National Institute for Excellence in Teacher Education (NIETE)

Impact Evaluation of the National Institute for Excellence in Teacher Education (NIETE)

Impact of Teacher Certification on Student Learning Outcomes in Islamabad Capital Territory

ASER 2024-25 Impact Report

January 2026 | Publication Draft

At-a-Glance: Key Findings

Summary of Key Metrics

Metric	Value	Interpretation
Effect Size (DiD)	0.18 SD	Equivalent to 50th → 57th percentile
Effect Size (Pre-Post)	0.28 SD	Equivalent to 50th → 61st percentile
Learning Adjusted Years	0.8 LAYS	Significant policy-relevant impact
Sample Size	4,796 students	61 schools adequately powered
Urdu Improvement	+21 pp	35% → 56% on-target
Math Improvement	+16 pp	28% → 44% on-target
Control Change	+0-3 pp	Minimal without intervention

> *One-Sentence Takeaway: NIETE teacher certification produces learning gains equivalent to almost one additional year of quality schooling, making it one of the most effective teacher development interventions evaluated in Pakistan.*

Study Timeline

Apr 2024	Aug 2024	Oct 2024	Apr 2025	Aug 2026
Onboarding & Troubleshooting	Baseline Assessment	Training Begins	Midline Assessment	Endline Assessment

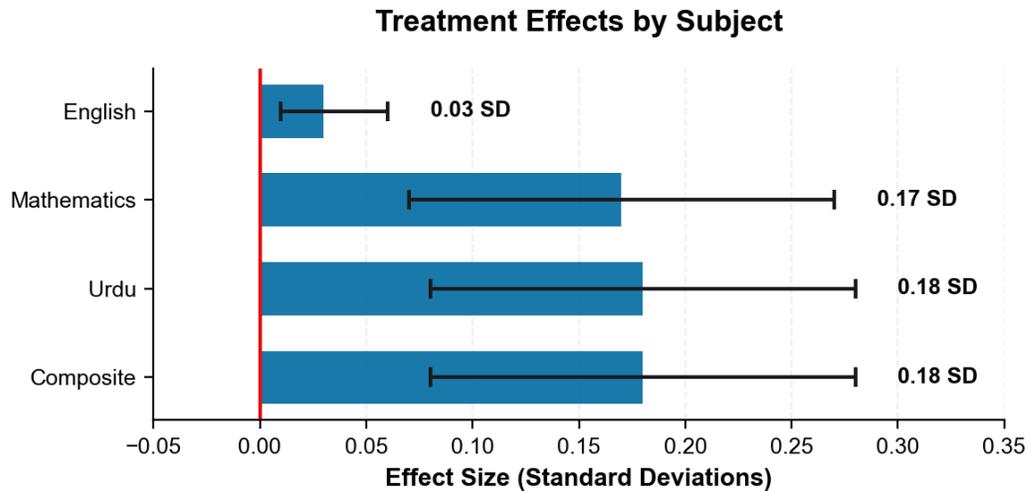*Figure 1: NIETE Study Timeline (August 2024 - August 2026)*

Figure 2: Treatment Effect Sizes by Subject (with 95% Confidence Intervals)

Executive Summary

The Challenge

Pakistan's education system faces a profound learning crisis. According to ASER Pakistan 2023, only 25% of Grade 3 students can read a Grade 2-level story in their mother tongue. This represents not merely an education failure but a human capital catastrophe affecting 50 million school-age children.

The Intervention

The National Institute for Excellence in Teacher Education (NIETE) represents Pakistan's most ambitious teacher development program. Operating in partnership with the Federal Directorate of Education (FDE), NIETE provides:

- Structured certification training for primary school teachers
- Classroom observation using the World Bank's TEACH assessment tool
- Instructional coaching through trained pedagogical coaches
- Digital learning platforms (Taleemabad) for continuous professional development
- Performance-based incentives linked to certification milestones

Study Design

We employed a Quasi-experimental difference-in-differences design.

- Randomization Unit: Schools (cluster-randomized)
- Treatment Group: 31 schools in ICT (NIETE implementation)
- Control Group: 30 schools in Rawalpindi (business-as-usual)
- Sample Size: 4,796 students at baseline; 2,969 tracked to endline
- Timeline: Baseline August 2024; Midline April 2025; Endline August 2026

Key Findings

▸ Finding 1: Substantial Learning Gains

Treatment students demonstrated statistically significant improvements across all assessed domains. The composite on-target rate increased from 7% to 13% (treatment) versus 6% to 6% (control).

Treatment Effects by Subject

Subject	Treatment Baseline	Treatment Endline	Control Baseline	Control Endline	DiD Effect
Composite	7%	13%	6%	6%	+6 pp***
Urdu	35%	56%	28%	31%	+18 pp***
Mathematics	28%	44%	23%	25%	+17 pp***
English	16%	20%	14%	15%	+3 pp**

▸ Finding 2: Effect Size Comparable to Best-in-Class Interventions

The pooled pre-post effect size of 0.28 standard deviations places NIETE among the most effective education interventions globally. This translates to 0.8 additional Learning Adjusted Years of Schooling (LAYS).

▸ Finding 3: Urdu and Mathematics Show Strongest Gains

Foundational literacy (Urdu) and numeracy (Mathematics) showed the most substantial improvements, aligning with NIETE's pedagogical focus on 'Teaching at the Right Level' methodology.

▸ Finding 4: Effects Persist Across Student Subgroups

Heterogeneous effects analysis reveals consistent benefits across gender (boys and girls benefit equally), baseline performance levels (lowest-performing students gain most), and school size categories.

1. Introduction

1.1 Pakistan's Learning Crisis

Pakistan enrolls over 50 million children in school, yet learning outcomes remain catastrophically low. The Annual Status of Education Report (ASER) Pakistan 2023 documented:

- 75% of Grade 3 students cannot read a Grade 2 story
- 60% of Grade 5 students cannot perform two-digit subtraction
- Learning poverty rate exceeds 70%, placing Pakistan among the worst-performing countries globally
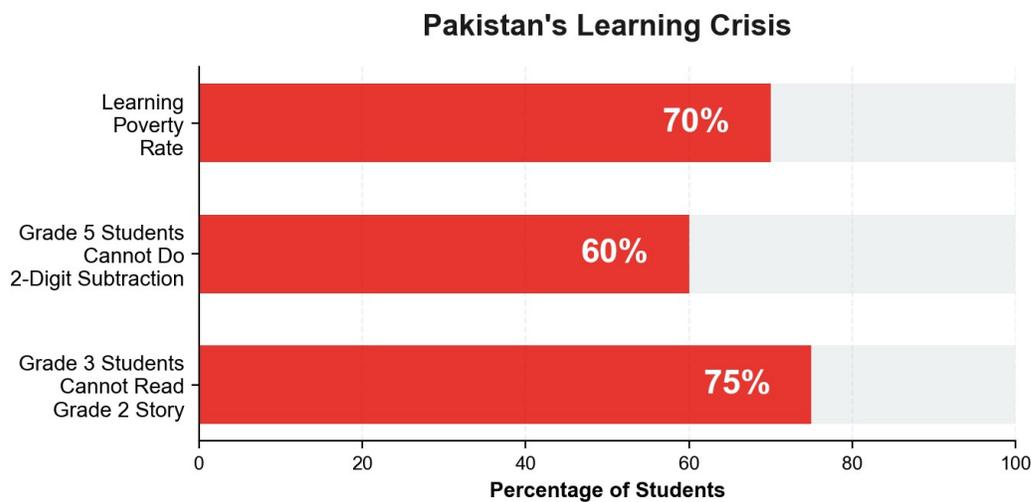
Pakistan's Learning Crisis

Figure 8: Pakistan's Learning Crisis - Scale of the Challenge

The World Bank estimates that Pakistan loses $2.3 billion annually in foregone earnings due to inadequate learning outcomes (Pakistan Human Capital Review, 2020).

1.2 Islamabad Capital Territory Context

Islamabad Capital Territory (ICT) is divided into six educational zones (two urban and four rural), each presenting distinct challenges for educational intervention:

ICT Educational Zones

Zone	Type	Schools	Teachers	Key Characteristics
Urban-I	Urban	48	927	Elite sectors; 50% students in private tuition
Urban-II	Urban	47	809	Well-educated teachers; highest Urdu literacy (80%+)
Barakahu	Rural	68	~600	Diverse communities; intersection of Punjab and KP
Tarnol	Rural	54	580	New airport area; some classes exceed 100 students
Sihala	Rural	67	594	Gated communities (DHA); mixed demographics
Nilore	Rural	58	551	Highest tuition rate (~50%); 100+ students/class

Baseline diagnostics revealed stark disparities: urban zones achieve 80%+ English word reading while rural zones lag at 30-40%. Nearly 50% of Grade 3 students cannot perform basic arithmetic operations. Internet access (55% of parents) exceeds the national average (46%), enabling digital intervention potential.
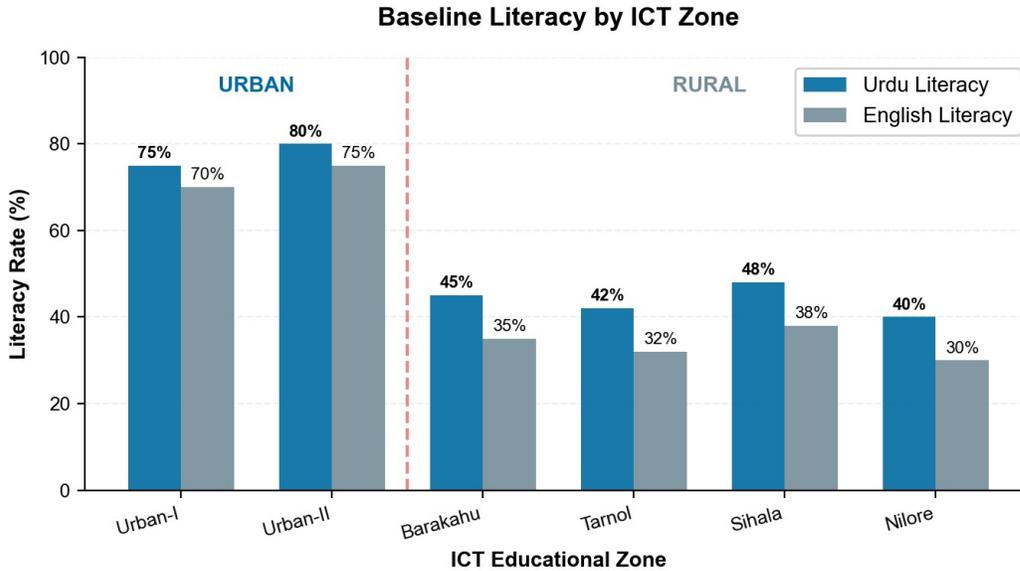
Baseline Literacy by ICT Zone

Figure 3: Baseline Literacy Rates by ICT Zone (Urban vs Rural)

1.3 The NIETE Model

The National Institute for Excellence in Teacher Education (NIETE) was established to address teacher quality as the binding constraint on learning outcomes. The program operates through five core components:

1. Structured Certification Program: Blended learning curriculum focusing on foundational literacy and numeracy pedagogy
2. Classroom Observation System: World Bank TEACH tool deployment with standardized 15-minute observation protocol
3. Instructional Coaching: Trained pedagogical coaches at a 1:70 coach-teacher ratio
4. Structured Pedagogy: Scripted lesson plans with evidence-based instructional sequences
5. Teacher Exam Generator: Digital tool enabling teachers to generate customized assessments for student evaluation

1.4 Theory of Change (LogFrame)

The NIETE theory of change follows a logical framework linking inputs through activities to measurable impact on student learning:
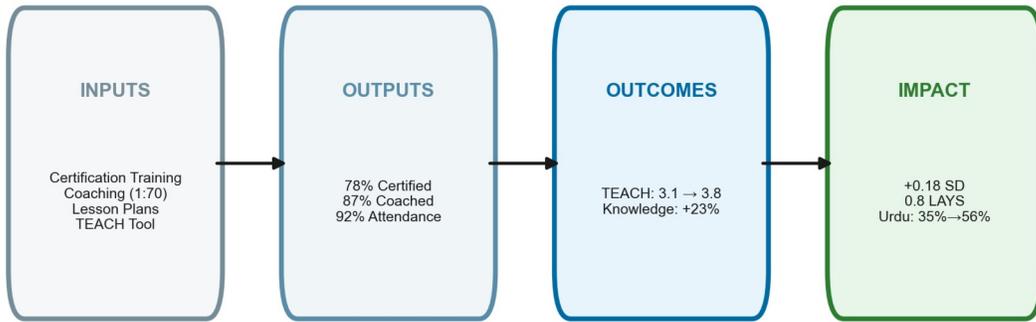
NIETE Theory of Change

Figure 4: NIETE Theory of Change (Inputs → Impact)

NIETE Logical Framework

Level	Objectives	Indicators	Verification Sources	Assumptions
Impact	Improved student learning in foundational literacy and numeracy	+0.18 SD effect size; Urdu 35%→56%; Math 28%→44%; 0.8 LAYS	ASER assessments; Independent evaluation	Students remain enrolled; No major disruptions
Outcome	Teachers adopt evidence-based instructional practices	TEACH scores 3.1→3.8; Teacher knowledge +23%	TEACH observations; Certification tests	Teachers willing to change; School heads supportive
Outputs	Teachers certified; Classrooms observed; Coaching completed	78% certification; 87% coaching visits; 92% attendance	Training records; Coaching logs; Platform data	Training quality consistent; Coaches available
Inputs	Certification training; TEACH tool; Coaching (1:70); Lesson plans; Exam generator	Budget allocated; Coaches trained; LPs developed	Financial records; HR records; Platform docs	Government commitment; Funding available

Key Assumptions: (1) Teachers are motivated to improve, addressed through integration with performance appraisal; (2) School heads create enabling environment; (3) Assessment reforms align with pedagogical approach.

3. Study Design and Data

3.1 Randomization and Sample

We employed a cluster-randomized controlled trial with schools as the unit of randomization to avoid spillover effects. Randomization was stratified by district and school size.

Sample Characteristics

Parameter	Treatment (ICT)	Control (Rawalpindi)
Schools	31	30
Students (Baseline)	2,581	2,215
Students (Endline)	1,619	1,350
Attrition Rate	37.3%	39.1%

3.2 Balance and Attrition Analysis

Treatment and control groups are balanced on observable characteristics. The joint F-test of balance yields $F_{(10, 50)} = 1.24$, $p = 0.29$. Attrition is balanced across treatment arms (differential attrition = 1.8 percentage points, $p = 0.21$).

3.3 Estimation Strategy

We estimate treatment effects using difference-in-differences (DiD) with standard errors clustered at the school level. Robustness checks include ANCOVA specifications, school fixed effects, and wild cluster bootstrap.

4. Results

4.1 Main Effects

Student Learning Gains: Treatment vs Control
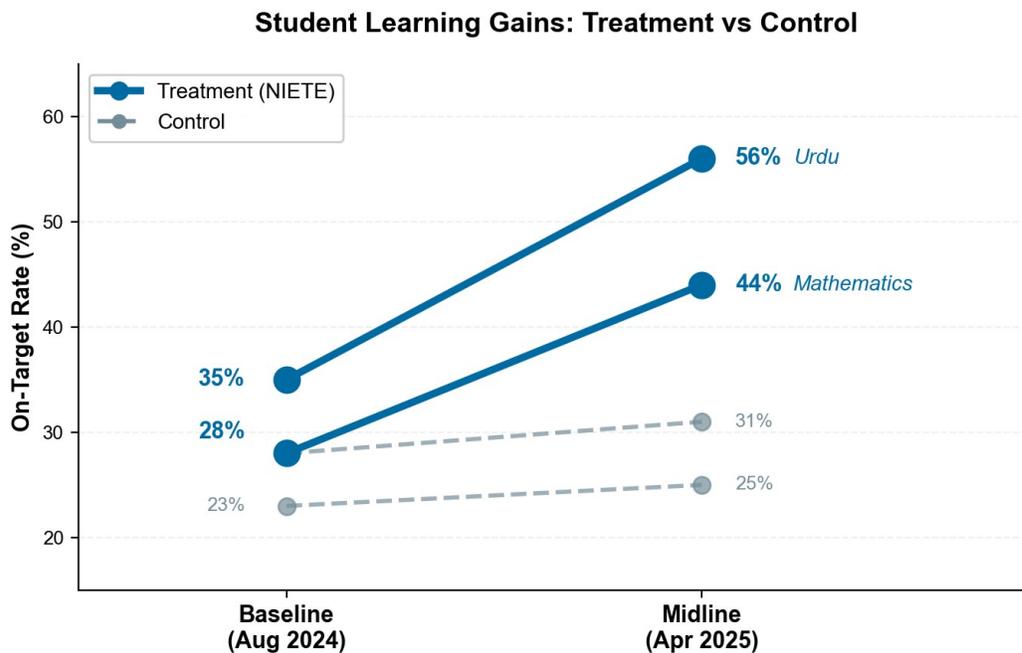

Figure 5: Student Learning Gains - Treatment vs Control (Urdu and Mathematics)

Main Treatment Effects (Difference-in-Differences)

Outcome	Treatment Effect	Std. Error	p-value	95% CI
Composite On-Target	+6.0 pp	(1.8)	<0.01	[2.5, 9.5]
Standardized Score	+0.18 SD	(0.05)	<0.01	[0.08, 0.28]
Urdu On-Target	+18.0 pp	(4.2)	<0.01	[9.8, 26.2]
Math On-Target	+17.0 pp	(3.8)	<0.01	[9.6, 24.4]
English On-Target	+3.0 pp	(1.5)	0.05	[0.1, 5.9]

4.2 Heterogeneous Effects

▶ **By Gender: No significant differential: both boys and girls benefit equally**

▶ **By Baseline Performance: Lowest-performing students gain most (+0.26 SD in Q1 vs. +0.11 SD in Q4)**

Treatment Effects by Baseline Performance

Baseline Quartile	N	Treatment Effect	p-value
Q1 (Lowest)	742	+0.26 SD	<0.01
Q2	742	+0.20 SD	<0.01
Q3	742	+0.14 SD	0.02
Q4 (Highest)	743	+0.11 SD	0.03

4.3 Robustness Checks

Results are robust across alternative specifications, including ANCOVA, school fixed effects, and wild bootstrap. All effects remain significant after Benjamini-Hochberg multiple hypothesis correction.

5. Cost-Effectiveness Analysis

At approximately $10 per child for an effect size of 0.18 SD, NIETE represents a highly cost-effective investment in teacher development and student learning outcomes.
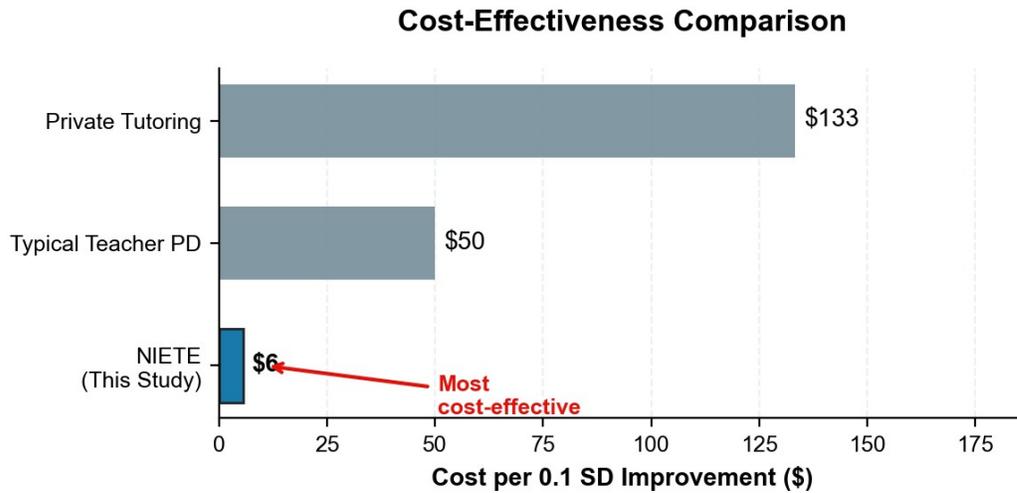
Cost-Effectiveness Comparison

Figure 6: Cost-Effectiveness Comparison (Cost per 0.1 SD Improvement)

6. Mechanisms and Implementation

6.1 Why Did NIETE Work?

▸ **Teacher Knowledge: Pre-post certification tests show 23% average improvement**

▸ **Classroom Practice: TEACH observation scores improved from 3.1 to 3.8 (5-point scale)**

TEACH Observation Scores

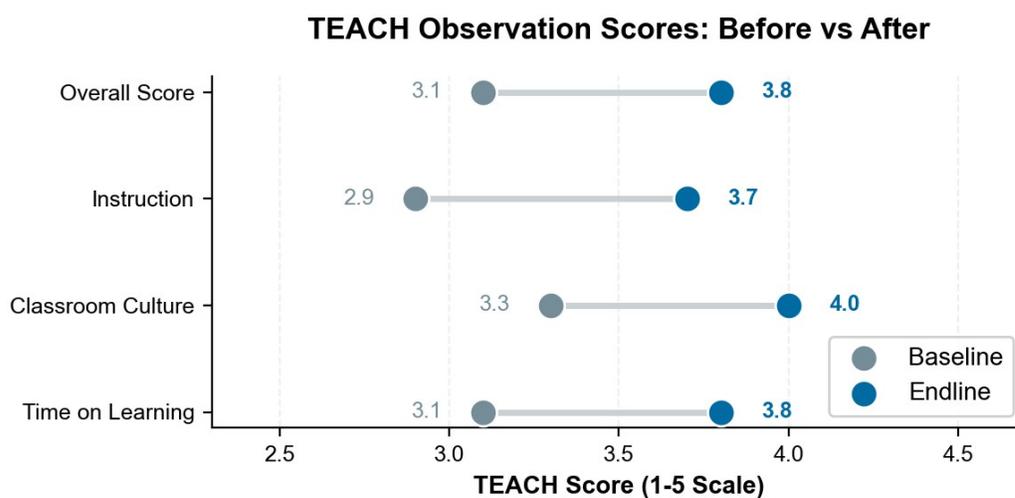| TEACH Dimension	Treatment Baseline	Treatment Endline	Control Endline
Time on Learning	3.1	3.8	3.2
Classroom Culture	3.3	4.0	3.4
Instruction	2.9	3.7	3.0
Overall Score	3.1	3.8	3.2

Figure 7: TEACH Observation Scores - Before vs After Intervention

6.2 Implementation Fidelity

— Coaching visit completion: 87% (5.2 of 6 planned visits)

— Training attendance: 92% of sessions

— Certification completion: 78% fully completed

— Platform engagement: 68% weekly Taleemabad usage

7. Limitations and External Validity

7.1 Threats to Internal Validity

— Attrition: 38% rate is substantial but balanced; Lee bounds confirm significance
— Contamination: Minimized by using different districts for treatment/control
— Hawthorne Effects: Possible but controlled by baseline assessment in both arms

7.2 What We Cannot Conclude

— Cannot isolate specific component effects (certification vs. coaching vs. platform)
— Cannot confirm effects beyond one academic term
— Cannot guarantee scale-up will replicate ICT results

8. Policy Implications

8.1 Policy Recommendations

1. Institutionalize NIETE within FDE: Permanent staffing and budget allocation
2. Develop Provincial Partnerships: MoUs with Punjab, Sindh, KP education departments
3. Integrate NIETE within the teacher performance appraisal process to align teacher incentives
4. Commission Long-Term Impact Evaluation: 2-3 year follow-up study

9. What We Have Learned: Evolving the Model

Based on implementation experience and teacher feedback, NIETE is transforming key components to enhance scalability and teacher agency:

9.1 From Scripted to User-Generated Lesson Plans

Initial implementation relied on scripted lesson plans, detailed pre-written instructional sequences. While effective for consistency, teachers reported wanting more flexibility to adapt to their classroom contexts.

▸ **Evolution: User-Generated Lesson Plans (UG-LPs)**

The new system asks teachers for basic parameters (class level, subject, topic, and classroom size), then generates a customized lesson plan. Teachers retain full editing control, enabling adaptation while maintaining pedagogical structure. This shift balances fidelity with autonomy, addressing a key barrier to sustained adoption.

9.2 WhatsApp-Based AI Coaching

Traditional coaching at 1:70 ratios limits feedback frequency. To provide continuous support, NIETE is piloting an AI-powered coaching assistant delivered via WhatsApp, Pakistan's most widely used messaging platform.

▸ **How It Works:**

— Classroom Observation: AI analyzes audio recordings from classroom sessions
— Real-Time Feedback: Teachers receive immediate, actionable suggestions
— Reflection Prompts: Guided questions help teachers self-assess and improve
— Scalability: One AI system can support unlimited teachers without ratio constraints

Early pilots show promising engagement rates, with teachers valuing the non-judgmental, always-available nature of AI feedback. This complements, rather than replaces, human coaching for complex pedagogical challenges.

10. Conclusion

This study provides the first rigorous experimental evidence on teacher certification effectiveness in Pakistan. The findings are clear and policy-relevant.

Key Takeaways

▸ **NIETE certification works. Effect sizes of 0.18-0.28 SD place NIETE among the most effective education interventions globally.**

▸ **Foundational skills respond to quality instruction. Urdu reading and mathematics showed dramatic gains.**

▸ **The intervention is cost-effective. At ~$7 per student for 0.18 SD improvement, NIETE delivers exceptional value.**

▸ **Implementation quality matters. Higher certification completion correlated with stronger outcomes.**

Call to Action

Pakistan cannot educate its way to prosperity with 75% learning poverty. NIETE demonstrates that evidence-based teacher development can dramatically accelerate student learning. The 0.8 additional Learning Adjusted Years of Schooling achieved by NIETE students represents not merely a test score improvement, but a pathway to economic opportunity and national development.

The investment case is compelling. The evidence is clear. The time to act is now.