

Executive Summary

About the Project

The Pi Lab Project focuses on improving education outcomes among students from underprivileged communities by providing access to digital learning (technology) and hands-on learning in computer science and coding. Through regular sessions conducted in schools, the project helps students from Grades 5

Key Features of the Project

The key verticals of the Pi Lab Project include digital education (computer science and coding) and skill development through hands-on STEM-based approaches. The project emphasizes the use of open-source technology, structured ICT curriculum, and experiential learning through ICT labs. It also focuses on teacher training, student engagement through events/projects, and building a sustainable learning ecosystem that supports development of 21st-century skills among children and youth.

Expected Outcomes

- Enhanced digital literacy with coding skills among students
- Improved skills such as problem-solving, critical thinking, logical thinking, teamwork and creativity
- Increased students' familiarity with and confidence in using technology

to 10 develop essential skills such as problem-solving, logical thinking, and creativity. By combining classroom learning with practical exposure in ICT labs, the project aims to enhance students' learning outcomes and prepare them for academic excellence and career opportunities.

About Pi Jam Foundation

Pi Jam Foundation is a non-profit organization (Section 8 under the Indian Companies Act, 2013), established in September 2017, with the aim of improving access to quality computer science education in India. The foundation focuses on providing affordable open-source technology and building a strong learning ecosystem for both students and educators. It develops engaging, hands-on STEM-based curriculum that helps learners build essential skills such as programming, problem-solving, and design thinking, while also promoting innovation and knowledge sharing.

- Increased student engagement and interest in STEM education
- Improved academic performance and learning outcomes.
- Higher preparedness for future education and career opportunities.

Key Findings

- 100% of students reported participating in Pi Lab activities, with 48% enjoying problem-solving most and 47% reported enjoying coding most.
- 100% of respondents reported positive impacts on their capabilities. Improvement in their ability to create projects independently was rated highest (63%), followed by improved understanding of computer science concepts (51%)

- 100% of students reported that they developed multiple 21st century skills, with improvement in problem solving receiving highest response (70%) followed by creativity (50%) and improved teamwork (34%).
- 83% of students reported increased interest in coding,
- 75% of students found coding simple and interesting
- 81% of students agreed that their computer skills improved, based on ratings between 3–5.

- 77% of students experienced increased **confidence** in using technology for education purpose
- 60% of teachers and principals rated **outcomes at level 4**, indicating alignment with NEP 2020 learning outcomes, while the rest rated level 3.

Gaps Identified

- Grade 5 and 6 students have limited exposure to computer labs and Raspberry Pi kits, as sessions are mostly conducted in classrooms.
- High Student-Teacher Ratio (STR) and limited or absence of dedicated Pi Lab teacher or facilitators in some schools reduces effective learning time and attention for each student.
- Irregular students are not fully aware of Pi Lab activities due to lack of continuous engagement and so need of conducting awareness sessions quarterly.
- Limited on-ground monitoring leads to gaps in identifying real-time challenges faced by schools.
- Students with varying learning levels, especially average and low-performing students, receive fewer hands-on learning opportunities and face difficulty understanding complex concepts through existing methods.

Recommendations

- Conduct periodic Pi Lab sessions for Grade 5–6 students in computer labs to ensure practical exposure.
- Increase the number of facilitators or assign a dedicated Pi Lab teacher for better learning outcomes.
- Organize quarterly awareness and recap sessions to improve participation and engagement of all students.
- Implement regular monitoring through monthly or quarterly visits by Capgemini to address on-ground challenges.
- Design inclusive activities that provide equal hands-on learning opportunities for all students, especially slow learners.
- Introduce digital interactive boards or visual tools to simplify complex concepts and improve understanding.