering the learning of such children and to uncover the reasons therein. The situation is definitely one of grave concern and throws up an urgent need to remedy it. Although some solutions are known and available, it is a matter of prioritizing and systematizing the measures that can yield tangible results for a large number of such children who simply can't be ignored. For these children the problem is compounded by the fact that the long period of school closures has hampered the social-emotional growth of every child. The psychosocial problems and the learning gap together, pose a greater risk of these children dropping out of the school system, with the girls facing a greater threat as many of them are already being engaged in household duties.

Hence, the upcoming period from January 2021 to June 2021 (during which the primary schools in most likelihood, will continue to remain shut) must be seized for putting into action a fast track plan; to bring all such children under the ambit of structured learning time through offline classes in every village and every community. This is as much a matter of education as it is of disaster response and it would serve well to allocate the state budget under COVID-19 towards the speedy execution of an action plan for the large number of children excluded from the TBDE programme. Shantilal Muttha Foundation has already started such an initiative through its Sahayogi Shikshan Abhiyaan, a community-based, volunteer-driven education programme for primary school children across the state.

On an endnote, I would like to emphasize the need for the state government to take cognizance of the issues highlighted in the report and deliberate on the recommendations provided. To further its vision for a tech-enabled education system in the state, a comprehensive operational framework for technology integration at multiple levels and functions within the school education system must be urgently drawn up. The vibrant IT CSR ecosystem prevalent in Maharashtra must be leveraged upon and multiple IT CSR projects should be undertaken to operationalize the various elements of this framework. CSR projects in the areas of digital infrastructure upgradation, learning management systems for ICT upskilling of teachers on the supply side as well as the integration of advanced analytics for seamless monitoring and reporting is the need of the times. Additionally, NGO participation at every level from planning to execution should be sought in this endeavour, with clear policy guidelines issued at the state level. As for the TBDE programme already on the ground, the recommendations in this study furnish several ideas and ways to channelize the state government's efforts in the desired direction to enhance the outreach and to strengthen the quality of learning.

Let us all see this as an opportunity and use the reflections and learnings derived from this pandemic to herald a paradigm shift in the way our children would experience the joy of learning in the near future.

-Shantilal Muttha

Founder

2 CONCEPTUAL BACKGROUND TO THE STUDY

The COVID-19 lockdown resulted in millions of school closures worldwide. In India, as per UNESCO data more than 143 million primary school children and more than 133 million secondary school children have in turn, been affected following these closures[1]. The move necessitated education to go online in a big way across India with an ambitious expectation of ensuring continuity in learning. Distance education for adult learners is well established; however, it is a grey area with respect to children, particularly in the primary stage of schooling, which are the formative years of a child's growth and development. Socialization experiences provided by schools play a crucial role in children's overall development. Younger children with their limited attention span can further drift away from a purely sedentary online mode.

In the state of Maharashtra, the closure of nearly 0.1 million primary schools[2] has impacted over 5 million children studying in these schools. The government primary schools and the budget private schools (with annual fees under INR 20000) together constitute nearly 90 percent of the total number of primary schools in the state. Thus the decision to largely depend on technology-enabled distance education deeply affects millions of primary students studying in these schools who come from weaker socio-economic backgrounds, thereby throwing open a plethora of questions on the implications thereof. Given the socio-economic constraints and the developmental needs of the younger children, the study was designed with intent to ascertain how distance education could impact this population of our children and their consequent learning.

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[1]Education: From disruption to recovery- https://en.unesco.org/covid19/educationresponse
[2]UDISE 2018-19, Maharashtra State

OBJECTIVES OF
THE STUDY

3

The fundamental question is whether the school education system in the state is geared up for resilience by providing a level playing field in response to COVID-19, or if it is widening the educational inequity due to the already prevalent digital divide in the state and in the country.

At the national level, the policy for digital education does reflect a far-sighted vision for a robust and inclusive system that will be sustainable even post-COVID-19. It underscores a collaborative approach between state and national level resource institutions in the larger interest of the students, while maintaining that educational quality should not be compromised (MHRD-Pragyata, Guidelines for Digital Education). However, the indications are that the state is viewing the online mode of distance education as an interim arrangement; whether or not it has a vision aligned with the viewpoint stated by the MHRD needed to be explored.

With this end, the objectives of the study were formulated as under:

1. To investigate the availability of and accessibility to tech-based resources and technologies used in Maharashtra as a response to COVID-19, for the delivery of meaningful and inclusive distance education to school-going primary students.

2. To investigate the preparedness of the stakeholders - for tech-based distance education.

3. To investigate the nature and quality of pedagogic approaches used in the transaction of distance education.

4. To identify the challenges and limitations in the planning, implementation, monitoring and support for the tech-based distance education as perceived by students, teachers, government officials, private school management authorities and parents.

5. To explore educational engagement of students with respect to their gender, socio-economic category and special needs

6. To investigate the ways in which incidental/ informal learning is taking place, if at all.

4 SCOPE AND LIMITATIONS OF THE STUDY

Scope in

This study covers 36 districts from Maharashtra. Stakeholders from the government, aided and budget private (unaided) schools from the urban, rural as well as tribal locations are a part of this study. Marathi, English, Semi-English and Hindi medium schools are involved in the study to avoid any language barrier for the field investigators. Also, only the Zilla Parishad/ Nagar Parishad and/or the Nagar Palika government schools were taken into consideration. Apart form the stakeholders interviewed (details mentioned below), it was decided to observe online classes of the students to get a realistic picture of the Tech- Based Distance Education, both in synchronous and asynchronous ways.

Scope out

The study does not assess the access and availability of tech resources among all the primary school children. Thus, it does not try to assess the extent of the outreach of TBDE. It only seeks to understand the ease of availability and access of the tech-based resources among those who are already participating in the TBDE programme. Secondly, the study neither attempts to comment on the effectiveness of TBDE through the learning achievement of the students, nor does it assess the quality of the content available on the various technology platforms. The study also excludes the affluent and the elite private schools of the state board or otherwise, in order to maintain a certain commonality in the socio-economic status of the children under study.

Limitations

The study does not include students from other media like Urdu, Kannada etc. due to the language barrier on the part of the field investigators. The study does not cover students from the schools managed by the Departments of Social Welfare and Tribal Welfare. The interviews of stakeholders other than students and parents were conducted telephonically. There was a restriction on the mobility of FIs due to the COVID-19 pandemic. Apart from these limitations, there were limitations in sampling, data collection procedures due to the pandemic as discussed under the respective sections.

STUDY DESIGN AND COVERAGE

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Geographical Spread	
No. of Administrative regions covered	All 6: Konkan, Nasik, Pune, Aurangabad, Amravati, Nagpur
No. of districts	15
No. of blocks/talukas	27 (This includes 2 tribal blocks)
No. of clusters	125 (Atleast 4 clusters per team)

Stakeholder type and distribution

Educational functionaries interviewed	
SCERT	**Dy Director**
No. of DIET Principals	14
No. of Block Ed Officers	26
No. of Cluster Heads/Pvt School Mgmt members	74

	Total Students			Total Parents			Total Teachers		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Govt	556	558	1114 (77%)	494	602	1096 (77%)	160	177	337 (80%)
Pvt	171	168	339(23%)	154	177	331 (23%)	50	36	86 (20%)
Total	**727**	**726**	**1453**	**648**	**779**	**1427**	**210**	**213**	**423**
Rural	515	494	1009 (70%)	384	609	993 (70%)	141	186	327 (77%)
Urban	212	232	444 (30%)	264	170	434 (30%)	69	27	96 (23%)
Total	**727**	**726**	**1453**	**648**	**779**	**1427**	**210**	**213**	**423**

Total Online Class observations	
Govt	459 (75%)
Pvt	150(25%)
Total	609
Rural	381 (63%)
Urban	228 (37%)
Total	609
Asynchronous	444 (73%)
Synchronous	165 (27%)
Total	609

DATA COLLECTION PROCESS

Quota Sampling methodology was used in the study, in view of Covid constraints. The data collection was scheduled from 26th October 2020 to 30th November 2020. An approval letter for conducting the study was issued by the Director, MSCERT. The FIs were distributed in 19 teams of two members each, and 6 individuals.

Data had to be collected in two ways using various tools designed for the stakeholders –

(I)   Household visits: face-to-face interviews/ observation- Synchronous class Observation, Asynchronous class observation, Parent interview, Student Interview and

(ii)   Telephonic Interviews- MSCERT, DIET Principal, BEO,CRCC/Pvt. School HM and Teacher.

KEY FINDINGS AND CONCLUSIONS

7

7.1 AVAILABILITY AND ACCESS TO TECH-BASED RESOURCES:

1. The focus of the MSCERT was on the use of existing resources and mobilization of the same, through collaborations with other organizations. A similar expectation was set for the offices at district and sub-district levels.

2. TBDE has necessitated families from the low-income backgrounds to incur additional expenditure in various ways like the purchase of an additional device and mobile data packs for their child's learning. Thus, the right to free education is being seen as a struggle in such times.
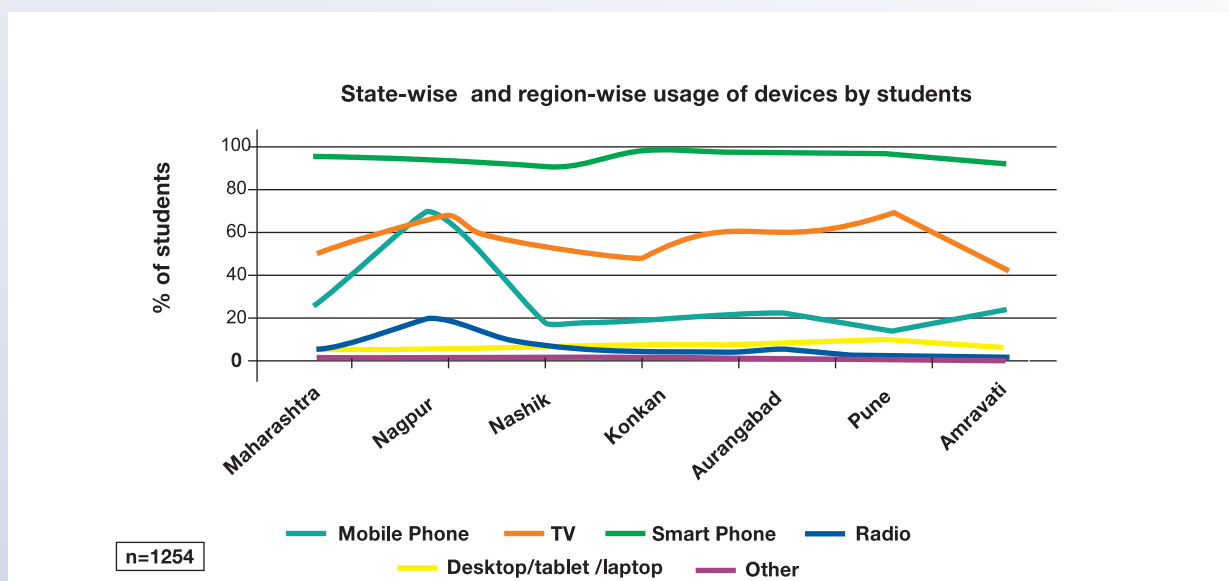
GRAPH 7-1 - USAGE OF DEVICES BY STUDENTS

3. Smart phones with cellular network were commonly used by all stakeholders (98%), from BEOs to students for TBDE. WhatsApp was the most commonly used platform. Out of the total 609 classrooms observed, only 27 percent classes were synchronous and 73 percent classes were asynchronous with mainly WhatsApp used as the asynchronous platform.

4. Amravati region reported a relatively lower availability of most devices than all other regions.

5. Less than 50 percent students reported being able to comfortably use the devices for TBDE. The access was also determined from the point of view of consent to use devices when required. Only 53 percent of the students reported that they were always allowed to use the devices. Work-related use of the device by someone in the family (student interview-46 percent, parent interview- 43 percent) was the highest quoted reason for access to the device being denied.

6. Besides that, in spite of the large numbers for the ownership of TV sets, their educational usage was extremely limited (12% students) due to either limited knowledge or access to the channel, contrary to the expectations of the MSCERT and the BEOs.

7. 71 percent CRCCs (from talukas other than the purely tribal block of Dharni) reported that 76-100 percent teachers in their cluster conducted TBDE. At a regional level, around 90

percent Konkan and Pune CRCCs reported over 75 percent implementation, while there were a few regions with less than 60 percent CRCCs reporting the same level of implementation, indicating a possible challenge in connectivity required for the use of tech platforms. Similarly, a higher percentage of urban CRCCs (80%) reported this percentage

PICTURE 1- STUDENTS, PATHARDI TALUKA, AHMEDNAGAR DISTRICT

than their rural counterparts (68%). Also, there is a considerable gap in the actual number of children attending TBDE classes vis a vis the general perception/understanding of the teachers and government officials regarding the number of students who have access to TBDE. 13 percent students were forced to participate in the class from difficult or uncomfortable locations. Limited number of devices as compared to the number of users, and discrediting the importance of learning for the younger children within the family were some of the main reasons why students were denied access to TBDE.

For non-TBDE students-

8.   Similarly, for the children who are unable to participate in TBDE at all for reasons related to
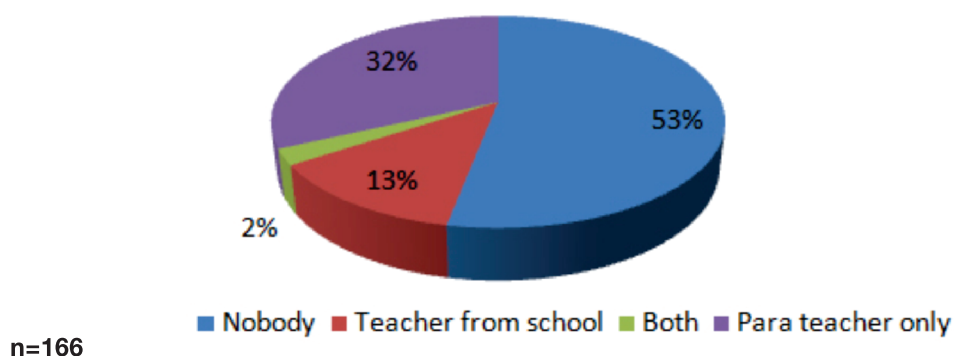
GRAPH 2-2- TL ARRANGEMENT FOR NON- TBDE STUDENTS

access or otherwise, there is a visible gap in the actual number of children being reached under non tech-based education and the general understanding of the officials and teachers with respect to this outreach. Outreach to such children is very limited and in varying proportions mainly because, it is intended to be largely teacher-driven.

- 57 percent of the parents reported that nobody came to teach their children during the lockdown. Para teachers have been conducting classes along with or without schoolteachers mostly in the tribal areas. Arrangement of para-teachers was done only for the government students mostly in the rural areas. Most of these para-teachers were educated up to the 12th grade.

- Out of the 166 non-TBDE students, 39 (23%) students were such who were not participating despite their teachers conducting TBDE classes because 46 percent of them reported that they were unaware of TBDE being conducted by their teacher while for the other students, not having a smart phone was the main reason for not attending the TBDE even though TBDE was being conducted by the teachers in their location. The top three reasons why all these 166 non TBDE students did not watch educational programmes on TV despite not having access to any other tech device mainly pointed towards lack of awareness of such programmes (37%), not having a TV set (37%) and not understanding the programmes (12%).

PICTURE 2- ZP TEACHER WITH STUDENT, PATHARDI TALUKA , AHMEDNAGAR DISTRICT

Inspiring Story

Schools have been shut due to the COVID-19 pandemic, forcing children to stay at home. Funde sir realised that if the situation continues, there would be tremendous loss to student learning. He lives about 7-8 km away from the school he teaches in. He teaches students of grade I and II in a ZP primary school. Most of his students come from economically challenged backgrounds as most parents are daily wage workers. Funde sir uses teaching aids to make learning interesting for his students. Every year, in the summer vacations, he either makes new teaching aids or gives new life to the old aids. With the nationwide lockdown in place he knew that his usual teaching aids would not be helpful to his students and so he designed kits which had teaching aids for every student of his. The kits were personalised according to the need and grade of each child. His wife, son and friends helped him make these personalised kits. He also paid for white boards for those students who needed them to study efficiently at home. Funde sir was aware that the kits by themselves were not enough. His students needed his guidance as well. He also believed that online learning would not benefit his students of grade 1 and 2. With these thoughts in mind, he started his own programme called 'teacher at your doorstep' wherein he visited his students at their homes and guided them in their studies. Under the new programme Funde sir modified his style of teaching and focused on teaching each child as per his/her ability. He made small groups of those students who stayed in the same neighbourhood. He requested the help of parents and older students in the neighbourhood to help younger students with their studies. Help was willingly given to him by all. Now the parents who were worried about the education of their young ones are relieved. Funde sir's creative mind and skillful hands have been successful in keeping his students engaged in learning.

Mr. Popatrao Funde,
Govt. School Teacher, Pathardi,
Ahmednagar

Ms. Sharayu Pagare is an inspiration to many in her locality. She has been teaching in the Mulund Municipal Corporation Marathi Medium School (Mumbai district) for 30 years now. When the nation-wide lockdown was announced, she took it upon herself to reach all her children through all and any means available. Following the government directive, she started online classes for her children of grade 1 to 5 for English, Marathi and Mathematics. She made sure that children have access to the internet by providing them financial support when needed. However, she faced several challenges in the online mode. Some students used the internet to play online games, some devoted too much time to watching non-educational videos on YouTube and many children would turn their cameras off during online classes, making it difficult for her to supervise their activities. There were some other students that could not attend online classes at all due to the unavailability of smartphones. Following all these issues, she started teaching face-to-face as well. These classes were held in the open garden of the school while following all the preventive measures for COVID-19.

Determined to do her share for the good of the society, she also started to teach the children from underprivileged sections of society at her home. Ms. Pagare and her husband supported the parents of these kids by providing them rations whenever necessary.

Despite suffering from COVID-19 herself during the lockdown and having comorbidities such as high blood pressure and diabetes, Ms. Pagare has been teaching every single day with dedication and courage.

Ms. Sharayu Pagare,
Govt. School Teacher,
Bhandup, Mumbai

7.2 PREPAREDNESS OF STAKEHOLDERS FOR TBDE

The 'Learning from Home' circular released by the MSCERT in May 2020 provided detailed guidelines to the teachers on the distance education mode. Discussion rounds were held between the MSCERT and the State Education Minister, higher-level officers, and certain NGOs for a systematic division of responsibilities. Setting up of basic network systems and a comprehensive mapping of the resources available for such a shift, based on the academic needs of the institutional authorities were the initial steps taken while planning the rollout of TBDE. Active collaborations were struck by MSCERT with various organizations like Shantilal Muttha Foundation, UNICEF, Deccan Education Society, Akshar Foundation, Going to School, to name a few, for the support in content design, capacity building and other areas as per their need; available content on DIKSHA and other OERs was also leveraged upon. A commendable aspect was the utilization of the capacities of the resource pool of techno-savvy teachers in Maharashtra, who willingly supported the MSCERT and the officials for content creation and delivery of trainings at some locations.

| The training methodology 10 officials | Upskilling of DIET staff 7 officials | Building of the infrastructural capacity 6 officials | Collaboration with NGOs 2 officials |
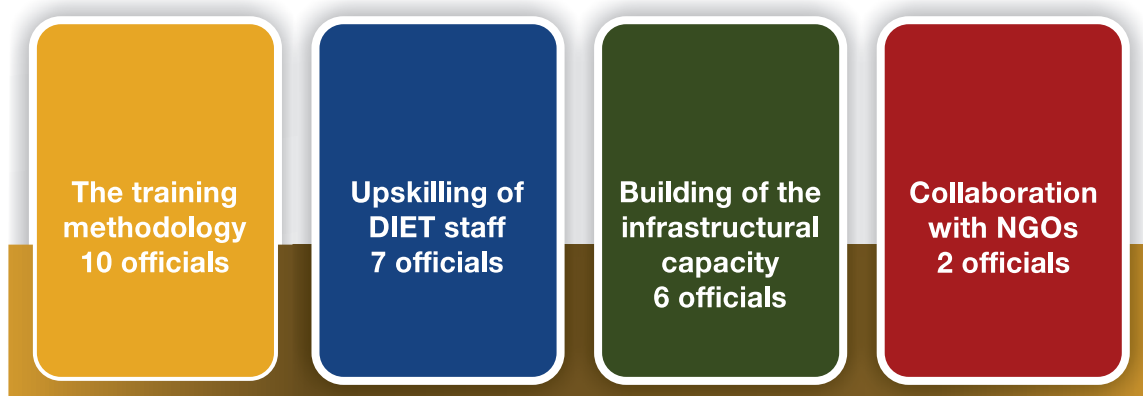
FIGURE 1- PREPAREDNESS BY DIET FOR TBDE

AT the DIET level, changes in training methodology, upskilling of DIET staff, and infrastructure enhancement of DIET offices were the focus areas; NGO collaboration at DIET level, capable of driving impact in these other areas related to online pedagogy was comparatively much lower.

1 **Training:**

■ A professional development platform (व्यावसायिक विकास मंच) was also established at the MSCERT in order to train the teachers through synchronous tech modes like Zoom. Collaborations were done with national and international experts in order to orient the teaching community towards tech-based practices. A book entitled "शिक्षणाच्या नव्या वाटा" has also been published by the MSCERT in which demonstration of good practices by the urban as well as rural teachers have been mentioned.

Teachers: How many trainings have been organised for tech based distance education programs ?

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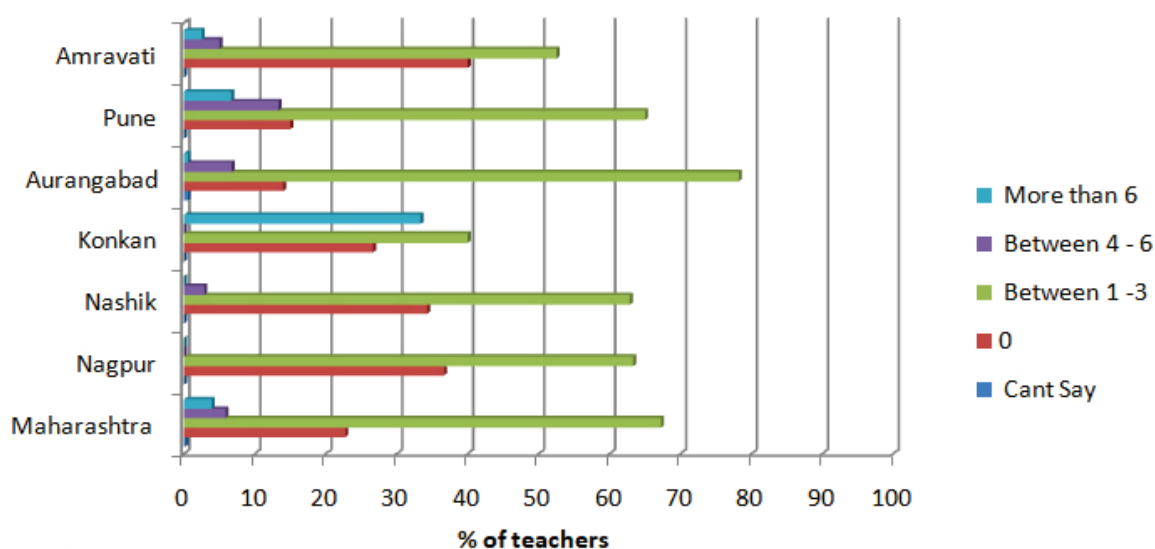
GRAPH 2-3-TRAININGS ORGANISED FOR TBDE

■ While trainings were initiated and carried out in large numbers mainly by MSCERT and DIET, 100 percent completion of trainings for all teachers was not achieved before implementation of TBDE, probably due to the time constraint. 33 percent of the teachers in urban areas received no training at all as against only 19 percent of the teachers in rural areas. Almost 63 percent of the teachers were largely satisfied with the effectiveness of the trainings. However, 19 percent teachers reported low levels of satisfaction with the training effectiveness, calling forth a probable need for re-examining the consistency and content of the training programs across the different regions.

■ The overall findings revealed that the situation in terms of training wasn't very encouraging for private schools when compared to the government schools. While only 9 percent CRCCs reported that teachers did not receive even a single training session, 33 percent HMs of private schools reported that their teachers did not get any training. The Konkan region showed a peculiar pattern, with the widest range of responses (22% interviewees reporting zero sessions whereas 33% interviews reporting that more than 6 training sessions were conducted - the highest among all the regions). This is attributed to the

PICTURE 2- ZP TEACHER WITH STUDENT, PATHARDI TALUKA , AHMEDNAGAR DISTRICT

district- wise distribution of the responses in the Konkan region. Ratnagiri and Sindhudurg districts did not report more than three training sessions, whereas in Mumbai, all three respondents interviewed reported that more than 6 training sessions were conducted.

- Training on technical aspects to raise ICT competency was much more focused upon, while training on online pedagogy, use of various TLMs, etc., still need to be taken up more rigorously.

CRCCs and HMs: How were these teacher trainings conducted?

Category	% of respondents
Offline activities	7
Recorded audio	12
Reading material	19
Recorded videos	32
Participants could ask questions live	44
Online activities	26
Live Video	75
Live Audio	47
Face -to- Face training	14
Other	7
None	2

n=57
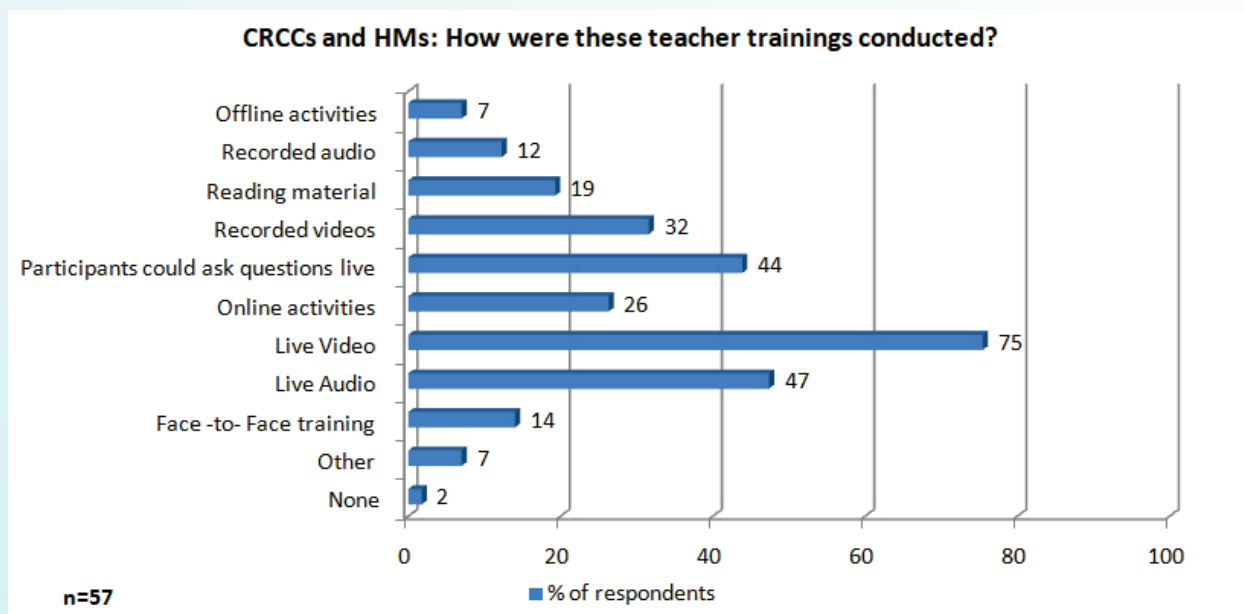
GRAPH 2-4 -TRAINING METHODS

- These trainings were conducted mostly through live video and audio with just 44 percent respondents indicating that they were interactive wherein the participants could ask questions. These trainings covered topics ranging from ways to handle the platforms that the teachers needed to use, creating PPTs, smart PDFs etc., as well as TLMs, sharing videos on the You Tube, creating videos to share with students, etc. However, the pedagogical aspects like ensuring student engagement, the use of teaching aids and tech-based TLMs in online classes has been relatively side-lined in the trainings, and more focus has been given on the usage of devices and platforms along with the creation of tech-based TLMs. These could be the probable reasons for the gaps in pedagogy used by the teachers in the classroom as revealed through the study.

2   Monitoring and Support:

- 85 percent of the BEOs also mentioned that motivation and encouragement were given to the teachers by the district/ block level staff for implementing the tech-based programs, followed by support through training (58%).

- Parents, HMs, and the CRCCs were found to be the most active stakeholders in observing teachers' performance, while SMC, BRC, BEO, and DIET showed a relatively lesser involvement in monitoring teacher performance during the online classes. In Nashik, Amravati, and Pune, HMs were the ones who mostly observed the teachers' online classes (61%, 75% and 57% respectively), while the CRCC was the main stakeholder observing online classes in Konkan and Nagpur (33% and 45% respectively).

- 27 percent of the government schoolteachers and 22 percent of the private school teachers also reported that nobody was there to observe their online classes.

- The nature of support by CRCCs to teachers was more on motivation and encouragement while other impactful areas like mentoring and feedback still need more thrust. The nature of the feedback revolved mostly around pedagogical issues, technical issues, and to some extent, content-related issues.

3   ICT competency:

- Data on preparedness in terms of device usage capabilities of parents to guide their children in the case of technical problems suggests that while 60 percent parents reported that they could use the devices 'very well', 40 percent still reported limited or no expertise in using them. This ability seemed to increase with the educational levels of the parents. Also, only 45 percent male students and 40 percent female students reported that they could use the devices very well.

- As in the case of device usage expertise and ability in providing guidance, a direct relationship between parental education and awareness of cyber bullying could be implied from the data, with awareness increasing consistently from 10 percent for illiterate parents to 75 percent for parents with junior college education or higher.
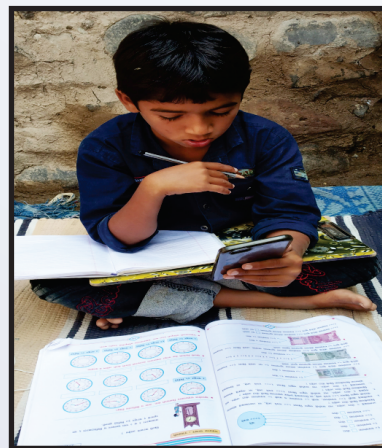
PICTURE 4-STUDENT, SHIRUR TALUKA, BEED DISTRICT

Inspiring Story

Some years ago, Kolhapur suffered from heavy floods. Naturally this caused the schools to be shut for quite some time. During that time Kedar sir started using applications like YouTube and Facebook to ensure that children were connected to learning. He found that his students responded well to this kind of technology-enabled distance learning. Since parents weren't accessible to Kedar sir, he turned to technology to help solve this problem. The parents now understand the various advantages of technology so much so that parents' online meetings are a regular feature of the school. Kedar sir's school even has its own website

Kedar sir's experience of the Kolhapur floods not only helped him stay connected with his students during the COVID-19 pandemic, but also seamlessly assimilated three new students into the online learning process when they migrated to his village. In a pre-pandemic time, older students would help any newly admitted students as a routine practice. Online classes were no exception. Kedar sir now conducts all his classes online. He sometimes visits those students who need help while using different educational apps. He also recharges mobile data (internet) for those students who are unable to do so due to financial constraints. The parents have been cooperating with Kedar sir during this entire process.

Kedar sir is not satisfied with working for students at his village alone. He develops worksheets for children, which are then distributed to different locations in the district. In addition, he also trains teachers at the district level. His work, which often goes beyond the call of duty has earned him recognition and appreciation of institutions at the cluster, Beat and DIET level as well as NGOs like Andha Shraddha Nirmulan Samitee.

Mr. Ravindra Kedar,
Govt. School Teacher
Karvir, Kolhapur

7.3 NATURE AND QUALITY OF PEDAGOGIC APPROACHES IN TBDE

1   The MSCERT has been encouraging teachers to demonstrate creativity and innovate for TBDE. Some remote areas have demonstrated continuation of education with innovative methods. However, it is observed that a creative blend of online and offline activities is still limited to a few teachers. This type of passive teaching might be detrimental for the desired learning curve of the children, and the children might not be able to understand, retain, or apply anything they learn in these classrooms. Also, the teachers are not adept at providing enough motivation to children to engage in the classes actively. Besides, grappling with a host of other challenges like connectivity and availability of devices, together culminates in boredom for students of such a young age to attend these classes. This eventually leads to loss in understanding.

2   A progressive and promising picture is seen with regards to classrooms only in live synchronous classes and not the asynchronous classes. Of the classes observed, only 27 percent classes were synchronous and 73 percent classes were asynchronous. The teachers reported that they record their classes and send the recording and the material to the students mostly through WhatsApp. This makes it very difficult for the classes to be interactive or active. The cause of this disparity can most probably be attributed to the location of these schools and the connectivity in these locations. This shows that except for a few select places, the mode of conducting online classes is mostly asynchronous.

Mode of conducting TBDE classes (reported by teachers)

Category	% of teachers
Offline activities	24
Participants could ask questions live	19
Online activities	20
Live Audio	22
Live Video	34
Recorded audio	56
Recorded videos	80
Reading material	56
Other	6
None	0

n=409
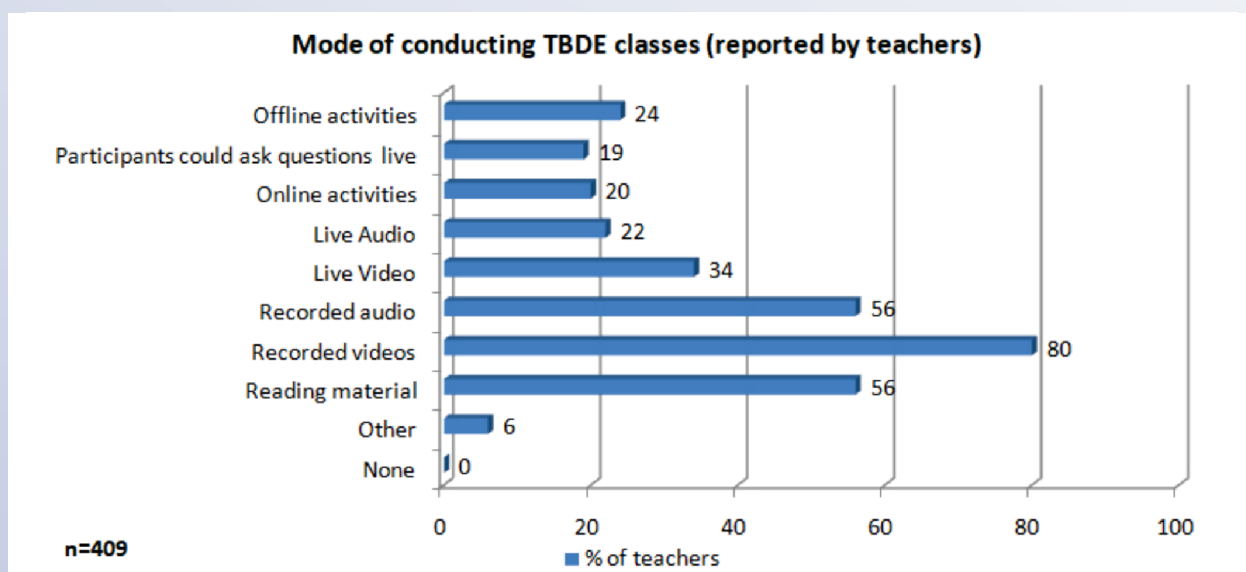
GRAPH 7-5 - MODE OF CONDUCTING TBDE CLASSES

3   Out of the total 409 teachers' data analysed, recorded videos (80%) and recorded audios (56%) were the most commonly used method of conducting classes in Maharashtra. When compared region-wise, the usage of live video classes (synchronous mode) was mostly in the Pune region (52%) and was as low as 10 percent in some eastern regions. Based on the school type, the private school teachers reported higher usage of live videos (45%) than the government school teachers (30%), and location wise the urban school teachers used live audios (28%) and live videos (44%) more than the rural schools (19% used live audios and 30% used live videos).

4   No special teaching aids like games/quizzes/puzzles/charts or subject kits were being used in the online synchronous classes observed apart from textbooks, videos and sometimes

the blackboard. 91 percent teachers used textbooks, and 48 percent teachers used videos which were the highest used TLMs in the classroom. A higher number of teachers teaching via synchronous classes were able to use teaching aids than the teachers teaching via asynchronous classes.
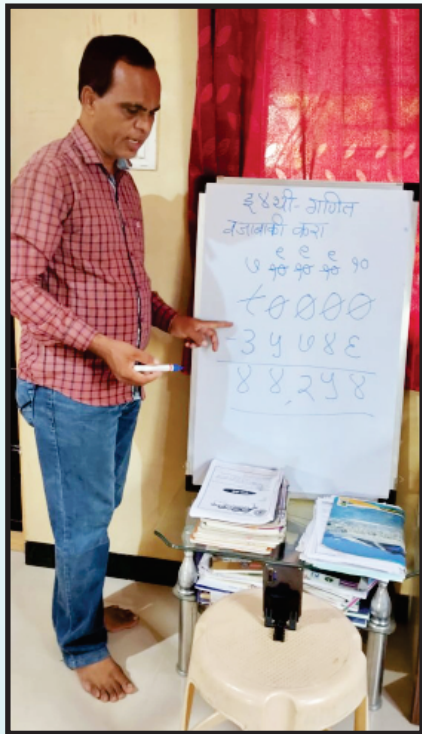
5   For ensuring student engagement, the teachers reported to using videos (53%), asking questions (44%) and using examples (33%) in the classes to make the class more engaging for students. This shows us that less than half of the teachers could make the classes interactive. It was also found that 73 percent teachers ended up answering their own questions rather than encouraging the students to think and answer. When asked about the type of activities conducted in classes, 87 percent teachers asked their students to do reading and writing activities. While 72 percent teachers reported that their students listened to what was being taught in the class, only 47 percent teachers said that their students spoke up in the class. All these findings indicate a very teacher-directed, traditional scenario. The private school teachers reported higher number of students asking questions in the online class (39%) than the government schoolteachers (26%). The English medium schools came across as the most traditional, with the highest number of students engaged in reading, writing, and listening to the teacher (93% each).

6   When asked about the ways adopted by the teachers to check for students' understanding, the most common response was through homework. 48 percent teachers reported giving their students homework around 4-6 days a week and only 22 percent teachers reported giving homework every day.

7   Although classroom tests are conducted by teachers in different ways, using a mix of online and offline assessments, a uniform method of summative evaluation is slated to be communicated by MSCERT. However, the maintenance of the CCE records is a challenge for the teachers.

PICTURE 5-ZP TEACHER, PATHARDI, AHMEDNAGAR DISTRICT

8   Teachers are more worried about completing the curriculum and as in the normal times, at such times too the focus seemed to be on the subjects perceived as more important than the overall development of the child. Language (English/Marathi (90%)) and Math (90%) were the most taught subjects out of all. Only 18 percent teachers focused on subjects like art/craft/sports during the online classes. Interestingly, this figure was higher in the government schools than the private schools.

87 percent of the students attending TBDE classes said they preferred regular school. While 84 percent of these said the reason behind it was peer relations, 78 percent students missed the out- of-class experiences like playing games on the playground, picnics, etc. Boredom (40%), distraction (35%) and vague/unclear teaching methods (29%) were the top three reasons perceived by the parents for their children not learning well through TBDE.

7.4 CHALLENGES AND LIMITATIONS IN PLANNING AND IMPLEMENTATION OF TBDE

Despite the huge efforts that are being taken on every front, there are visible signs of struggle for coping up on the part of every stakeholder involved. Along with the enormous learning opportunity that these circumstances have presented, there is a great scope of improvement in the areas of planning, delivery, review, and support.

1   **MSCERT:**

While the initial focus by the MSCERT was more on the timely availability of content, there is greater awareness sensed by the MSCERT towards the need to work on the quality of the same. Shortage of human resources with the requisite knowledge and skills is a constant challenge faced by the MSCERT. For those children who clearly had no/limited access to technology, the methods to reach out to them have been varied. The state authorities understandably hadn't issued any official circular in this regard for the fear of backlash in view of the potential spread of Corona due to home visits made by teachers. Suitable content was provided to the visually challenged students and those with hearing impairment. Since it was left to the teachers at the local level, certain exemplar efforts have come forth for imparting non-tech based education. There were students who migrated with families during the lockdown who could not be reached through online or offline modes, as reported by teachers. Notable efforts were made to reach such students through open online classes conducted by the BMC so that the state could benefit and reach around 3000 such students through this initiative. MSCERT continues to work with the UNICEF to address the digital divide and identify migrant issues. Notifications, GRs, are brought out and disseminated fast to address these issues. However, there are still a large number of children who continue to be left out with no access to any structured model of learning.

2   **DIET:**

■   Training for TBDE, tech infrastructure in the offices and quality of content were the top challenges faced by most of the DIET officials. Reaching vulnerable groups in the remote areas is also a concern posed by a few DIETs. 13 out of the 14 DIET officials have said that lack of availability of mobiles and devices in students and inadequate internet connectivity are the prime reasons that negatively affect implementation of TBDE. 60% of the CRCCs have found it easy to implement the programme themselves in their clusters. However, amongst the CRCCs who found it difficult to implement, the rural locations (38%) seemed to have posed greater challenges than the urban areas (20%).

■   Lesser degree of NGO collaborations and SMC support at the cluster/school level, less effective use of the district and block resource group meetings for problem solving are the emerging areas for improvement.

■   Although the state has a ready pool of techno-savvy teachers, the ICT competencies of a majority of the teachers still pose a challenge; that along with connectivity issues and teacher motivation are the main issues of concern, as reported by the government officials.

3   **CRCCs/Pvt school HMs and Teachers-**

■   The CRCCs/private School HMs and teachers seemed to be largely satisfied with the effectiveness of the trainers/resource persons conducting training programmes for the teachers. These responses are consistent across rural-urban and government vs. private schools.

- By and large, the CRCCs and the teachers have stated that the trainings prepared them to implement TBDE to a large extent. However, the study findings on the effectiveness of the TBDE programme in matters of online pedagogy seem to question this perception of the 'sense of preparedness' expressed by the teachers.

- There isn't much difference in the training needs of the government teachers vs. the private teachers with both the categories making an almost equal demand for support in building their capacities in using devices, using various tech platforms and also on ways to create and use TLMs during TBDE.

PICTURE 6 - STUDENT, WAI TALUKA, SATARA DISTRICT

- 29 percent teachers and 49 percent CRCCs/HMs opined that they found TBDE greatly useful for student learning while 71 percent teachers and 51 percent CRCCS reported minimal utility of TBDE for student learning.

- 53 percent teachers across the state have said that they found it difficult to implement TBDE while 46 percent have reported ease of implementation, irrespective of gender of teacher and the type of school.

- When the teachers were asked about the key challenges faced, technical challenges (74%), parental support (64%), the lack of availability/accessibility /affordability of devices for students (56%) and student engagement (54%) were the top difficulties reported by more than 50 percent teachers in the implementation of TBDE at a state level. The main reasons cited by the teachers for distraction among students were network issues, device related challenges and household distraction. These findings were similar across regions and across government and private school students, as reported by their teachers. That apart, the lack of technical competence to engage students through online pedagogy is also seen as a great possibility for student distraction.
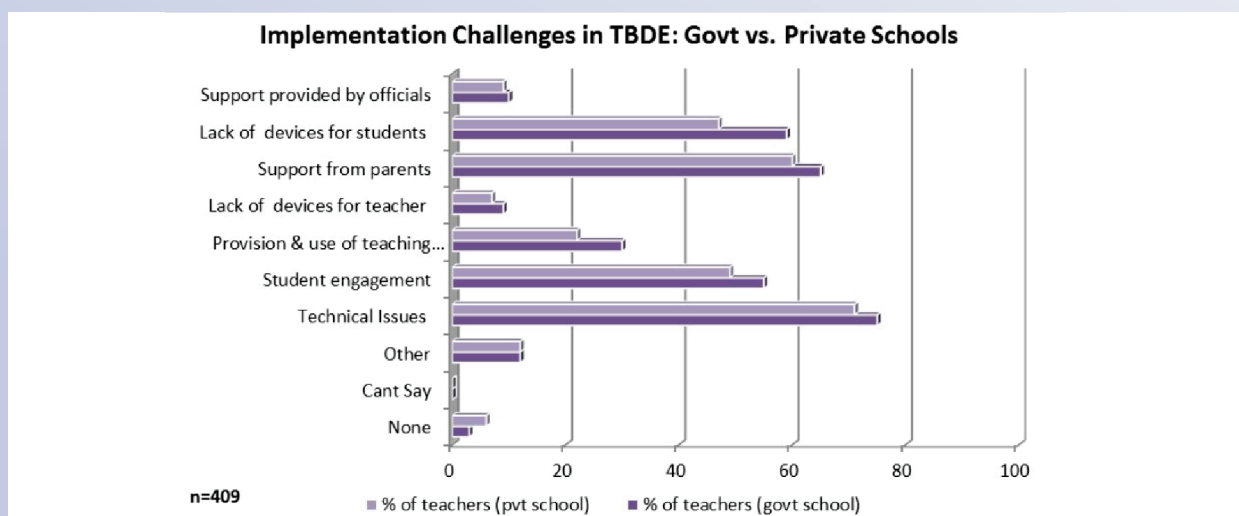
GRAPH 7.6- CHALLENGES IN IMPLEMENTATION OF TBDE

- Between rural and urban areas, parental support appears more challenging (66%) in rural areas versus the urban areas (58%) while the lack of availability/accessibility of devices is more in urban locations (65%) as against the rural areas (54%).

- Teachers in their interviews also stated that student participation had reduced in the online classes. Also, a few of them said that the number of students attending the classes is also on the decline and they are losing interest in their studies. In connection with this, when asked to report on the number of hours a day they conducted online classes, 285 (70%) out of 409 teachers across the state conduct TBDE classes for 1-2 hours daily, followed by 21 percent conducting for less than an hour. This trend was repeated for government and private schools as also for rural and urban schools.

- The feedback mechanism from the teachers to the higher officials needs strengthening across government and private schools in rural and urban areas together. Conversely, when the teachers were asked about them receiving feedback from their senior officials, the response was more encouraging in the government as well as private schools as shown below.

  In terms of support, motivation and encouragement seem to be amply provided by over 50 percent of the officials to their respective staff. However, the need for the provisioning of resources (financial, pedagogic, infrastructure) and mentoring and feedback support to teachers across block and cluster levels is greatly felt.

4. **TBDE and challenges for an inclusive education-** With the issues of tech availability and access being evident, an attempt was made to understand the various ways in which the children with no access to technology were learning and the means by which they were being supported by the system:

- More than 50 percent BEOs stated that 'more rigor in connecting with students/parents through phone calls/home visits '(88%) and 'support of techno-savvy teachers' (58%) were the steps taken to extend support to children not being able to access the TBDE. 35 percent-40 percent BEOs also reported 'taking help of SMCs to get feedback from students/parents' and 'Problem solving during online shikshan parishads'. Only 15 percent BEOs reported collaborations with NGOs/resource organizations to reach out to such children.

- Across the state, the more popular measures adopted, as reported by the teachers were home visits (43%), providing photocopies (40%), asking to watch educational TV programmes (39%) and phone-call support (35%). There are regional differences seen in the priority of these methods. In the private schools, support through phone calls seemed a more popular approach (57%). Home visits were not a measure taken up much in the private schools.

While the MSCERT has encouraged localized decision making for reaching out to the children with no access to technology, we can see that this has resulted in imbalance in the way that such students are being supported. This is evident from the status of disconnect from learning in the case of non-TBDE students. Where TBDE is not accessible, 33 percent girls and 39 percent boys reported that they haven't been studying on their own, translating to a complete disconnect from learning. Even among those students who indulged in self-study, a sizable number reported facing issues in understanding Math (47% girls and 38% boys). Some of the responses received from 167

parents of children who did not avail tech-based education suggested an earnest request for the schools to reopen soon as the children were fast losing interest in studies or not studying at all, children were forgetting what was taught to them, and that the government should provide them with the necessary devices. The students, when interviewed had similar reactions and they seemed to miss their friends.

> Across all the levels from teachers to the BEOs, the utility of technology in education once the schools reopen was perceived only as complementary to classroom teaching, in aspects like giving home assignments, for conducting parent-teacher meetings and for supplementing textbook content.

Inspiring Story

This is the story of Manorkar sir who did not let the Corona virus or the lockdown dampen his efforts to teach his students. He has been teaching in the ZP primary school of Eklara, Kodoli cluster, Manora block, Washim district for 19 years now. Among several challenges faced during the COVID-19 lockdown, he was posted at ration shops, petrol pumps, etc. for contact tracing and lockdown vigilance. This caused him a lot of difficulty in reaching out to his students. In addition to this, many of his students did not have any access to smartphones and the internet. He was pained at the thought that his students were disconnected from learning.

Fuelled by his determination to help his students, he set out to devise a pathway with his fellow teachers and friends. After getting a unanimous go-ahead by the school management committee, Police patil and Sarpanch, he implemented the devised plan.

Under their action plan, he visited the homes of students to convince their parents to actively help them with any doubts or difficulties while studying. In cases of unresolved doubts, Manorkar sir himself visited these students, while making sure that he followed all COVID-19 directives and precautions. During these visits, he distributed books as per the government directive. He also prepared self-study materials and worksheets spending money out of his own pocket, which was then disbursed to the students. Since Manorkar sir had numerous responsibilities he did not have sufficient time to devote to the children of grade 1 justifiably. And so for the grade 1 children, he enlisted the aid of their mothers. Timelines were set and two tests were also conducted in the first semester.

He is happy to report that all the different timelines are being met. He has emerged as a true warrior fighting to ensure access to education for his students, and his efforts are truly appreciated at the cluster, block as well as the district level.

Mr. Umesh Manorkar,
Govt. School Teacher,
Manora, Washim

7.5 EDUCATIONAL ENGAGEMENT WITH RESPECT TO GENDER, SOCIO-ECONOMIC CATEGORY AND SPECIAL NEEDS

1. Amongst all the tech devices, smart phones were readily available in more than 90 percent of all the households across all the social groups. The availability of other devices like, TV, radio and an ordinary mobile phone seemed to be relatively higher amongst the tribal groups.

2. However, the challenge was more regarding the child's access to these devices for educational purposes. This access was the highest for open category students and the least for tribal students. The prime reason for denial of access was the need of the parent to carry the mobile/smart phone to work.

3. The percentage of tribal students who had to connect from uncomfortable locations was also the highest among all the three social groups, which could be because most of them were from remote locations where network connectivity is an issue.

Difference in attendance and participation for boys as compared to regular school (reported by teachers)
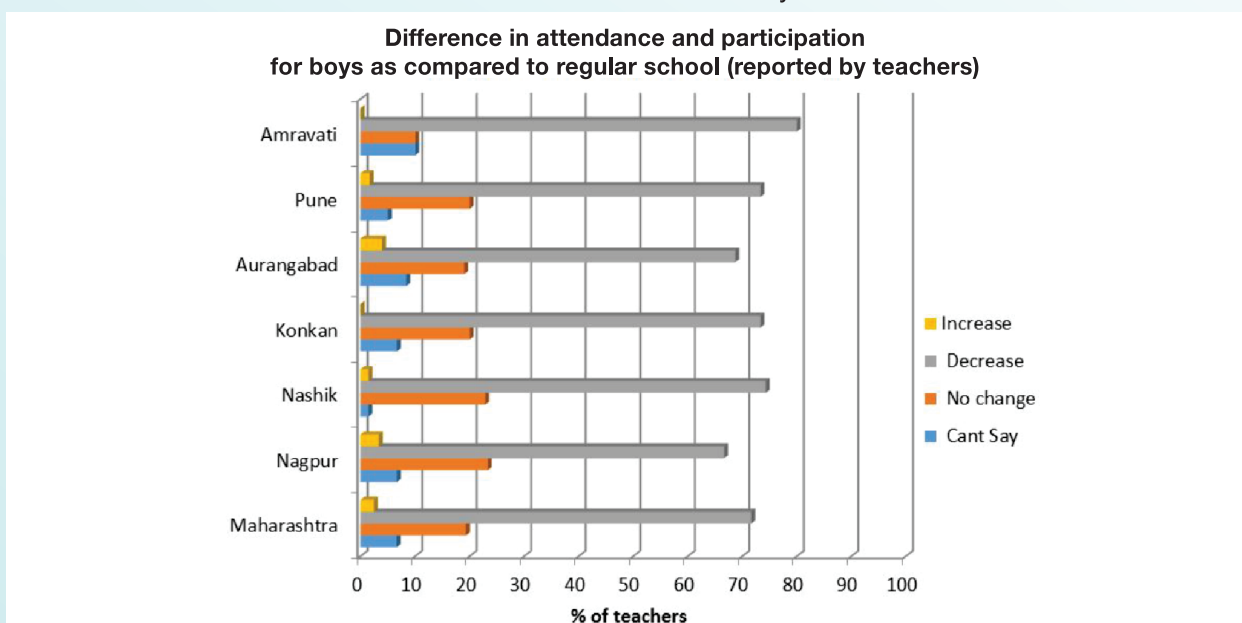
GRAPH 7.7- ATTENDANCE : BOYS (REGULAR SCHOOL VS TBDE)

4. The findings state that a greater percentage of girls were denied access as compared to the boys due to someone else's use of device with a better position in the family, like an elder of the house, or someone who earns in the house. Discrediting the importance of the education of the girl child could be an underlying reason.

5. Interestingly, from a gender perspective, the decrease in the attendance levels of boys for the online classes as compared to their attendance during the regular school was nine percentage points greater than a corresponding decrease in the case of girls. Amravati region shows the highest drop in attendance for boys but has reported the highest increase in attendance for the girls.

6. It was found that the device-using capabilities which were reported to be fairly low or basic to begin with, had a greater inclusion of the tribal students as against the others, again pointing to the digital divide due to socio-economic factors. The data from the parent interviews revealed vast gender differences in the ability to use the devices themselves, with a 23 percent difference in favour of the fathers. Similarly, the ability of parents to support the child in device usage was found to be considerably higher in open category versus the tribal category and also in APL families as against the BPL families.

7 The social group-based divide in parental cyber awareness was found to be 17 percent between the open category parents and tribal parents. There was also a difference of 13 percentage points between fathers and mothers in this regard. Differences due to family incomes were also seen in this case.

8 For the students not participating in the TBDE programme:

■ The number of Non-TBDE tribal students reporting that daily classes being conducted for them was 1.5 times higher than that for the scheduled category students.

■ Discrepancies based on social groups were even more pronounced when it came to self-study by the students, with the percentage of open category students studying every day being almost 2.5 times greater than that of the tribal students, with a fairly large percentage of the latter not studying on their own at all. This divide was also seen with respect to family incomes showing that the family environment and support does matter in such times as well.

7.6 INCIDENTAL LEARNING

1 Children are engaged in activities both inside and outside the house apart from the online classes being conducted.

2 Gender-based differences seen:

■ Girls more engaged in household chores like cooking than the boys.

■ Boys were seen to be more engaged than the girls in helping their parents with their profession.

3 The rural students were more involved in agriculture, gardening, and animal husbandry.

4 The urban students on the other hand were more actively involved in art and craft or music/dance.

PICTURE 7-STUDENT, DHARNI TALUKA, AMRAVATI DISTRICT

7.7 INCLUSION OF CWSN

A total of 19 CWSN and their parents were interviewed in 19 different clusters in Maharashtra. The disabilities ranged from mild to severe in case of both physical and mental disorders seen in the children. In most of the observations, the online platforms used were not compatible with assistive technology used for teaching children with visual, hearing, or any other impairment. In these difficult times, the parents endure the pressure of making sure their children are learning as they have to play multiple roles in the current situation. Two of the parents reported having changed their daily schedule to help their children during the synchronous classes. The pedagogy should have undergone a tremendous change during such time, to make learning more enjoyable and engaging for children with disabilities, but unfortunately, no such shift in pedagogy was reported. Teachers have not modified their teaching-learning practices to enable the CWSN to learn better online. There were no special

efforts taken by teachers, except in the case of three students, where the teachers came personally to take updates and interacted with the child. Levels of stress and irritation have increased in some children as reported by the parents. Challenges of online learning (viz. difficulty in joining the class, keeping up with the peers, understanding what the teacher is teaching, the lack of personal attention, continuously being dependent on parents) coupled with a lack of physical, social interaction or recreational activities seems to have proven frustrating for these children. The parents have reported that they find it very hard to continue such type of learning for their children and that they require assistance.

Inspiring Story

10 of the 15 students whom Bagul sir teaches belong to the Katkari Adivasi Samaj. Parents of these students do not own technology of any kind, not even mobile phones. Dr. Ranade of the Joshi Hospital in Pune came forward to solve this problem. 15 tablets were donated from the IWAD trust to these students on the 26th of June as a result of Dr. Ranade's efforts. Hardware without the software would not help these students with any learning gains and so Bagul sir reached out to Mr. Deshpande from Chaitanya Software, Pune. Chaitanya Software was able to provide curriculum-based content mapped to each grade, which can be accessed on Tablets without an active internet connection.

Bagul sir soon found out that technology cannot replace a teacher. His students needed someone to facilitate their understanding of basic mathematical concepts while they viewed the content loaded on their tablets. Bagul Sir found a local young lady with a D.Ed. qualification and requested her to help his students learn. This lady started visiting students on alternate days and facilitating their learning while ensuring she followed all Covid-19 precautions. In addition to resolving the doubts the students had, she also gave them assignments for Math and Marathi language, followed by feedback to them on the assignments given. Parents of the 5 students who did not belong to the Katkari Adivasi Samaj became good teachers themselves and helped their child under her guidance. For all her selfless efforts, Bagul sir gave her Rs.1000 as honorarium from his own salary.

Bagul sir himself was able to visit his students and facilitate their learning thrice a week after some of the stricter lockdown rules were relaxed. He also provided his students with self-study materials and activity books for subjects like English, Marathi and Math published by "पक्का पाया' the publication, and asked them to solve the exercises given within this material. Not being content with ensuring learning for his students alone, Bagul sir distributed this self-study material to other teachers via Whatsapp.

In addition to taking care of the learning needs of his students, Bagul sir also addressed his student's physical growth needs. He had observed that many of his students had lost weight in the absence of the mid-day meal scheme. Bagul sir appealed to Dr. Ranade for help again. The students have been getting an egg and a banana each week through the IWAD trust for the past 4 months. Bagul sir also managed to make arrangements for materials such as books, sketch pens, school bags etc. from people's participation and voluntary organizations like Rotary club.

The efforts taken by Bagul sir have been recognised and discussed in official government online meetings of different districts, like Beed. Some officials have even visited some student homes to observe how students are engaged in learning. The efforts have also received acknowledgement across English and Marathi newspapers and TV channels.

Bagul sir is proud that 100 percent of his students are connected to education even when schools are closed.

Mr. Sanjeev Bagul,
Govt. School Teacher
Mulshi, Pune

RECOMMENDATIONS

An important purpose of the entire study was to provide meaningful, evidence-based pointers for decision-making to the state government for improving the course of the current tech-based distance education in Maharashtra, as well as preparing the ground for a tech-enabled education system in the near future, aligned with the expectations of the larger policy guidelines laid down by the Centre. Though the immediate recommendations are for strengthening the current programme of tech-based distance education, a greater need is to start planning for a tech-enabled education system.

> **Before presenting specific recommendations, the three high-level actionable areas in planning suggested for the Maharashtra state government are as below-**
> 1) Formulation of a Rapid Action Plan to immediately address the learning loss of lakhs of children who are yet to be connected with the state's efforts under the 'Learning from Home' initiative.
> 2) Allocation of state budget for integration of technology in the education system during the pandemic as well as upon reopening of the schools
> 3) Formulation of a disaster response plan to address the concerns related to the social-emotional health and wellbeing of the children in the event of similar disasters in the future. (A state-wide study should be conducted by the state government to assess the situation with regard to impact on the mental health of children due to school closures, which will help in drawing up the afore-mentioned plan).

With this perspective, the following recommendations are being offered on two lines- A) Immediate next steps for the state government   (B) Recommended long-term pathway for a tech-enabled education system in the state:

Immediate next steps for the state government:

The urgent measures that need to be adopted for better implementation of the ongoing tech-based distance education (TBDE) in the primary schools and also for enhancing the outreach to the children who are currently disengaged due to no/limited access to technology in the following areas are:

A. **For Availability and access to tech-based resources**

    a. A state policy and operational guidelines for reaching out to the excluded children should be issued. An earlier study has shown that around half the children in the state are not participating in TBDE. The main reason, as reported by an earlier study and confirmed by the present study, is that parents do not own the required equipment like smartphones or computers. As this situation cannot possibly be remedied by direct state or private funding, it is imperative that a clear policy along with operational guidelines is evolved on how to reach out to the excluded children through a variety of alternative delivery options. Some delivery options that can be considered are:

        i. Leasing of low-cost/used laptops with preloaded content to the Gram Panchayats for common use by children under the guidance of educated adults (3-5 children can use a laptop at one time)

        ii. Distribution of audio material to the Gram Panchayats which can be played through

smartphones attached to Bluetooth speakers under the guidance of educated adults (10-15 children can access such content at one time)

iii. Teaching and learning in small groups through educated village volunteers who undergo a short online course and get packaged content for delivery plus a honorarium based on certain performance targets. Government, NGOs and CSR should come together to operationalize this channel of delivery. In connection with this, a plan for every cluster to promote parental & community involvement should be simultaneously pushed for.

iv. Better use of television and radio, both of which can be used as community resources, for educational programmes offered through these platforms. (These programmes will have to be offered grade-wise and with repeat schedules so that children can view the same programmes at different times according to availability of electricity at their location). Also, the programmes should be made available on the TV channels which are available free of cost and have wide coverage. Additional content needs to be made available on TV and radio, and the variations in dialects across the state need to be considered as far as possible while producing these programmes.

b. Lack of awareness of the parents and students about the educational programmes on TV and radio, can be easily addressed through systematic efforts for awareness generation that will help in the outreach of TBDE where other digital resources and internet coverage are a problem. The state government should initiate publicity campaigns of such educational programmes through its Directorate General of Information and Public Relations Department.

B. Preparedness of stakeholders for TBDE

a. The MSCERT should focus on issuing fresh guidelines for developing content for online teaching learning on the basis of the experience of TBDE gained during the pandemic and in view of the coercive policy by the central government. MSCERT can further undertake a critical review of all the available audio- video content, curation of available content and development of need- based additional content for tech-based learning, in-house and/or with the help of NGOs / external agencies.

b. Along with content development, grade-wise and subject-wise manuals for teachers on the use of recommended online content should also be developed with tips and guidelines for using blended learning techniques.

c. In a disaster-like situation, it is unrealistic to expect teachers to deliver online learning strictly according to the prescribed syllabus and textbooks. In consultation with subject-matter experts, grade-wise and subject-wise guidelines need to be provided on high priority learning outcomes and topics.

d. Although the initial planning phase was geared more towards maximizing the reach of TBDE through the teachers, now is the time to for a more concerted effort at the DIET level in areas like online pedagogy for both synchronous as well asynchronous modes of teaching-learning. Efforts should be stepped up for designing trainings to provide subject-wise support to conduct online classes and create/ use tech-based TLMs.

e. The MSCERT can conceptualize a 'model techno-savvy teacher', 'techno-savvy DIET trainer, BEO and a CRC'. It can also conceptualize a demo model optimized for tech-based blended learning using a constructivist pedagogy approach. This may be done in consultation with all the stakeholders, following which a perspective plan for training should be prepared to materialize these concepts.

f. Since TBDE is a new programme for the teachers, they should be routinely mentored on online pedagogy by not just the CRCCs but also by the DIET staff through online class observations and in the BRG/DRG meeting platforms.

Recommended long-term pathway for a tech-enabled education system in the state:

a. A comprehensive, state-level operational framework designed for establishing a tech-enabled education system in the state should be put into place by initiating consultations with the MSCERT, education functionaries at district and sub-district levels, teacher community and civil society organizations which have lent their support and expertise in the current round of implementation of TBDE programme in the state. Public-private partnerships on various fronts- digital infrastructure, ICT upskilling of students and faculty, content development, project management and other areas of technical support must be increasingly sought to facilitate the execution of this framework. As Maharashtra is one of the top states with an excellent IT ecosystem, the government should focus on initiating multiple CSR projects with the IT companies to operationalize the different elements of the framework. These projects could range from the upgradation of digital infrastructure in the government schools and education offices, introduction of learning management systems for the continual professional development of teachers to embedding big data analytics for seamless monitoring and reporting.

b. As education is a fundamental right, public provision of technology resources is deemed necessary, which includes guaranteed access to a dedicated device per child with strong internet access for uninterrupted streaming of educational content. This would require convergence of various government departments working towards a common vision for such an education system. This would also help to reduce the gaps between rural vs urban students and private vs public school students as far as experience and exposure to tech-enabled education is concerned, irrespective of the socio-economic background of the children.

c. A Blended learning approach is believed to be the way forward globally. Considering the digital divide, proactive steps must be taken when planning blended-learning once the schools re-open, so as to ensure effective implementation. There could be a tendency to fall back on the old normal with traditional ways of teaching-learning; and hence specific measures should be adopted by the education authorities to ensure that the advantages of technology in areas like assessments, supplementing textbook content, home assignments, engaging TLMs will be brought into regular use by the teachers.

d. On the lines of professional development courses available for teachers in English through platforms like Coursera, short, online modular training programmes in Marathi/Urdu/Hindi/English can be developed and offered free to the teachers on different aspects of use of technology for school education. The modules can be made available

through a learning management system (LMS) so that these can be accessed by teachers at their convenience through a computer, tab or mobile phone. Through the LMS, the number of participating teachers, the modules chosen, and the progress they have made can be tracked automatically. As incentives, certificates can be offered for successful completion of a certain number of modules.

e. The role played by the institutional frameworks like DIETs at the district level and the CRC at the cluster level will need to be revisited wherein the advantages of tech platforms can serve as a great lever for maximizing operational efficiency and effectiveness, thereby allowing the focus to shift to the areas which can yield greater returns with a low investment. Eg: ICT upskilling of staff, upgradation of digital infrastructure in the offices, enhanced teacher support and mentoring should be the priority areas going forward.

f. A state-level plan for ensuring the inclusion of all categories of CWSN should be drawn followed by the capacity building of all the teachers in this regard.

g. To be better equipped with a disaster response plan in the future, and envisioning future trends of teaching learning, the government can take this opportunity to prepare a perspective plan to make available minimum infrastructure in all the educational government institutes and all the primary schools under all managements across the state for necessary asynchronous / synchronous tech-based teaching learning. The plan should be inclusive of maintenance policy and mechanism.

The insights obtained through this study are relevant and will prove to be beneficial even for other states (like Maharashtra) that are striving to leverage the benefits of technology for making education more equitable and engaging, despite the plethora of challenges that currently exist in this journey towards a technology-enabled education system.

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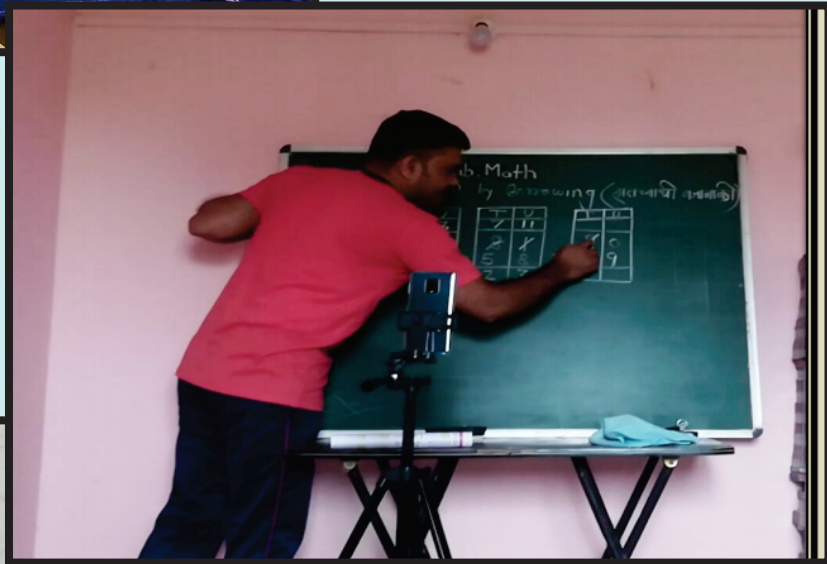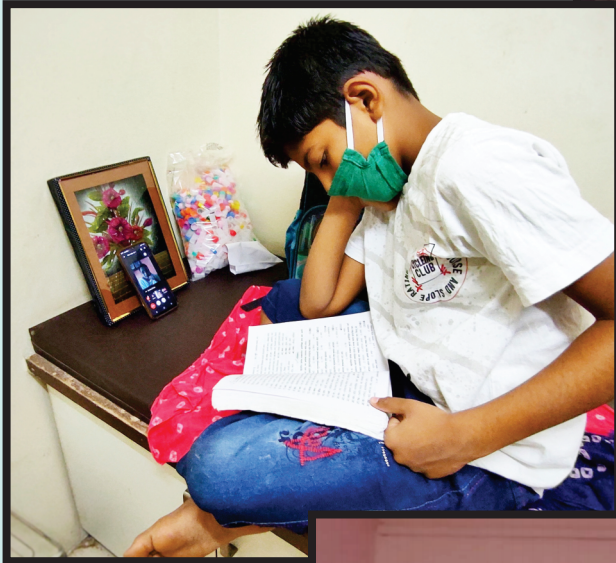| Sr.No	Name of Field Investigator	Sr.No	Name of Field Investigator
1	Swapnil Karwa	26	Shivshankar Gharde
2	Sachin Walunjkar	27	Nilesh Shirbhavu
3	Balasaheb Thombare	28	Rahul Gurad
4	Vijay Dhanve	29	Rajesh Chunya Javarkar
5	Nanasaheb Khole	30	Santosh Chandar Tote
6	Mayur Karjatkar	31	Vinod Choure
7	Laxman Brahman	32	Bhavar Yuvraj Dadasaheb
8	Pramod Dattatray Natkar	33	Sayambar Amol Jijaba
9	Umakant Dattaji Tandil	34	Deepak Garje
10	Sunil Dhamdhere	35	Shakharam Wagumbare
11	Jayaram Shinde	36	Amol Handge
12	Ravindra Pawar	37	Vitthal kundalkar
13	Babasaheb Gite	38	Shivaji Tak
14	Ambadas Mohurkar	39	Asif Shekh
15	Sunanda Khedkar	40	Adinath Pawar
16	Nagesh Bodake/	41	Ravindra Patil
17	Shailesh Pandit	42	Ravi Rathod
18	Vijay Lawande	43	Aniket Kadam
19	Mahesh Jadhav	44	Sunil Choudhari
20	Popale Anita	45	Prafful Dabhane
21	Sunil Shivaji Bhakare	46	Mangal Shekade
22	Lakhan Kumavat	47	Rakshita Dakwe
23	Pavanraj Patil	48	Varsha Gajbhiye
24	Abdul karim Jamadar	49	Rohan Patil
25	Vipul Phadtare	50	Sanket Brid

COVERAGE TABLE- STATE, REGION, DISTRICT AND BLOCK WISE ACHIEVED SAMPLE PER STAKEHOLDER

Region	District	Taluka	Student TBDE (Dharni Excluded)	Student Non TBDE (Dharni Included)	Parent TBDE (Dharni Excluded)	Parent Non TBDE (Dharni Included)	Observation Sync (Dharni Excluded)	Observation A Sync (Dharni Excluded)	Teacher TBDE (Dharni Included)	CRCC/ PVT Management (Dharni Included)	BEO	DIET
Amravati	Amravati	Dharni*	0	121	0	121	0	0	14	6	1	
		Total	0	121	0	121	0	0	14	6	1	1
	Washim	Malegaon	35	0	36	0	5	9	10	2	1	
		Manora	27	4	27	4	11	5	10	1	1	
		Total	62	4	63	4	16	14	20	3	2	1
	Yavatmal	Ner	26	3	26	3	6	8	10	1	1	
		Yavatmal	36	2	36	2	2	14	10	2	1	
		Total	62	5	62	5	8	22	20	3	2	1
Total			**124**	**130**	**125**	**130**	**24**	**36**	**54**	**12**	**5**	**3**
Aurangabad	Beed	Ashti	218	9	217	8	21	85	78	11	1	
		Kaij	62	0	62		8	22	20	2	1	
		Patoda	94	1	93	1	23	25	30	4	1	
		Shirur	95	2	95	2	9	37	30	5	1	
		Total	469	12	467	11	61	169	158	22	4	1
	Parbhani	Parbhani	55	2	56	3	7	21	16	1	1	
		Purna	8	1	8	1	2	0	5	2	1	
		Total	63	3	64	4	9	21	21	3	2	1
Total			**532**	**15**	**531**	**15**	**70**	**190**	**179**	**25**	**6**	**2**
Konkan	Mumbai (bmc)	Bhandup	30	2	31	2	13	2	10	3	1	
		Total	30	2	31	2	13	2	10	3	1	1
	Ratnagiri	Chiplun	31	0	31	0	0	15	10	3	1	
		Total	31	0	31	0	0	15	10	3	1	0
	Sindhudurg	Kudal	33	0	36	0	2	13	10	3	1	
		Total	33	0	36	0	2	13	10	3	1	1
Total			**94**	**2**	**98**	**2**	**15**	**30**	**30**	**9**	**3**	**2**
Nagpur	Gondia	Amgaon	32	2	32	2	2	13	10	3	1	
		Total	32	2	32	2	2	13	10	3	1	1
	Nagpur	Katol	44	2	46	2		21	14	2	1	
		Umred*	20	0	20	0	0	9	6	1	1	
		Total	64	2	66	2		30	20	3	2	1
Total			**96**	**4**	**98**	**4**	**2**	**43**	**30**	**6**	**3**	**2**
Nashik	Ahmadnagar	Jamkhed	64	4	63	5	8	23	20	3		
		Pathardi	63	3	64	2	2	28	20	3	1	
		Total	127	7	127	7	10	51	40	6	1	1
	Jalgaon	Chalisgaon	31	0	31	0	9	6	10	3	1	
		Jalgaon	61	2	62	2	1	29	20	3	1	
		Total	92	2	93	2	10	35	30	6	2	1
Total			**219**	**9**	**220**	**9**	**20**	**86**	**70**	**12**	**3**	**2**
Pune	Kolhapur	Hatkangale	23	4	25	4	3	8	10	2	1	0
		Karveer	39	0	37	0	4	17	10	2	1	0
		Total	62	4	62	4	7	25	20	4	2	1
	Pune	Bhor	38	0	35	0	4	11	10	2	1	
		Mulashi	24	0	27	0	9	7	10	1	1	
		Total	62	0	62	0	13	18	20	3	2	1
	Satara	Phaltan	34	2	33	3	5	9	8	2	1	
		Wai	31	0	31	0	9	7	12	1	1	
		Total	65	2	64	3	14	16	20	3	2	1
Total			**189**	**6**	**188**	**7**	**34**	**59**	**60**	**10**	**6**	**3**
Grand Total (State level)											26	14

* Indicates tribal block		
Tool	**Target**	**Achieved**
CWSN Interviews	19	19
Inspiring stories	10	10 (5 Inspiring stories shortlisted)

TABLE 7.8.1 - STAKEHOLDER-WISE COVERAGE TABLE