To examine the Critical Thinking and Reflective Practices: Perspectives of Novice and In-Service Teachers

Sumra Peeran
Academics and Operations Manager, UK Examination Board, Learning Resource Network LRN, UK
Email: sumra.peeran@lrnglobal.org

Noor-e-Sahar
Senior lecturer / Academic Coordinator, Ziauddin University, Karachi Email: nooresahar03@gmail.com

Arsalan Iqbal Leghari
Principal, Department of Ziauddin Education System, Ziauddin College -Intermediate and A-Levels, Karachi
Email: arsalaan.iqbal@zsc.edu.pk

Abstract

This study examines how novice and in-service teachers conceptualize critical thinking and reflective practices, as well as the extent to which these pedagogical orientations are operationalized within classroom contexts. Adopting a descriptive interpretive research design, data were collected through a structured questionnaire aimed at eliciting teachers' perspectives on instructional practices, questioning strategies, reflective cycles, metacognitive processes, self-regulated learning, and the perceived role of artificial intelligence in education. The analysis of responses from 24 teachers revealed a strong consensus regarding the transformative value of reflective and critical pedagogies in enhancing teaching and learning processes. Despite this shared philosophical commitment, participants reported persistent challenges, including limited time for reflection, insufficient opportunities for professional dialogue, and inconsistent integration of higher-order cognitive strategies and digitally mediated instructional practices. The findings indicate a notable disparity between teachers' pedagogical beliefs and their classroom enactment, highlighting the need for supportive institutional frameworks, targeted professional development, and sustained learning opportunities to facilitate the effective implementation of reflective and critical teaching practices.

Keywords: Critical Thinking, Reflective Practices, Novice, In-Service Teachers

Introduction

Critical thinking and reflective practice are increasingly acknowledged as foundational pedagogical competencies that contribute to effective teaching and sustained professional growth in contemporary educational contexts. Reflective practice enables teachers to examine and evaluate their instructional decisions and classroom experiences, thereby facilitating continuous improvement in both teaching and student learning outcomes (Reflective practice, 2025; Shah, 2025). Similarly, self-regulated learning and metacognitive strategies are closely associated with teachers' capacity to plan, monitor, and adjust instructional activities, which in turn supports the development of higher-order thinking skills among learners (Arvatz et al., 2025; Shah, 2025).

Despite broad agreement on the theoretical significance of these constructs, there remains limited clarity regarding how teachers at different career stages conceptualize critical thinking and reflective practice, and how these orientations are enacted in daily classroom practice. Novice teachers often encounter challenges related to professional experience and time constraints, while in-service teachers may contend with institutional demands that constrain reflective engagement and pedagogical innovation. Exploring both novice and in-service teachers' perspectives is therefore essential to uncover patterns of pedagogical belief and practice, and to identify systemic and contextual barriers that influence the enactment of these pedagogies.

This study examines how novice and in-service teachers understand the constructs of critical thinking and reflective practice, how they perceive their relevance for teaching and learning, and the conditions under which these approaches are supported and implemented in school environments. Data were collected through a structured

questionnaire designed to capture teachers' pedagogical orientations, classroom practices, reflective processes, metacognitive engagement, and perceptions of emerging digital and artificial intelligence tools in educational settings.

Statement of Problem

Despite widespread recognition of the importance of critical thinking and reflective practice in enhancing teaching effectiveness and student learning, there is limited understanding of how these pedagogical approaches are conceptualized and implemented by teachers across different career stages. Novice teachers often struggle to translate theoretical knowledge into classroom practice, while in-service teachers face structural and contextual constraints, including limited time, insufficient professional dialogue, and inconsistent integration of higher-order questioning and digital tools. This gap between teachers' pedagogical beliefs and their practical enactment inhibits the full potential of reflective and critical teaching strategies, underscoring the need to examine teachers' perspectives, identify implementation challenges, and inform targeted professional development and institutional support mechanisms.

Research Objectives

To examine how novice and in-service teachers conceptualize and perceive the importance of critical thinking and reflective practices.

To investigate the extent to which critical thinking and reflective practices are implemented in classroom teaching.

To identify challenges and enablers affecting the enactment of reflective and critical pedagogies, including the role of digital tools and artificial intelligence

Research Questions

How do novice and in-service teachers conceptualize and perceive the significance of critical thinking and reflective practices?

To what extent are critical thinking and reflective practices applied in classroom teaching by novice and in-service teachers?

What challenges and supporting factors influence teachers' implementation of reflective and critical pedagogical practices, including the integration of digital and AI-based tools?

Literature Review

Critical thinking and reflective practice are central constructs in contemporary educational research, representing key competencies that teachers must develop to enhance pedagogical effectiveness and student outcomes. Critical thinking is widely understood as the ability to analyze, evaluate, and interpret information in order to make reasoned judgments and informed decisions (Heydarnejad et al., 2021). Research on language teachers, for example, indicates that higher levels of critical thinking and self-regulation are associated with more learner-centered teaching styles and greater adaptability in instructional decision-making, suggesting that these cognitive capacities influence broader professional practice (Heydarnejad et al., 2021). Reflective practice complements critical thinking by requiring teachers to engage in systematic self-examination of their instructional actions, experiences, and beliefs. Reflection has been shown to facilitate ongoing professional growth by enabling

educators to identify gaps between their intentions and classroom enactment, and to adjust practices accordingly (Arvatz, Peretz, & Dori, 2025). Such processes are closely linked to self-regulated learning, wherein reflection functions as a metacognitive mechanism allowing teachers to plan, monitor, and evaluate their instructional strategies (Zaman et al., 2025). Literature on reflective teaching further highlights that structured activities—such as meta-analysis tasks and rubrics—can make reflective thinking more explicit and enhance the qualitative depth of teacher reflections during professional preparation (Philp-Clark & Grieshaber, 2024).

In addition, recent studies emphasize the synergistic relationship between metacognition and reflective teaching, noting that metacognitive awareness underpins the effective application of critical thinking skills in instructional design and classroom practice (Research and Advances in Education, 2023). Metacognition and reflective thinking together enable educators to better understand not only what they teach but how they teach, thereby fostering deeper cognition in learners (Research and Advances in Education, 2023). Despite theoretical clarity about these constructs, multiple studies also document persistent barriers—such as time constraints, limited professional dialogue, and inconsistent integration of higher-order instructional strategies—that inhibit teachers from fully implementing critical and reflective pedagogies in practice. These findings underscore an enduring gap between academic ideals and classroom realities, reinforcing the need to examine teachers' perceptions, enactment challenges, and contextual supports that shape the enactment of critical thinking and reflective practices.

Methodology
Research Design
This study employed a quantitative, cross-sectional descriptive survey design to investigate novice and in-service teachers' perceptions and implementation of critical thinking and reflective practices. A structured questionnaire using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was administered to collect data on participants' conceptual understanding, classroom practices, and perceptions of institutional support. The descriptive survey design enabled systematic measurement of teachers' attitudes, beliefs, and reported enactment patterns across multiple thematic dimensions, providing a comprehensive snapshot of current practices and perceptions within the sample.

Participants
The study collected responses from 24 teachers, representing a range of educational backgrounds and institutional affiliations. Participants included both novice teachers, with limited professional experience, and in-service teachers with more extensive teaching careers. To ensure confidentiality, demographic details were captured in aggregated form, and individual identities are not reported. Open-text responses provided supplementary insights into participants' institutional contexts and professional experiences, allowing for richer interpretation of survey findings within diverse teaching environments.

Instrument
The survey instrument was designed to assess multiple dimensions of critical thinking

and reflective practices. Items were organized into 14 thematic areas, including: conceptual understanding of critical thinking and reflective practice; perceived importance for student learning and educational reform; current school-level practices and institutional support; pedagogical enactment strategies; professional identity and teacher agency; and the integration of artificial intelligence in teaching. The questionnaire was developed to capture both theoretical perspectives and practical applications, reflecting contemporary pedagogical frameworks such as Bloom's revised and digital taxonomies, reflective cycles, and metacognitive strategies. Item wording was carefully structured; however, analysis revealed a few duplications in phrasing (e.g., systemic support/training; helping students become aware of their learning processes), which were accounted for in the interpretation of results.

Data Collection and Analysis

Data were collected using Google Forms, which facilitated both structured responses and automatic aggregation of quantitative metrics. Descriptive analysis was performed on the collected data, focusing on mean item ratings and response distributions across the 14 thematic areas. This approach allowed identification of patterns, highlighting areas of relative strength—such as teachers' positive perceptions of reflective and critical pedagogy as well as areas of constraint, including limited time for reflection, insufficient professional dialogue, and uneven integration of higher-order and digitally mediated instructional practices. The methodology emphasizes transparency and reproducibility, ensuring that the survey results provide actionable insights into the alignment between teachers' pedagogical beliefs and their classroom practices.

Results
Overall Pattern

Analysis of the survey responses indicates that participants generally expressed agreement with statements supporting critical thinking, reflective practices, and educational reform readiness, with mean ratings ranging from approximately 3.6 to 4.4 across items. This trend suggests a broadly positive orientation among novice and in-service teachers toward the value of critical and reflective pedagogies in instructional contexts.

Highest-Rated Areas (Strong Agreement)

Participants demonstrated the **strongest agreement** with items emphasizing professional guidance, the promotion of student questioning and reflection, and the prioritization of critical thinking within assessment and teacher education. Table 1 summarizes the highest-rated items:

Table 1. Highest-Rated Items (Mean Ratings ≥ 4.20)

Item Description	Mean (M)
Need for guidance/training to integrate AI into teaching	4.42
Encouraging students to question/reflect for deeper understanding	4.38
Assessment systems should prioritize critical thinking over rote learning	4.38
Teachers play a key role in meaningful educational change	4.29

Item Description	Mean (M)
Teacher education should emphasize reflection, metacognition, inquiry	4.29
Reflective teaching improves student engagement and outcomes	4.21

Interpretation: These findings highlight teachers' strong philosophical alignment with reflective and critical pedagogies. Participants clearly recognize the importance of structured reflection, higher-order thinking, and professional guidance, particularly in the context of integrating emerging technologies such as AI.

School Support and Implementation Constraints
While participants value critical and reflective practices, items measuring structural or enabling conditions received comparatively lower mean ratings, indicating challenges in translating beliefs into classroom practice. Table 2 presents the lower-rated items:

Table 2. Lower-Rated Items Reflecting Implementation Constraints (Mean Ratings ≤ 3.80)

Item Description	Mean (M)
Adequate time for reflection and professional dialogue	3.63
Using different levels of questioning (clarifying/probing/reflective)	3.71
Integrating digital tools to support higher-order thinking	3.71
Using reflection to plan concrete actions for future teaching	3.79

Interpretation: These lower ratings suggest contextual and institutional barriers that hinder teachers' ability to operationalize critical and reflective pedagogies consistently. Key constraints include insufficient time for professional dialogue, limited adoption of varied questioning strategies, and partial integration of digital tools for higher-order learning.

Selected Descriptive Statistics by Construct
To provide a domain-wise perspective, Table 3 illustrates mean ratings for selected items across key thematic constructs:

Table 3. Descriptive Statistics by Thematic Domain

Domain (Theme)	Indicator Item (Short Label)	Mean (M)
Conceptual understanding (Theme 1)	Understand critical thinking in teaching & learning	4.00
Practice differentiation (Theme 1)	Differentiate routine vs reflective teaching	3.83
Student learning (Theme 2)	Reflection improves engagement/outcomes	4.21
Reform readiness (Theme 3)	Reforms require teachers to think critically	4.17
School enabling conditions	Adequate time for reflection/dialogue	3.63

Domain (Theme)	Indicator Item (Short Label)	Mean (M)
(Theme 4)		
Bloom / HOTS (Theme 8)	Activities beyond remembering/understanding	4.08
Reflection structure (Theme 9)	Use structured reflection process	3.83
AI integration (Theme 12)	AI enhances critical thinking (not replace)	4.13
Teacher identity/agency (Theme 14)	Reflection strengthens professional identity	4.21

Interpretation: The data demonstrate consistently positive beliefs regarding the value of reflective and critical teaching for student learning, teacher agency, and reform readiness. However, practical implementation, particularly regarding school support and the integration of advanced pedagogical strategies, remains uneven. Overall, the results highlight a gap between teachers' conceptual commitment and their classroom enactment, reinforcing the need for targeted professional development and structural support mechanisms.

Discussion

The findings of this study indicate that both novice and in-service teachers recognize the importance of critical thinking and reflective practices in enhancing student learning, teacher professional growth, and educational reform. High mean ratings for items related to AI integration, promotion of student questioning, and reflective teaching suggest a strong philosophical alignment with contemporary pedagogical frameworks emphasizing metacognition, self-regulated learning, and higher-order thinking (Arvatz, Peretz, & Dori, 2025; Heydarnejad, Hosseini Fatemi, & Ghonsooly, 2021).

These results are consistent with prior research demonstrating that teachers value reflective and critical pedagogies as tools for professional development and student engagement (Philp-Clark & Grieshaber, 2024). Similar to the present study, Heydarnejad et al. (2021) found that language teachers with higher self-regulated learning skills were more likely to adopt learner-centered approaches and integrate critical thinking into classroom practices. Likewise, Arvatz et al. (2025) emphasized that structured reflection facilitates the translation of theoretical knowledge into practical classroom strategies, supporting the current finding that teachers endorse reflective teaching but face constraints in its systematic enactment.

However, this study also highlights a gap between pedagogical beliefs and actual classroom implementation, particularly regarding sufficient time for reflection, use of varied questioning techniques, and integration of digital tools for higher-order thinking. This contrasts with some literature suggesting that teachers with extensive professional experience implement reflective practices more consistently (Philp-Clark & Grieshaber, 2024). The discrepancy may be explained by contextual factors such as institutional policies, workload, and limited opportunities for professional dialogue, which aligns with findings by Research and Advances in Education (2023) emphasizing the influence of systemic support on effective pedagogical practice.

Furthermore, the strong endorsement of AI-related pedagogical guidance in this study

reflects the growing recognition of technology as a supportive tool rather than a replacement for critical thinking instruction. This aligns with recent discourse on AI in education, highlighting its potential to scaffold reflective practice while maintaining teacher agency and decision-making (Arvatz et al., 2025).

Overall, the discussion indicates that while teachers are theoretically aligned with reflective and critical pedagogies, practical enactment remains constrained by institutional, temporal, and technological factors. Addressing these barriers through targeted professional development, structured reflective frameworks, and systemic support mechanisms is essential for bridging the gap between belief and practice.

Conclusions

This study examined novice and in-service teachers' perceptions and implementation of critical thinking and reflective practices within classroom contexts. The findings indicate that teachers hold strong positive beliefs regarding the value of reflective teaching, higher-order thinking, and professional development for student learning and educational reform. Teachers also recognize the potential of artificial intelligence as a supportive tool to enhance critical thinking without replacing teacher agency.

However, the study highlights a notable gap between teachers' pedagogical beliefs and their practical classroom enactment. Constraints such as limited time for reflection, insufficient professional dialogue, inconsistent use of varied questioning techniques, and partial integration of digital tools inhibit the systematic application of reflective and critical pedagogies.

The study underscores the need for targeted interventions to bridge this belief–practice gap. Professional development programs should prioritize structured reflection, metacognitive awareness, and higher-order thinking strategies. Institutional support, including adequate time for collaborative dialogue and integration of technology, is essential to enable teachers to translate their pedagogical knowledge into consistent and effective classroom practice.

In conclusion, while teachers demonstrate a philosophical alignment with reflective and critical pedagogies, structural, temporal, and technological challenges must be addressed to fully realize the transformative potential of these approaches in enhancing teaching and learning outcomes.

Implications

The findings of this study have important implications for teaching practice, teacher education, and school leadership. First, professional development programs should focus on enhancing teachers' abilities to implement critical thinking and reflective practices effectively, including structured reflection, higher-order questioning, and metacognitive strategies. Second, school administrators should provide sufficient time, resources, and opportunities for professional dialogue to support the practical enactment of these pedagogies. Third, integrating digital tools and AI thoughtfully can help teachers scaffold students' critical thinking without replacing teacher agency. Overall, addressing both pedagogical knowledge and structural support can bridge the gap between teachers' beliefs and classroom practices, ultimately improving teaching quality and student learning outcomes.

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