

POLICY BRIEF

Digital Evolution in Teacher Development - Analysis of Punjab's Continuous Professional Development (CPD) System

Evidence from the DARE-RC portfolio

By Nighat Lone, Dr. Farah Nadeem, Dr. Jessica Albrent, Nimra Tariq

Key Messages

- **Punjab is strengthening teachers' Continuous Professional Development (CPD) through digital reforms like the Classroom Observation Tool (COT) and the Innovative Teacher Support Programme (ITSP) platform.** These reforms have digitised classroom observation at scale, are generating extensive classroom data, and have expanded opportunities for professional learning, especially for female teachers.
- **However, these benefits are not consistently translating into better teaching.** Digital monitoring scores are high but field observations show that teaching methodology is primarily teacher-centric. Policymakers can introduce third-party classroom observations to cross-check whether digital monitoring scores are accurately reflecting classroom realities.
- **CPD data is largely serving monitoring needs but not informing instructional support.** Teachers value mentoring support from Assistant Education Officers (AEOs) but AEOs don't have the capacity for it. Policymakers should consider restructuring AEO's administrative workload so they can focus more on mentoring to improve instructional quality.
- **Rural areas are unable to equitably reap the benefits of digital reforms; schools underperform and teachers face digital barriers and lack of resources.** Policymakers should consider developing targeted CPD content that addresses multigrade teaching, resource scarcity, and connectivity issues prevalent in rural districts.
- **Punjab's next step is to optimize existing digital tools.** Consolidating CPD data, training and mentoring under PECTAA's coordination and embedding these priorities in the upcoming Education Sector Plan (2026-2030) will allow Punjab to develop a coherent system for continuous professional learning.

Introduction

In recent years, Punjab has undertaken significant reforms to strengthen teachers' Continuous Professional Development (CPD) through the use of digital platforms and system-wide data collection tools. Central to these reforms is the digitisation of classroom observations and teacher training, intended to improve monitoring, feedback and instructional quality at scale. These efforts reflect broader national and provincial priorities to leverage data for education system improvement and align with the objectives of the Data and Research in Education - Research Consortium (DARE-RC), which seeks to generate policy-relevant evidence to address persistent challenges in Pakistan's education system.

This policy brief draws on findings from a mixed-methods study conducted under the DARE-RC programme to examine the implementation and use of Punjab's digitised CPD systems. The study examined how CPD data is generated, accessed, and used across different tiers of the system, and how teachers, mentors, and education managers experience digitised training and observation processes in practice. To this end, it drew on large-scale secondary data from the Classroom Observation Tool (COT) and on qualitative fieldwork conducted in four carefully selected districts to represent Punjab's varied regional and socio-economic contexts.

The findings show that Punjab has made substantial progress in building CPD infrastructure and data systems. Yet, they also indicate persistent gaps in the pathway from data collection through feedback mechanisms to instructional change. These findings form the basis of this brief's contribution to ongoing policy discussions, underscoring the importance of strengthening data use, mentoring capacity, and blended learning approaches to ensure that digitised CPD reforms translate into more effective and equitable teaching and learning outcomes across the province.

Study Methodology

The study employed an explanatory sequential mixed methods design to examine Punjab's digitised CPD programme in public primary schools.

Quantitative: Analysed large-scale secondary Classroom Observation Tool (COT) data (2021 onwards) from four diverse districts (Lahore, Rawalpindi, Multan, and Muzaffargarh) to identify patterns across geography, gender, and school resources.

Qualitative: Conducted fieldwork in 24 schools across 12 markaz within the study districts, involving classroom observations and semi-structured interviews with teachers, head teachers, Assistant Education Officers (AEOs), and district/provincial officials to understand the ground realities of CPD implementation and data usage.

Key Findings

1. Digitised CPD has achieved scale and visibility, but instructional changes remain inconsistent

Punjab's digitised CPD reforms represent a significant system achievement. Analysis of Classroom Observation Tool (COT) data shows high overall performance, with an average score of 4.07 out of 5 across public primary schools in the study districts. The system has successfully digitised classroom observation at scale, generating detailed data across subjects, grades, districts and locations. Teachers and education managers widely value the reach of the Innovative Teacher Support Programme (ITSP) platform and acknowledge increased awareness of activity-based and student-centred pedagogies. Female teachers in particular reported that digital access reduced mobility constraints and expanded opportunities for professional learning. However, high COT scores do not consistently translate into observable changes in classroom practice, indicating a gap between system-level monitoring and instructional transformation. This discrepancy raises concerns about data inflation and points to the need for independent validation of current metrics.

2. System-wide coverage is extensive, though access and outcomes vary across geographies

Despite system-wide coverage, significant disparities remain. Quantitative analysis shows that urban schools outperform rural schools by an average of 0.34 COT points. District-level variation is substantial, with a 1.15-point difference between the highest-performing and lowest-performing districts, suggesting uneven implementation and support. Qualitative findings show that teachers in rural and southern districts face persistent barriers related to weak connectivity, limited devices, language difficulties, and under-resourced classrooms. Gender, geography and infrastructure intersect to constrain equitable participation in digitised CPD, undermining the reach and impact of reforms.

3. Foundational teaching practices are established, yet student-centred approaches require deeper integration

Classroom observations reveal a reliance on rote learning, copying from the board, choral responses and textbook-driven instruction. While there is some evidence of positive practices such as the use of local language, encouragement and limited real-life connections, these are sporadic rather than systematic. Student-centred practices such as differentiated instruction, thinking tasks, meaningful questioning and group work were rare in the observed classrooms. Multigrade classrooms and a lack of basic learning materials further constrained instructional quality, often leaving students idle and disengaged. These findings point to a quality gap that aggregate scores cannot capture and raise questions about what aspects of pedagogy current observation tools are designed, or able, to measure. The disconnect between high COT scores and observed practices suggests that current observation metrics may not sufficiently capture the depth or quality of student-centred learning.

4. Upward data flow is highly efficient, though downward feedback loops need strengthening

Digitisation has transformed upward data flow, enabling near real-time reporting to provincial levels. However, the study finds weak downward feedback loops. COT data is not systematically used to trigger targeted support, training adaptations or district-level action, even in low-performing contexts. District officials reported limited access to dashboards and little authority to act on data, resulting in centralisation without local responsiveness. As a result, large performance gaps persist without corrective interventions, limiting the developmental use of CPD data.

5. Mentoring and blended learning are highly valued, though structural adjustments are needed for optimal impact

Teachers value mentoring support from Assistant Education Officers (AEOs) and express a strong preference for blended CPD that combines digital modules with face-to-face interaction. However, AEOs face heavy administrative workloads, delayed payments and limited time for instructional mentoring. Addressing this requires workload restructuring and a consideration of the potential costs of separating administrative oversight from pedagogical coaching.

Policy Implications

The findings of this study suggest that Punjab's digitised CPD reforms have reached a stage where further progress will depend less on expanding existing initiatives and more on consolidating systems and strategically sequencing reforms. While the Innovative Teacher Support Programme (ITSP) and Classroom Observation Tool (COT) have successfully expanded access to professional learning and generated extensive classroom-level data, the system is not yet using this evidence consistently to improve teaching practice. Weak feedback loops, limited mentoring capacity, and constrained authority at the district and school levels mean that CPD data is largely collected for monitoring rather than to inform instructional support. This gap between data generation and classroom change has direct implications for the next phase of education sector planning.

As Punjab moves toward implementation of the forthcoming Education Sector Plan (ESP) 2026–2030, the study highlights **the need to reposition CPD as a core driver of quality improvement rather than a standalone digital reform.** This requires a political economy perspective: acknowledging that shifting AEOs from administrative monitors to instructional coaches involves significant restructuring, budget considerations, and political will. The ESP provides an opportunity to explicitly link classroom observation evidence to teacher development priorities, mentoring strategies, and resource allocation, at both provincial and more granular levels for improved targeting. Without such alignment, CPD risks remaining disconnected from broader sector goals related to learning quality, equity and system coherence. The findings also suggest that equity considerations must be embedded more deliberately in ESP planning, as teachers in rural

and low-resource contexts face persistent barriers that limit their ability to fully benefit from digitised CPD.

The establishment of the Punjab Education, Curriculum, Training and Assessment Authority (PECTAA) has important implications in this regard. **By bringing curriculum, assessment, and teacher professional development under a single institutional framework, PECTAA is well-positioned to address the coordination gaps highlighted in the study.** However, to translate data into action, PECTAA must consider initiating a CPD model that is flexibly responsive to varied regional realities instead of the current one-size-fits-all approach. Strengthening analytical capacity within PECTAA and clarifying ownership of CPD data are, therefore, critical to moving from compliance-oriented monitoring to developmental use of evidence.

The findings are also relevant for ongoing and future donor-funded initiatives in Punjab, including programmes such as TALEEM and other externally supported education reforms. These initiatives can play an important role in supporting system consolidation by piloting data-informed CPD models, strengthening mentoring structures and addressing capacity gaps identified through COT evidence. **Better alignment between donor investments and provincial CPD priorities can help ensure that external support reinforces, rather than duplicates, existing systems.**

Over time, more effective use of CPD data can support key sector planning processes. At the provincial level, it can help identify priority areas for teacher support within ESP cycles. For annual planning and budgeting, it can inform targeted investment in mentoring, blended learning and foundational classroom resources. **By embedding these linkages within ESP implementation, PECTAA's mandate and donor-supported programmes, Punjab can ensure that digitised CPD evolves into a coherent system for continuous professional learning, with lessons that are relevant for education reform across Pakistan.**

Recommendations

Top 3 Priority Reforms

- Implement COT Data Validation & Peer Observations: Introduce random validation mechanisms and peer-to-peer observations to cross-check inflated COT scores and ensure data accurately reflects classroom realities.
- Deploy Targeted & Rural-Responsive CPD Models: Move away from uniform modules. Develop differentiated CPD content that explicitly addresses multigrade teaching, resource scarcity, and connectivity issues prevalent in rural districts.
- Restructure AEO Workloads for Instructional Mentoring: Conduct an immediate feasibility study on reducing the non-pedagogical administrative burden on AEOs to reclaim time for dedicated, high-quality coaching.

Implementation Roadmap: Short, Medium, and Longer-Term Steps

Timeline	Policy Objective	Specific Actions / Next Steps	Implications / Feasibility
Short-Term (0–1 Year)	Strengthen Data Validity, Guidance, and Immediate Content Alignment	- Data Governance: Clarify institutional roles/ownership of CPD data under PECTAA. Develop clear QA guidance and simple protocols for validating COT scores and reviewing trends. - Mentoring Focus: Refocus AEO visits on instructional mentoring by reducing non-pedagogical administrative tasks. - Content Refresh: Update ITSP modules with subject-specific examples of thinking tasks, open-ended questioning, and formative assessment. - District Support: Provide structured guidance and simple analytical tools to help districts translate COT findings into targeted CPD planning. - Validation: Complement digital monitoring with periodic classroom observations by third party/other district officials to validate trends.	High Feasibility/Low Cost. Relies on existing platforms and administrative directives. Requires strong communication from SED to shift from a compliance culture to an honest reporting and data-use culture.
Medium-Term (1–2 Years)	Targeted Equity, Cyclical Reviews, and Peer Learning	- Cyclical Content Review: Establish a scheduled review mechanism using COT data, learning analytics, and qualitative teacher feedback to update digital modules. - Contextualized Materials: Ensure new CPD materials explicitly address local realities (large classes, multigrade, limited resources). - School & Peer Capacity: Strengthen school leaders' ability to use COT snapshots for internal reflection. Support peer learning via cluster meetings and Professional Learning Communities (PLCs). - Donor Piloting: Use donor-funded initiatives (e.g., TALEEM) to pilot revised, data-aligned CPD approaches	Medium Feasibility. Requires systematic coordination between PECTAA and districts to tailor content and build capacity. Leverages external support for safe piloting before scaling.

and mentoring models.

Longer-Term (3+ Years)	Institutionalise Sustainability and System Integration	- ESP Integration: Fully embed CPD priorities into the Education Sector Plan, linking classroom evidence directly with quality, equity, and teacher development goals. - System Coordination: Establish formalized, regular coordination mechanisms between PECTAA, PMIU, and district leadership for annual planning and course-correction. - Emerging Priorities: Continuously incorporate systemic priorities (foundational literacy/numeracy, inclusive education, digital pedagogy) into successive CPD updates. - Data Culture: Entrench a systemic culture that utilizes data to identify gaps and support sustained improvement rather than focusing on high scores.	High Impact/Complex Political Economy. Requires systemic policy changes, embedded financial reallocation, and sustained political will to maintain a functional, developmental CPD loop over multiple government cycles.
---------------------------	---	--	--

Conclusion

While Punjab has made substantial progress in digitising teacher professional development and classroom monitoring, translating this progress into consistent improvements in classroom practice remains uneven. High COT scores demonstrate the success of system rollout and data generation, but qualitative evidence shows that teaching practices continue to rely largely on transmission-oriented methods. The persistent gap between digital visibility and classroom practice highlights the need for better reform sequencing, realistic data validation, and targeted equity strategies.

Looking ahead, Punjab's education system is well-positioned to shift from expansion to consolidation. The establishment of PECTAA and the upcoming Education Sector Plan 2026–2030 provide a timely opportunity to strengthen coherence across data, training and mentoring systems. Greater emphasis on using classroom evidence for professional support, empowering districts to respond to local needs and reinforcing blended models of teacher learning can help close the gap between monitoring and practice. Punjab's experience offers a broader lesson for digital reforms: sustainable improvement depends not only on tools and data, but on human support, institutional coordination and continuous learning grounded in classroom realities.

For more information

Authors: Nighat Lone – DARE-RC Thematic Lead; Farah Nadeem – LUMS; Jessica Albrent – LUMS; Nimra Tariq – DARE RC

Final Report Submission: 15 November 2025

This policy brief is based on findings from the report titled: Digital Evolution in Teacher Development: Analysis of Punjab's Continuous Professional Development (CPD) System

Full report available at: TBD

More information about the DARE-RC Programme: <https://darerc.org/>

The DARE-RC project is funded with UK International Development from the UK government. Its implementation is led by Oxford Policy Management in partnership with its consortium partners.

Scan to find out more



DARE Research Consortium

DARE-RC is Pakistan's largest education research programme, generating rigorous, actionable evidence to improve education policy and practice.

DARE's 44 research studies and scoping papers offer critical insights on inclusion, teaching and learning, governance, data, accountability, and system resilience.