

# Digital Equity and Agency

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## Abstract

Years of experiences in the field of e-education, a knowledge sharing model was designed cautiously with regard to cost effective and sustainability of the program. The intent of the program is to support the government in utilizing the resources appropriately. It aims to motivate the government teachers to understand the importance of digital education and the adoption of information technology as a mainstream medium of learning. More importantly, computer-aided learning gives the school students an appropriate exposure of information technologies at an early age.

**Keywords:** Bridging Digital Divide - Computer Aided Learning - Information Technology - Digital Education - Empowering Teachers

## Introduction

Pratham InfoTech Foundation (PIF) is a Non-Governmental Organization which was established in 2004. PIF has been working for inclusion of digital education and have been developing the in-house educational software's for its program. PIF is the pioneer to have taken a challenge to bring a change in the education system and contribute to the world in the realm of digital education. PIF had provided a bright vision to inspiring students and various organizations through its trademark program known as Computer Aided Learning (CAL). PIF's programs have driven and carved a wonderful track for the aspiring youngsters, entrepreneurs and various bodies to serve the underserved communities and students.

### PIF's Uniqueness

- Low cost solutions and replicated on scale
- Measurement and Evidence of Impact
- Scaling up in government partnership
- Innovating and Learning Organization

PIF'S vision is that all people- regardless of social background, income level, geographic isolation, skill gap and educational qualifications, reap the social and economic benefits that information technologies promise to all in the new world in which information and technology touch every aspect of our life.

The mission of PIF is to improve the quality of education in India and to ensure that all children are inspiring to thrive in school is being accomplished by working in collaboration with the government, local communities, parents, teachers, volunteers, and civil society members. PIF programs aim to supplement rather than replace governmental efforts. They are implemented on a large scale to not only reach as many children as possible, but also to create an adoptable demonstration model for state governments.

## PIF programs' key Objectives

- To Bridge the Digital Divide and facilitate children to experience and use IT
- To bring positive Impact on the students' Learning Levels through computer technology in math and language as well as in domain knowledge of science, environmental studies, etc.
- To Enhance the Teachers' Skill Sets and familiarity with IT
- To Aid the School Management with maximum use of IT – MIS systems etc

PIF also abide by one of the Sustainable Development Goals known as 'SDG4 - Quality Education' as it is significantly relevant to achieve the goals of the organization. The SDG4 ensures the completion of primary and secondary education by all, and guaranteeing equal access to opportunities for access to quality technical and vocational education for everyone. It enables self-reliance, boosts the economic growth by enhancing skills, and improves people's lives by opening up opportunities for better livelihoods. Providing qualified teachers and to provide teacher training for enhancement of their skills and knowledge are as well a target of SDG4.

## PIF's functional areas

Pratham InfoTech Foundation program functions in two areas, i.e. school and community. The School program is called Computer Aided Learning which includes Ed Tech Program, Digital Literacy

and Digital Sakshar. The Community based program is called India Digital Inclusion with a primarily focus on youth and equipping at risk youths with skills that the new global economy demands.

Computer Aided Learning (CAL) Program has designed as a pedagogy technique that uses information technologies within or side-by-side with a traditional classroom environment. The educational games and interactive training tutorials are some of the best components of computer aided learning program. A digitally literate person possesses skills, knowledge and abilities to function effectively in digital environments. Digital literacy also means having the ability to access, analyze, create and share information appropriately and responsibly. Therefore, PIF believes digital literacy as a life skill where secondary school students learn the skills and abilities on how to use IT tools in everyday life. Digital Literacy as Life Skill (DLLS) is a project-based curriculum on using software applications, Internet and communication tools in day-to-day activities. The learning aids which are used as supplementary materials, builds up more engaging, confidence, informative and personalized learning experiences, which simplifies in understanding of new or difficult concepts, and makes a childhood learning more enjoyable.

### **Developing Program Model**

In India, over the years, it has been observed that governmental resources for digital education need to be properly utilized at the school level in execution and monitoring of its digital program. One also needs to highlight what role can be taken by agencies and government body for boosting the digital education. The potential of information technologies needs to be harnessed to improve the effectiveness of teachers in the Indian public school system. But this goal can only be achieved if teachers in public schools possess technology expertise, interest in technology and the knowledge of modern teaching practices that use IT in teaching. The current scenario is not encouraging

Computers and funding that public school administrations get from govt. and private donors, most often, lie unused or wasted in inadequate activities. Teachers lack skills, interest and motivation for the adoption of IT in everyday school life.

In the year 2016, the Education Department of Mumbai had shared a list of 24 wards covering 926 schools to PIF. It has been found that out of 926 schools only 141 school building were having computer labs. Pratham InfoTech Foundation had surveyed 141 school buildings to find out the working condition of computers and if the school had independent computer lab. The survey report states that more than 35% computers were not in working condition and only 119 schools had a separate computer lab. Based on the report, 50 school buildings were finalized for initiating the Computer Aided Learning Program as a pilot phase 1 enrolling approximately 50,000 students.

The program was piloted at 50 Government School Buildings as MCGM Project supported by BPCL in 2017. It was especially designed to utilize the existing art & craft teachers which fall under the category of vocational training in the government schools and upgrade them with digital set of skills and knowledge with the adoption of Information Technology to provide quality education. The trained teachers imparted their knowledge to enhance the learning capabilities of the students. To run the program effectively a joint committee with stakeholders was formed

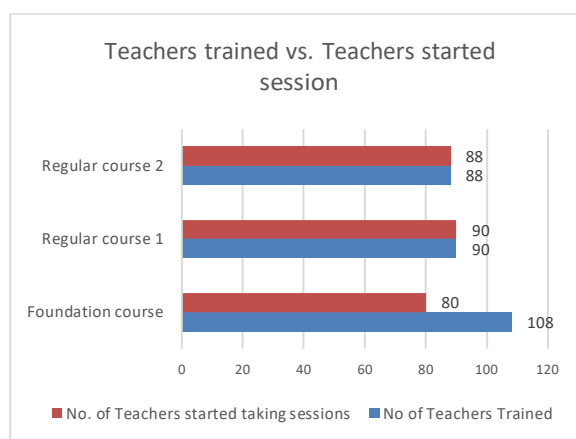
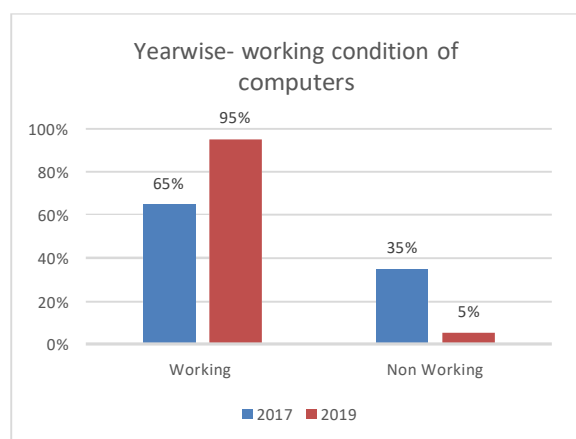
During the initial phase of implementation, it involved upgrading the computers, installing the educational software and video-based lessons. Shortlisting of the school teachers to run the program, scheduling of the program during school hours in consultation with Vocational Training Department Head. Finalization of Course Curriculum for Foundation and Regular Course for a period of 20 hours.

Foundation Course (FC) has been introduced for a period of three month. The foundation course covers foundational skills essential for Math's and languages, introduction of computer peripherals and fundamentals. Post foundation course, regular course was initiated that included subjects like Math's, language, EVS, application software, internet, graphics and animations, graphical programming etc. Based on the contents, phase wise trainings were given to school teachers and emphasizing on technical knowledge and skills.

## Assessment Impact

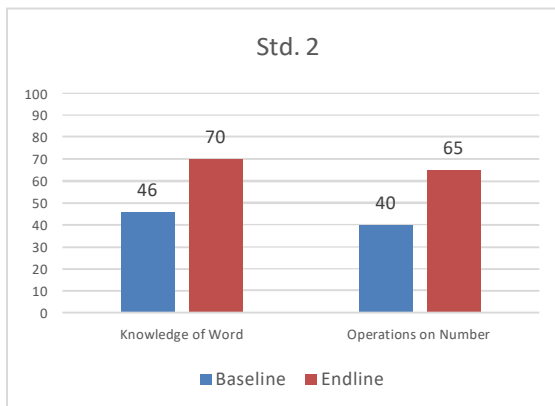
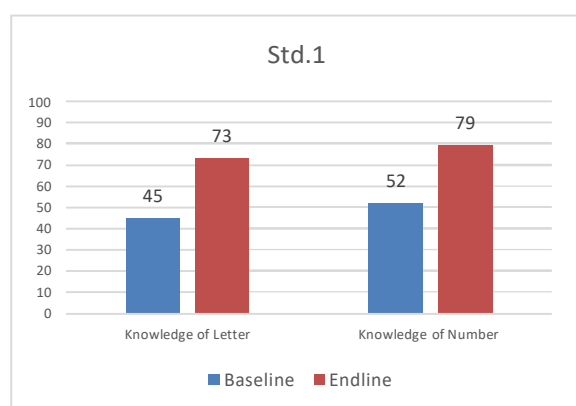
The beneficiaries of this project are students and school teachers. To understand more about the program periodical assessment of the project was conducted to determine the growth and development of the students. It enables to study about the project planning, monitoring and operations; its implementation and execution of the project whether it is on the right track as envisioned. It also determines the success or failure of the project based on the achievements of milestones, objectives and goals.

The prime objective of the program was to utilize the existing resources at the fullest, train the school teachers to adopt the methodology and impart training to the students. The below graphs provide the insights for achieving the desirable results.

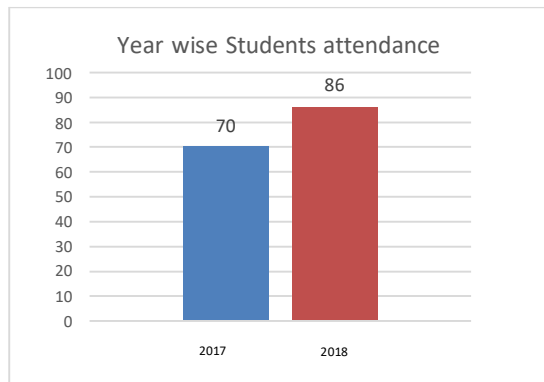


\*65% computers were in working condition but was being lied unused.

For this project, students were evaluated through baseline and endline - conducted during the academic year. Assessment is based on Written and Practical form. From the total enrolled students, 10% students are selected for the baseline through a systematic method of a randomized sampling. These selected students are test at the beginning and end of the academic year. In 2017, a total of 7337 students were tested for foundation-course. In 2018, base line and endline testing was conducted for 8445 students for regular course.



\*Sample assessment data for primary grade students indicating baseline and endline



\* The graph shows 16% jump in students attendance compared year wise

## Conclusion

According to various scholars and research, most of the international monitoring systems in education focus on the students' learning and performance of schools. In today's global demand of students' growth and development does not bring forth by national standard alone but by collaborations and adoption of multiple international education systems. According to SDG4 Quality education, in order to have a profound transformation of education system in the world, it is not possible without the performance of teachers with a solid training within the framework of human rights, which will allow them to understand the significance of their role in upbringing a positive growth and development in the students. It also comprise of using the right method of facilitating and guidance for students to learn.

Years of experiences in the field of e-education, PIF have learned that the poor working conditions of many teachers in India do not contribute to the expected learning achievements. Therefore, CAL Program was designed cautiously for low cost and its sustainability. The intent of the program is to support the government in utilizing the existing resources. It aims to motivate the government teachers to understand the importance of digital education and the adoption of information technology as a mainstream medium of learning.

The program has been executed smoothly and has achieved its goals due to the agreement and contribution of all the stakeholders. The ultimate goal of the program was not to train the teachers, but to make them independent in carrying out the program. PIF has supported and hand hold the projects with the teachers in guiding and supporting them for a period of 24 months. The result was evident with the fact that Municipal Corporation of Greater Mumbai approached PIF to trained the remaining art and craft teachers, so that they can replicate this project in the remaining government schools.

The impact of PIF's Project can be observed in the level of understanding digital education and empowering the teachers in teaching. The objective of the program has been seen in all parameters, but to make it more effective to all its beneficiaries, the project has to be adopted at a higher policy level. PIF is committed to monitor and contribute to the outcomes of education systems regularly within an internationally agreed framework and to provide a basis for collaboration in defining and implementing educational policies at the national and international level.