Pratham Education Foundation | AI in TaRL

About the Organization

Pratham is one of India's largest non-governmental organisations working to improve the quality of education. Founded in 1995, Pratham reaches 8 million+ children annually. Pratham pioneered Teaching at the Right Level (TaRL), which has reached 60 million+ children across India and Africa.

Problem Statement (use case specific)

Children are in school but not learning well. In government schools, **only 23.4% of Std III children and 44.8% of Std V children can read a Std II-level text, and only 33.7% of Std III children can do 2-digit subtraction (ASER 2024).** The curriculum keeps moving even when children don't. Children who miss foundational skills by Grade 3 fall further behind every year

Teaching at the Right Level (TaRL) is Pratham's answer to this gap. Instead of teaching all children at grade level, it assesses each child, groups children by actual learning level, and uses level-appropriate activities in short, intensive camps until they catch up. It has reached 60M+ children across India and Africa. **But TaRL works only as well as the facilitator's judgment.** Grouping children correctly and choosing the right activity for each group, every day, takes real mastery of the method. As TaRL scales through government systems, it is delivered by teachers and community educators who often have limited or one-time TaRL training, so quality depends on each person's individual decisions. The gap shows in the outcomes: Pratham-led TaRL brings a ~40 pp gain at Story level, while TaRL delivered by government teachers brings ~20–25 pp.

PadhAI is an AI co-pilot for the TaRL facilitator. It works like having an expert Pratham mentor available in every classroom, every day. It helps facilitators decide how to group children, which activity to run next, and how to adjust when attendance or progress changes. This narrows the gap between expert-led and system-led TaRL: any facilitator, including a government teacher on their first camp, can make the calls an experienced Pratham facilitator would.

AI Solution Description

PadhAI is a decision-intelligence system for TaRL facilitators, built as a closed instructional loop in 4 stages:

- **Diagnostic assessment:** listens to a child read aloud and identifies their reading level and specific mistakes, in ~3–5 minutes instead of 7–10. Results add up to a class-level profile
- **Nudge engine:** maps each class to a digitised 30–40 day TaRL progression (foundational, mixed or advanced) and sends facilitators small daily nudges, timed to evening lesson planning
- **TaRL Saathi:** a Hindi voice assistant that answers questions on grouping, classroom management and activities. It draws on TaRL manuals and experienced facilitators' practice
- **Delivery:** the PadhAI Android app also tracks attendance, grouping and progress, and can be integrated into government tools.

Tools and techniques Used

- Offline on-device ASR (<100 MB) trained on ~2,000 hours of children's speech.
- XGBoost model on 25,000 children across 900+ batches to predict class progress.
- LLM-based Hindi assistant with a TaRL knowledge base; small language model for offline use in development.
- Nudge generation based on real-time data in-flow from teacher tool

Key Features of tech solution

- Works offline, with a child's voice processed on the device.
- Child-level mistake profiles rolled up into a classroom profile.
- Six digitised 30–40 day progressions (3 class types × language and maths) drive daily nudges. Voice-first Hindi guidance built on 120 principles from 300+ hours of facilitator debriefs. Human-in-the-loop: Facilitators can override suggestions

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Impact (Qualitative and Quantitative)

Piloted with 350 teachers and 5,000 students

PadhAI, the assessment

- 300,000+ assessments conducted to date
- Matches trained human assessors 92.8% of the time across 6,452 paired assessments

AI in TaRL engine, the decision layer (nudges and TaRL Saathi)

- Round 5, Chhattisgarh: 192 volunteer-led camps, 290 volunteers and 2,337 children; Story-level reading rose by 44pp
- 100 volunteers used TaRL Saathi, averaging 47 a week
- Story gains were larger with more use: 48pp with high nudge engagement, 45pp with low and 38pp with none; 47pp in villages using TaRL Saathi against 37pp without
- These results are observational; we are validating them through internal experiments and a J-PAL randomised study in 2027

Plan for roll-out and sustainability

Geography	Stage	Timeline	Scale
Bihar	Pilot	From Dec 2026	500 schools
Bihar	Statewide rollout	2026–27	Statewide
Rajasthan	Pilot	2026–27	TBC

Emerging Pathways

- **Languages**: expanding to Odia, Bangla and Telugu (Jan–Feb 2027)
- **Government integration**: APIs to plug PadhAI into existing state tools
- **Offline access**: a small language model so PadhAI works without internet

Cost of development and ongoing maintenance

Development cost: INR 15,00,000
Per-beneficiary cost: INR 0.75
Maintenance and scaling: INR 5,00,000

* *Please note that the costs outlined here are limited to the development and maintenance of the technology and do not include programme implementation costs. Implementation will be undertaken by integrating the technology into existing programme locations supported by other donors*

Where costs fall

Digital assessment cuts time per child by 40–60%, giving back ~2 learning days, and removes manual data entry
Less need for intensive in-person training and mentoring
Scattered manuals and activity guides consolidated into one always-available resource

Additional documents

- **Application presentation:** https://docs.google.com/presentation/d/1xvHNl9eVkmaVIyAzrbBSb4jFVwbINdKvwc4vsZ5GP6M/edit?usp=sharing
- **Solution Demo Videos:** https://drive.google.com/drive/folders/1U4gLIUShQd03-7n2CyWcDJCcDCLGltff
- **User Testimonials:** https://drive.google.com/file/d/1eZVUqNHXy7iWnf-x5op0TR-KrNKyzM6m/view?usp=sharing