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The Anatomy of the Implementation Gap: A Qualitative Analysis of Classroom Practice Patterns in Early Childhood Education Under Systemic Constraint in Khyber Pakhtunkhwa

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ARTICLE INFO	ABSTRACT
Keywords: Early Childhood Education, Implementation Fidelity, Classroom Practices, Qualitative Research, Systemic Constraints, Teacher Training, Knowing-Doing Gap, Pakistan **Corresponding Author:** **Sadaf Rabbani,** PhD Scholar, University of Management and Technology, Lahore	The persistence of a significant "knowing-doing gap" in Early Childhood Education (ECE)—where teachers demonstrate strong theoretical knowledge but fail to implement child-centered practices—is a critical challenge in resource-constrained settings. This paper reports on the qualitative findings from an investigation into the classroom practices of ECE-trained teachers in Khyber Pakhtunkhwa (KP), Pakistan, utilizing classroom observations to assess the application of skills (Kirkpatrick Level 3: Behavior). Employing a qualitative, interpretive approach, 48 ECE classroom environments were observed, revealing eight distinct implementation patterns. These patterns highlight that implementation failure is primarily structural, not cognitive. Observed practice ranged from total **Pedagogical Subversion** (e.g., ECE classrooms co-opted for multi-grade teaching and reducing instruction to survival/crowd control) to **Constrained Implementation** (where teacher efforts were limited by chronic material scarcity and unmanageably large class sizes). The most frequently observed patterns confirmed that the lack of essential resources and infrastructure directly forces teachers to abandon play-based, hands-on pedagogies in favor of passive, rote-learning methods. This analysis, framed by implementation science and Sociocultural Theory, provides a detailed map of how systemic barriers override professional capacity, underscoring the urgent necessity of integrated policy reforms focused on structural prerequisites (e.g., class size limits, resource replenishment) to enable teachers to translate training into effective practice.

INTRODUCTION

Early Childhood Education (ECE) is globally recognized as a foundational investment for lifelong development and educational equity. In developing contexts, such as the province of Khyber Pakhtunkhwa (KP), Pakistan, governmental and non-governmental organizations have

invested heavily in professional development programs designed to shift teaching practice from traditional rote instruction to child-centered, activity-based pedagogies.

However, a persistent and disheartening gap exists between the pedagogical knowledge imparted during ECE training and its consistent, effective application in the classroom—a phenomenon known as the "Knowing-Doing Gap". Teachers may express high satisfaction and confidence with new methods (Kirkpatrick Levels 1 and 2), but frequently revert to traditional approaches when confronted with the realities of overcrowded classrooms, lack of resources, and inadequate infrastructure. The problem is thus not merely one of skill acquisition, but one of **contextual adaptation and systemic reality**.

This paper addresses this challenge by focusing specifically on **Objective 2** of the wider study: to examine the extent and nature of ECE training application (RQ2) using rigorous qualitative data derived from classroom observations (Kirkpatrick Level 3: Behavior). Utilizing an interpretive, qualitative lens, the paper seeks to provide a nuanced understanding of *how* and *why* trained teachers' efforts succeed, partially fail, or are structurally subverted when confronting formidable barriers inherent in the educational system.

The study adopts a framework informed by implementation research, acknowledging that implementation is "the outcome of how groups of people interpret, translate, and practice aspects of policies and programs in particular educational settings". By documenting the spectrum of practice through discrete observation patterns, this paper argues that the successful transfer of ECE training into classroom behavior is ultimately conditional on systemic support and contextual fit, rather than individual teacher competence alone.

LITERATURE REVIEW / THEORETICAL BACKGROUND

The Global Context of ECE Implementation Failure

The challenges facing ECE implementation in KP are mirrored across the Global South. Research consistently highlights that poor policy-to-practice translation is caused by external constraints, including chronic budget constraints leading to a lack of adequate space, learning resources, and relevant training. In Pakistan, these constraints manifest specifically as overcrowded classrooms and single-teacher policies, which actively hinder student motivation and the delivery of quality education. Furthermore, the responsibility for ECE often falls to primary school teachers who lack adequate training in interactive and playful methods, contributing to the disengagement of young children.

The Training-to-Practice Gap: A Behavioral Failure

The inability to implement learned practices (Kirkpatrick Level 3) is a well-documented challenge. Studies on educational interventions, particularly in low-resource contexts, find that pre-service training is often too theoretical and divorced from local classroom realities, leading to a "lacking required competencies and using outdated approaches in schools". Teachers trained in progressive, collaborative pedagogies often revert to didactic methods because the social and environmental scaffolding necessary for new practices—such as collaborative learning and mentor support—is absent.

Conceptualizing Implementation: The Fidelity-Fit Dilemma

To interpret the diverse implementation outcomes, this study utilizes the **Fidelity-Fit Framework**. This framework acknowledges the tension between maintaining **Fidelity** (implementing core ECE components as designed) and achieving **Contextual Fit** (adapting the program to function in local environments). Implementation is viewed not as a simple technical application, but as a complex process of adaptation mediated by three elements:

1. **Core Components:** The non-negotiable elements of ECE (e.g., play-based learning, formative assessment).
2. **Fidelity and Adaptation Approaches:** The strategies used to manage customization, ranging from **high-fidelity/low-adaptation** (often impossible in KP) to **responsive adaptation**.
3. **Facilitation Strategies:** The supports and resources available to help sites achieve both fidelity and fit.

Sociocultural Theory and Systemic Constraint

Vygotsky's Sociocultural Theory provides the theoretical lens for analyzing how the classroom environment mediates implementation. This theory emphasizes that learning and behavior are inherently social and shaped by cultural norms, tools, and institutional environments. In this context, implementation barriers (such as class size, classroom layout, and external requirements for content coverage) are understood as **systemic barriers** that restrict the teacher's zone of proximal development (ZPD) for practice. The inability of the organization to provide basic "cultural tools" (materials, space, staffing) fundamentally prevents the teacher from performing the desired behavior, irrespective of their cognitive knowledge.

METHODOLOGY

Research Design and Sampling

This paper reports on the qualitative strand of a broader Convergent Parallel Mixed-Methods study, operating within a pragmatist paradigm. The qualitative design utilized observation to gather direct, real-world evidence of teacher behavior (Kirkpatrick Level 3).

The study population consisted of ECE-trained primary teachers in Khyber Pakhtunkhwa. **Purposive sampling** was employed to select teachers and schools across diverse geographical settings. The qualitative sample for this paper comprises the findings from **48 classroom observations** of ECE-trained teachers.

Instrumentation and Data Analysis

Data for Objective 2 were collected using a **Classroom Observation Checklist**. This structured checklist used a Yes/No format across four core ECE constructs (Content Knowledge, Pedagogical Skills, Assessment Techniques, and Classroom Management), complemented by rich, descriptive field notes for each item to add contextual depth. Each observation lasted 30–40 minutes.

Qualitative data analysis utilized thematic analysis and a cross-case synthesis approach. Data from the observation notes were analyzed to identify and compare recurring conditions, practices, and resulting outcomes, allowing for the systematic categorization of classroom implementation into **eight distinct patterns**. This process allowed researchers to move beyond simple compliance scores to interpret *why* specific behaviors were occurring (or failing to occur) in the local environment.

RESULTS / FINDINGS: The Eight Implementation Patterns (Kirkpatrick Level 3)

The analysis of 48 classroom observations revealed a dynamic spectrum of implementation, ranging from total subversion of ECE goals to constrained teacher resilience. The findings are grouped into two overarching categories: Pedagogical Subversion and Constrained Implementation.

Pedagogical Subversion: Structural Failure Overriding Intent

These patterns represent environments where core ECE pedagogy was rendered structurally impossible or entirely replaced by non-ECE priorities.

Pattern	N	Primary Finding	Contextual Barrier	Core ECE Components Lost
Pattern 6: Crisis Point – Survival Over Pedagogy	7	Teaching reduced entirely to **crowd control and basic rote instruction**; environment chaotic.	**Extreme Overcrowding** (~80–100 children per room) and lack of space/materials.	Play-based learning, active learning, differentiation, individualized support, health/safety.
Pattern 5: ECE Role Subverted by Multi-Grade Demands	6	ECE space/teacher co-opted to teach **Grade 1 curriculum**; ECE children sidelined to passive tasks.	**Organizational Failure** (Teacher shortages, administrative demands to combine classes).	Age-appropriate engagement, exploratory learning, ECE-specific lesson planning, formative assessment.

In these patterns (14.6% of observations), implementation failure was absolute. Pattern 6 explicitly demonstrates that physical constraints—particularly overcrowding—represent a **non-negotiable boundary condition**. In Pattern 5, the policy-driven demand to teach older grades actively **subverted** the ECE role, confirming that structural policies dictate implementation outcomes.

Constrained Implementation: Resilience Amidst Scarcity

The remaining patterns detail environments where teachers attempted to implement ECE principles, but faced constant limitations that restricted the depth and quality of practice.

Pattern	N	Primary Finding	Contextual Barrier	Implication
Pattern 7: Teacher Understanding Constrained by Resource Scarcity	10	Teachers demonstrate ECE awareness but rely on blackboards/slates; **passive learning** dominates.	**Chronic Material Scarcity** and lack of replenishment (most frequent barrier at 20.8%).	**Play-based and sensory activities absent**; failure of Logistical Sustainability.
Pattern 4: Resilient Improviser with Resource Constraints	8	Noticeable **teacher enthusiasm and creativity** (self-made pads, local materials) lead to partial engagement.	Resource Scarcity + Large Class Sizes (50+).	Example of **Contextual Fit** achieved through unsustainable teacher agency.
Pattern 3: Hopeful Implementer with Limited Resources	5	Partial ECE implementation with basic activities (ABC, writing); **positive, affectionate climate** achieved.	Limited resources and large groups (50+).	Demonstrates high teacher disposition, but assessment remains informal/non-systematic.
Pattern 1: Systemic Constraints Impeding ECE	6	Overwhelmingly negative ratings across indicators; **rote instruction**	Severe overcrowding, inadequate space, lack of materials.	General failure mode; constraints compel reliance on **defensive pedagogy** (rote learning).

Pattern	N	Primary Finding	Contextual Barrier	Implication
		enforced by external pressure.		
Pattern 2: Overwhelmed Caregiver Amidst Systemic Constraints	4	Similar to P1, but included signs of **emotional support** (comforting a child) amidst chaos.	Extreme overcrowding (~100 children), loss of dedicated ECE spaces.	Effort devoted to emotional care and *order* rather than active instruction.
Pattern 8: Disengaged Professionalism due to Systemic Demotivation	3	Knowledgeable teachers exhibit **passive pedagogy** and routine instruction; materials often present but **underutilized**.	Systemic failure to provide incentives/follow-up, leading to teacher burnout and **resignation**.	Application failure is psychological/motivational, demonstrating erosion of discretionary effort.

DISCUSSION

The detailed qualitative mapping of classroom practices reveals a critical insight: the observed failure to implement ECE training (Kirkpatrick Level 3) is largely an organizational and systemic issue, not a pedagogical deficiency in the teacher.

The Paradox of Confidence and Practice

Teachers consistently reported high satisfaction and confidence with the training content (Kirkpatrick Level 2). Yet, the overwhelming majority of observed classrooms (Patterns 1, 2, 5, 6, 7) displayed critically compromised ECE practices. This paradox reinforces the core finding of implementation science: **high knowledge capacity is ineffective when system affordances are low**. The systemic barriers restrict the "Zone of Proximal Development" for practice, making the desired behavior structurally unfeasible.

Structural Subversion as the Primary Barrier

Patterns 5 and 6 illustrate that no amount of training can overcome **structural integrity failure**. The policy-driven demands of multi-grade teaching (P5) and the sheer physics of mass overcrowding (P6) eradicate the possibility of child-centered, play-based learning. These findings directly support calls for policy interventions that mandate small class sizes and separate ECE provision, as recommended in Pakistan ECE literature.

Resource Scarcity and the Failure of Sustainability

Pattern 7, the most frequently observed, highlights the vulnerability of the program to **logistical sustainability failure**. Teachers demonstrate awareness of ECE goals, but the chronic lack of materials, a challenge teachers frequently identified as core (RQ3b: 63.4% prioritized resources) , forces pedagogy to revert to passive and rote methods. This illustrates a critical disconnect in the Facilitation Strategy: the system provides initial training but fails to sustain the essential "cultural tools" required for its application.

Resilience and the Need for Formal Adaptation

Patterns 3 and 4 highlight teacher agency and resilience, characterized by resourcefulness and creativity (e.g., using low-/no-cost materials). These teachers actively pursue **Contextual Fit** by adapting the program's *form* (pebbles instead of blocks) to maintain its *function*

(manipulation). While commendable, this reliance on individual financial sacrifice and discretionary effort (Teacher Agency/Resilience, P4) is organizationally unsustainable and contributes to the burnout seen in Pattern 8. Policy must shift from relying on heroic individual efforts to formally sanctioning and supporting responsive adaptation.

CONCLUSION

This qualitative study confirms that the application of ECE concepts and skills (Kirkpatrick Level 3) by trained teachers in Khyber Pakhtunkhwa is severely and systematically constrained by organizational and material deficits. The eight distinct observation patterns serve as a rigorous map of implementation failure, clearly demonstrating that the inability to deliver quality ECE is not rooted in a deficit of teacher knowledge or will, but in the **hostile environment** created by unmanageable class sizes, chronic resource scarcity, and policy conflicts.

To bridge the policy-practice chasm, reforms must prioritize structural prerequisites:

1. **Enforce Class Size Limits:** Address the crisis points (P5, P6) by mandating manageable teacher-to-child ratios to make active learning physically possible.
2. **Ensure Logistical Sustainability:** Resolve the chronic resource scarcity (P7) by establishing reliable supply chains for ECE materials, acknowledging that practical support (resources) is the critical demand over additional theoretical training.
3. **Protect the ECE Role:** Eliminate the multi-grade co-option (P5) by assigning dedicated, protected ECE teachers and spaces.

Ultimately, the future of high-quality ECE in resource-constrained settings depends on policy frameworks that recognize the contextual dependency of teaching behavior and provide the necessary systemic scaffolding to unlock the full potential of trained educators.

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