

Mid-Year Report 2018-19

PCMC Shikshaantar 2.0

Teacher Professional Development Vertical

November 2019 | Pune

Tech
Mahindra
FOUNDATION



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List of abbreviations

Acronym	Expansion
PCMC	Pimpri Chinchwad Municipal Corporation
TMF	Tech Mahindra Foundation
LFE	Leadership For Equity
TLM	Teaching Learning Material
MoU	Memorandum of Understanding
TPD	Teacher Professional Development
HM	Head Master
CSR	Corporate Social Responsibility
PMC	Pune Municipal Corporation
DIECPD	District Institute of Education and Continuous Professional Development

Executive Summary

Shikshaantar 2.0: *Ganit Mitra* is a new project started by Tech Mahindra Foundation and Leadership for Equity with the Pimpri Chinchwad Municipal Corporation. This report covers the details of project initiation, the project concept, overall scope and key activities in the first half of this academic year. Being the very first four months of the project the focus was on understanding the system, planning and initiating the project. Thus the LFE team spent a lot of time in the initial months with the PCMC officers and visiting different schools in order to build a deeper understanding of the PCMC education system. A formal launch of the project was done on 19th August 2019 after which teachers enrolled in the project. The LFE team was then able to conduct both teacher and student baseline assessments. The first round of teacher training and in-classroom support was also provided by the LFE team before the schools were closed for Diwali vacation. Overall, it has been a strong start to the project and the first four months has been very productive. Building upon this strong foundation the LFE team is ready to make the next half of the academic year even more successful.

Introduction

Background

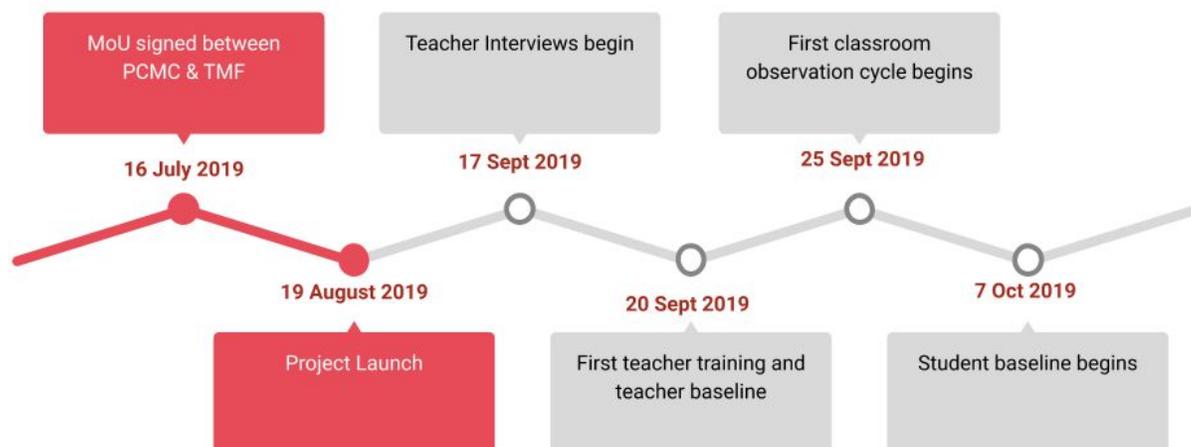
Pimpri Chinchwad Municipal Corporation has 87 Marathi medium schools across the geography. Currently, the schools are struggling with low student learning outcomes in both Marathi and Maths. The problem is more critical in Maths as per the recent data from *Adhyan Sthar Nishpati*. In order to address this issue Pimpri Chinchwad Municipal Corporation, Tech Mahindra Foundation and Leadership For Equity has together conceptualised Shikshaantar 2.0 project.

Shikshaantar 2.0 project aims to provide a sustained solution for in-service support to teachers by creating an exclusive cadre of teacher mentors. In the long term, the project will be working on creating and institutionalising the teacher mentors with the help of PCMC officers to ensure efficient and continuous support to all the teachers in PCMC.

In this academic year, the focus will be to understand the system and build strong relationships with all the stakeholders of the system. The aim is also to work with interested teachers on building their content and pedagogy of Maths. At the end of the year, teachers with required skills and mindset will be selected as teacher mentors.

Past Six months

Timeline



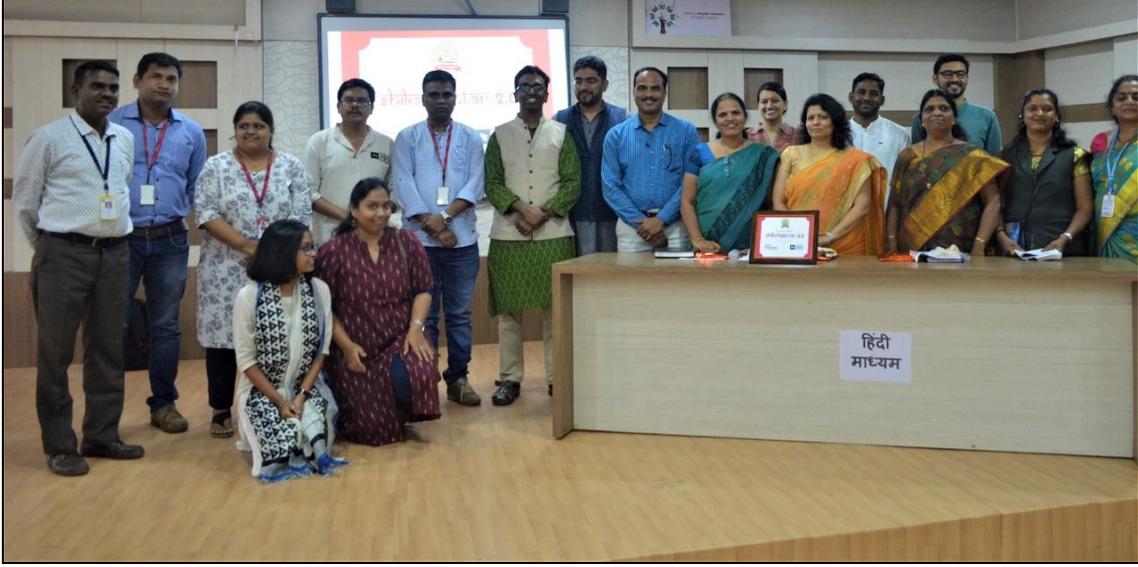
Highlights

Project planning and launch

A formal Memorandum of Understanding was finalised and signed between PCMC, TMF and LFE in mid-July 2019. Post that, the LFE team has been working closely with the PCMC officers to plan the project scope and progression. After the initial visits to PCMC schools and conversations a few teachers, an HM orientation was planned where the project will be launched and the project will be open for all the teachers for enrollment.

The project launch and HM orientation happened on 19th August 2019. A total of 92 HMs were present in the event. The project was launched in the presence of Dr Kamaladevi Awate, Principal, DIECPD Pune; Manisha Pawar, Chairperson, PCMC Education Committee; Jyotsna Shinde, Education Officer, PCMC; Rajesh Bankar, Senior Lecturer, DIECPD Pune; Aneeta Joshi, Supervisor, PCMC; Vijay Wavre, CSR Cell, PCMC; Manoj Sakte, Regional Head, Tech Mahindra Foundation and Priya Kulkarni, Assistant Manager, Tech Mahindra Foundation and Sandeep Pandit, Tech Mahindra Foundation. The LFE team explained the project concept and scope and encouraged the schools to enrol. The PCMC officers also spoke about the

possible impact of the project and encouraged the schools to join the project with an open mind to learn and implement the best for their students.



Shikshaantar project launch and HM orientation event



मनपा शिक्षक होणार 'गणितमित्र'

<p>पिंपरी : प्रतिनिधी मनपा प्राथमिक शाळेतील शिक्षकांसाठी शिक्षण विभागातर्फे 'गणितमित्र' ही संकल्पना राबवण्यात येत आहे. या उपक्रमाचे उद्घाटन शिक्षण समितीच्या सभापती मनीषा पवार यांच्या हस्ते झाले. या प्रसंगी जिल्हा शैक्षणिक सातत्यपूर्ण व्यावसायिक मार्गदर्शन संस्थेच्या प्राचार्य कमला आवटे, पुणे जिल्हा वरिष्ठ अधिव्याख्याता राजेश बनकर, सल्लागार विजय वावारे, प्रशासकीय अधिकारी ज्योस्तना शिंदे, माध्यमिक शिक्षणाधिकारी पराग मुंडे, मुख्य</p>	<p>तंत्रज्ञान अधिकारी नीलकंठ पोमण आदी उपस्थित होते. मनपा शाळेतील प्राथमिक शाळेतील विद्यार्थ्यांच्या गणित संबोध संकल्पना स्पष्ट व्हाव्यात, गणिती क्रियामध्ये विद्यार्थ्यांची प्रगती लक्षणीय असावी आणि त्याद्वारे गुणवत्ता दर्जेदार असावी यासाठी हा उपक्रम घेण्यात येत आहे. गणित विषय तसा विद्यार्थ्यांसाठी कठीणच जातो; परंतु शिक्षकांनाही विद्यार्थ्यांपर्यंत तो पोचवण्यामध्ये अनेक अडचणी येतील. तरी या अडचणीवर मात करण्यासाठी गणित मित्र या</p>	<p>उपक्रमाची सुरुवात होत आहे. या उपक्रमाची वैशिष्ट्ये म्हणजे शिक्षकांमधूनच प्रशिक्षण पूर्ण केलेले शिक्षक गणितमित्र म्हणून त्यांच्याच स्वतःच्या शाळेतील इतर शिक्षकांना मार्गदर्शन करतील. त्यामुळे कालांतराने बाहेरील संस्थांवर अवलंबून राहावे लागणार नाही. सध्या या उपक्रमामध्ये नोंदणीसाठी लिंक देण्यात आली असून पिंपरी चिंचवड मनपा संचालित शाळेतील प्राथमिक शाळेतील (इयत्ता पहिली ते पाचवीचे) शिक्षक नावनोंदणी करू शकतात.</p>
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The project launch news published in Pudhari newspaper

The project launch was followed by an informal dinner conversation with Shri Nand Kumar, IAS, Principal Secretary Government of Maharashtra. The officers in the Education Department of PMC, PCMC & Pune District DIECPD were present for this event. Nandkumar Sir facilitated the discussion around officer and teacher best practices across Maharashtra. Mr Santosh Patil, Additional Municipal Commissioner of PCMC also present at the event.



Gimps from the informal dinner conversation with Nandkumar Sir

Teacher enrollment

The LFE team visited PCMC schools to gauge the needs and issues faced by teachers inside the classroom with respect to Maths. Thereafter, instead of selecting schools or teachers we opened up participation for everyone. The application link was sent to all HMs to be then passed on to the teachers. The LFE team and PCMC supervisors spoke to teachers across PCMC schools and encouraged them to apply. The team also made sure the supervisors and officers are well aware of the benefits of the training and the long term issues it strives to solve.

The google form received a great response with close to 90 applications. To ensure quality content and in-classroom support the scope of the intervention was limited to only Grades 1-4. The team had to let go of Grade 5 applications. To ensure not all teachers from the same school become a part of the program, the team had to shortlist teachers on the basis of first-come-first-serve. The program currently has 63 teachers of Grades 1-4 across 42 schools [10 Semi-English + 32 Marathi] undertaking the training.

Grade 1 & 2 Teachers	35 [10 Semi-English + 25 Marathi]
Grade 3 & 4 Teachers	28 [6 Semi-English + 22 Marathi]

Teacher and student baseline

To understand the teachers more, their current teaching-learning practices, content knowledge and student learning levels the LFE team conducted various baseline assessments.



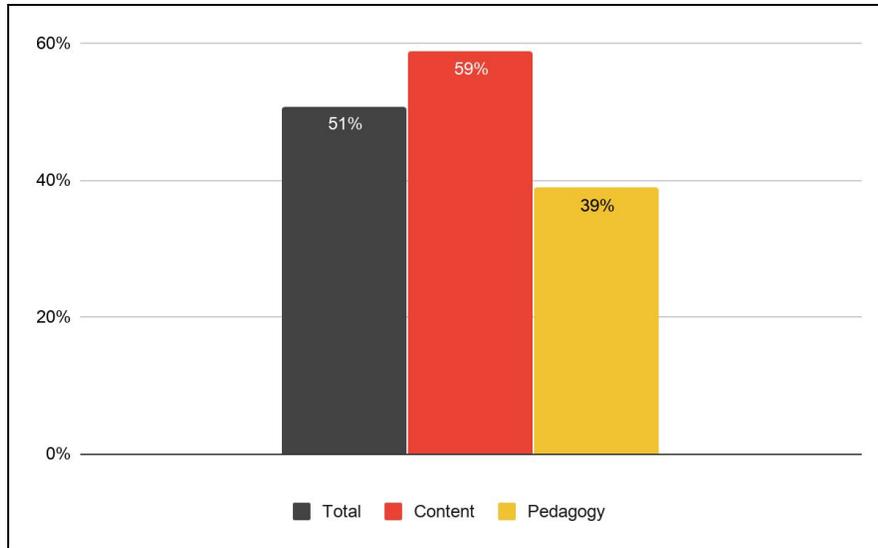
Teacher baseline being conducted in first teacher training

Foundational concepts seem to contribute the most to student underperformance as per teacher interviews

The LFE team planned teacher interviews with a sample of 23 teachers across all grades. The objective of these interviews was to understand the mindset of teachers around math teaching-learning and their willingness to learn. Most teachers said that they struggle a bit with math pedagogy and were open about sharing different challenges that students face in maths. One of the common concerns raised by most of the teachers was the gaps in understanding of fundamental concepts of maths has been a major reason why students are not able to score well or are scared of maths subject.

Teachers fared poorly in pedagogy than content in the teacher baseline

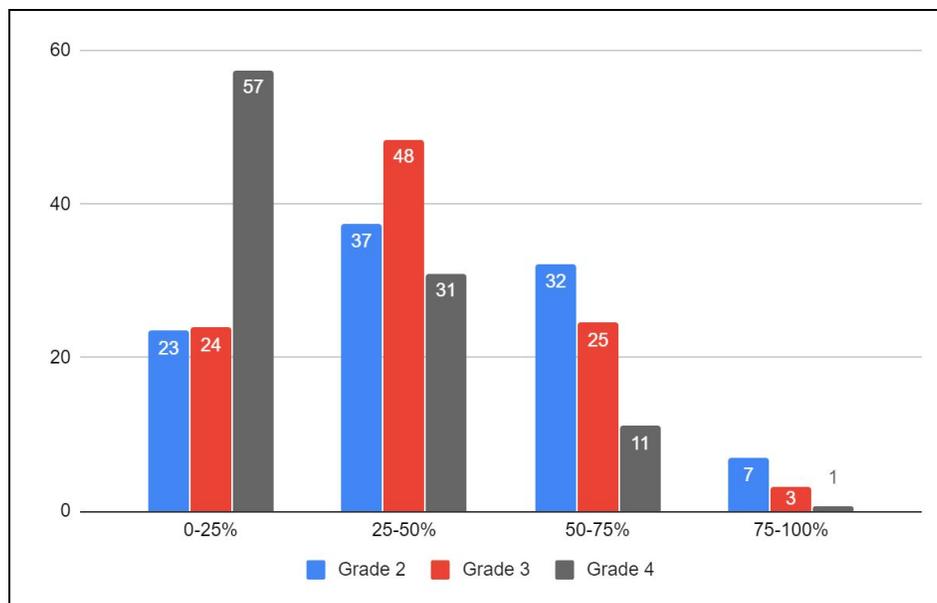
The focus area of teacher baseline was to get to know their current content and pedagogy knowledge of the teachers. It was focused on grade 1 to 4 competencies. This baseline was conducted on the first day of training. The graph below shows the findings from the baseline. Overall the teachers have scored 59% in the content knowledge and 39% in pedagogy knowledge. Based on the analysis the team aims to focus more on pedagogy in the training and also during the classroom observation.



Percentage of marks scored by teachers in the baseline

Student baseline shows more number of students scoring less than 50% marks for all grades

The LFE team planned to conduct a student baseline for grade 2 to 4 to understand the current learning levels of the students. The baseline test was a paper-based assessment of the basic competencies of maths. The LFE team randomly selected 15 classrooms, 5 each from grade 2, 3 and 4 for the baseline. The assessment paper covered all the competencies of maths of the previous grade of the student. The assessment was designed and conducted by LFE team completely. The graph below shows the percentage score of students by grades. Overall the number of students below 50% is much higher than the ones scoring more than 50%. This is much higher in grade 4 as we can see a decline in the number of students scoring more marks.



Grade wise classification of student scores

Key Inputs

First teacher training

One of the most important inputs by the LFE team is going to be teacher training. The LFE team plans to conduct a monthly one to two days of teacher training for all teachers. Keeping in mind the overall maths competencies for Grades 1-4 the LFE team planned a progression of the teacher training. The annual progression plan also has components of demo lessons, showcasing best practices, use of TLMs and few activity-based session to encourage the practice of reflection and continuous learning.

The first teacher training took place on 19th August 2019 which saw teachers from all the participating schools actively engaging with the sessions. The basics of Maths pedagogy and theories were discussed in the first training. The first session was on getting to know each other and the larger cohort. Teachers got to interact in a larger group and successfully opened up to the spirit of teamwork. Atul Gaikwad held a very engaging space for the teachers to understand the fundamental concepts of Maths. The group analysed and dissected the nuances of classroom pedagogies. The second part of the training involved teachers taking the Baseline Assessment.

The teachers gave a very positive feedback to the training. Overall, **100%** of the teachers gave highest rating on time management. **81%** of the teachers gave highest rating to the training being engaging.



Day 2 of teacher training #1

First round of in-classroom support

In-classroom support is the second most important input by the LFE team to all the teachers. As we saw in the teacher baseline and interviews, teachers mostly need support in pedagogy. The best way to

provide pedagogical support is by observing the classrooms, giving demos and having the debrief of the same. The LFE team plans to conduct classroom observation and debrief with all the teachers at least twice a month. The focus of these classroom visits will be to ensure effective implementation of training content and provide individual coaching and mentoring to all the teachers.

Soon after the training, the LFE team became active on the ground and completed the first cycle of classroom observation with the participating teachers. The focus of the first classroom observation was to understand teaching practices and usage of Teaching Learning Material (TLM). Post observation the team would engage on a one-on-one debrief with the teacher discussing the strengths and areas of developments of that particular class.

Focus Area: Understanding Teaching Practices & Usage of TLM		
Month	SEPTEMBER	OCTOBER
No. of classroom visits	15	22

People

- **Pratibha Walke, Teacher at Pimple Nilakh School no 52**

“गणित मित्र हा कार्यक्रम खरोखरीच अतिशय उपयुक्त असा आहे. गणितातील संबोध, संकल्पना अगदी मुळापासून कशा तयार झाल्या याचा इतिहास एवढ्या खोलात या ठिकाणीच समजला. कृतीशील विविध साधने, साहित्या वापरून गणिती क्रिया सुलभतेने कशा कराव्यात हे या कार्यक्रमाने छान समजले. बेसीक संबोध कसे पक्के करावेत, हे उत्तम रितीने Activity-Based पद्धतीने समजले. मनात खूप प्रश्न होते. बेरजेची उकल झाली. यात आणखी खूप शिकावे हीच अपेक्षा वाटत आहे. Facilitator कडून मिळणारे प्रशिक्षण अत्यंत उपयुक्त, मनोरंजक, कृतीशील, व्यवहारज्ञानासोबत सांगड घालणारे असते.

संपूर्ण टीमचे खूप धन्यवाद.”

Translation: *The Ganit Mitra project is an extremely useful project. Here I got to know about the history and an in-depth understanding of the basics of maths concepts. I understood how to facilitate an activity-based maths session using various teaching aids. I also got to know how to clarify the basic concepts using activities. I had many questions. Different nitty-gritty within the concept of addition also came out. I expect to learn more and more. The facilitator makes the training very applicable, joyful, activity-based and connected to everyday life.*

Thank you to the entire team.



Prathiba ma'am teaching addition using currency notes and coins

- **Anita Joshi ma'am, Supervisor PCMC education department**

“गणितमित्र या कार्यक्रमातील प्रशिक्षणाच्या माध्यमातून मूलभूत संकल्पना विद्यार्थ्यांना चांगल्याप्रकारे समजावून सांगता येतील. शिक्षकांना या प्रशिक्षणातून गणिताची आवड निर्माण होईल. प्रशिक्षणाच्या माध्यमातून शिक्षकांचा 'दशमान' पद्धतीचा संबोध अधिक पक्का झाला. एकूणच शिक्षकांचा गणित संबोध पक्का होण्यासाठी हे प्रशिक्षण खूप महत्वाचे आहे.

LFE Team मधील सर्वच सदस्य खूप चांगले काम करत आहेत. विशेष म्हणजे पूर्ण Team शाळांमधून जाऊन शिक्षकांना जी मदत करत आहे, हे खूप उपयुक्त आहे. तसेच प्रशिक्षणामध्ये प्रशिक्षकाची देहबोली अधिक Positive असल्याने शिक्षकांना त्याचा खूप फायदा होतो. तसेच त्यांची प्रशिक्षणामधील मांडणी नेमकी आहे.”

Translation: The training provided under the Ganit Mitra program will definitely be helpful in clarifying the basic concepts of students. The training will ensure an increase in teachers' interest in maths subject. The training helped the teachers to strengthen their understanding of the decimal system in maths. Overall, the training is extremely useful to strengthen the basic concepts of maths for all teachers.

All the members of LFE team have been working very well. Specifically, visiting schools and providing in-classroom support has been very useful. Also, the body language of facilitator in the training is extremely positive and appreciated. And the presentation in the training is also very precise.



Supervisor Joshi ma'am actively participating in group work at the teacher training

Partnerships

Name & Logo	Nature of Partnership	Partner Since	Work Done
Atul Gaikwad	- Content & Training partner - Mathematics	2019	<ul style="list-style-type: none">• Teacher training - Maths - 2 days• Teacher content and pedagogy baseline creation• Support in student baseline creation

Looking Ahead

The project has started on a positive note of high officer and teacher engagement and plans to continue the same momentum. The second half of the academic year is going to be extremely critical as a lot of inputs will be given to the teachers by the LFE team. While teacher training and classroom support are going to be the most important activities, the team will also organise an exposure visit and best practice showcase events in the coming months. Towards the end of the year, a selection conference for teacher mentor selection will be planned and implemented along with PCMC. Given below are the details of the activities in the second half of this academic year.

Teacher training and exposure visit

Focus Area	Planned Activity
Grade wise math content knowledge inputs	7 days of teacher training for each teacher
Content-specific pedagogy inputs	Demo lessons and best practices sharing within the planned 7 days of teacher training
Building a mindset of reflection and continuous learning	1-hour session in each of the 7 days of teacher training
Observe and learn classroom best practices	-Plan and execute 2 days of exposure visit to high performing schools/classrooms in Jan 2020 -Execute reflection sessions to capture best practices that can be implemented

In-classroom support

Focus Area	Planned Activity
Support in the implementation of training inputs	Classroom observation and debrief of all the teachers minimum once between two trainings
Support in effective classroom instructions and building a positive classroom culture	-Classroom observation and debrief of all the teachers minimum once between two trainings -Need-based demo lessons by LFE team

Student & Teacher Showcase

Focus Area	Planned Activity
Create a platform for teachers to showcase their best practices and encourage peer-learning	<ul style="list-style-type: none"> -Co-work with PCMC to plan a teacher best practice sharing event -Get the required permissions -Support the officers & teachers in planning for the showcase
Create a platform for students to showcase their learning	<ul style="list-style-type: none"> -Co-work with PCMC to plan the student showcase -Get the required permissions -Support the teachers in planning for the showcase

Selection of teacher mentors

Focus Area	Planned Activity
Design & implement the selection process	<ul style="list-style-type: none"> -Design & finalise the selection rubric -Design the selection conference -Get required permission for the selection conference -Implementation of a selection conference

APPENDIX

1. [Teacher content and pedagogy assessment paper](#)
2. Student baseline papers: [Grade 2](#), [Grade 3](#) and [Grade 4](#)
3. [Teacher Mindset Analysis Report](#)