

SYSTEMATIC REVIEW ON THE IMPLEMENTATION OF PROFESSIONAL LEARNING COMMUNITIES (PLCs) AMONG TEACHERS

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Abstract: Professional Learning Communities (PLCs) have become an important school-based mechanism for strengthening teacher collaboration, continuous professional learning and sustainable school improvement. However, recent empirical evidence shows that PLC implementation remains inconsistent because leadership support, collaborative routines, teacher agency and institutional conditions vary across school contexts. This systematic literature review synthesises recent studies on PLC implementation among teachers. Guided by PRISMA 2020, searches were conducted in Scopus and Web of Science using terms related to Professional Learning Communities, teacher, school and collaboration. From 1,480 identified records, 29 primary studies published between 2023 and 2025 met the inclusion and quality-assessment criteria. The analysis produced three integrated themes: leadership and organisational support in PLC implementation; collaborative practices and teacher learning; and the impact of PLCs on teacher professionalism, collective efficacy and school development. The synthesis indicates that effective PLCs are not sustained by meetings alone, but by distributed leadership, protected collaboration time, sustained inquiry, evidence-informed reflection and trust-based professional culture. The findings also show a consistent positive association between PLC participation and teachers' self-efficacy, instructional improvement and collaborative professionalism. Nevertheless, evidence on direct student achievement outcomes remains limited and often mediated by contextual factors such as school culture, leadership capacity, resource allocation and teacher workload. A supplementary bibliometric profile further shows that recent PLC research is concentrated around leadership, collaboration, teacher learning, professional growth and school improvement. This review contributes to PLC scholarship by clarifying implementation conditions, synthesising convergent and divergent findings, and identifying gaps requiring longitudinal, comparative and student-outcome-focused research.

Keywords: *Professional Learning Communities, Teacher Collaboration, Teacher Professional Learning, School Improvement, Collective Efficacy*

Introduction

Professional Learning Communities (PLCs) have gained significant attention in recent years as an effective school-based approach to teacher professional development and continuous school improvement. PLCs are commonly defined as collaborative structures where educators engage in ongoing reflective dialogue, share instructional practices, and collectively focus on improving student learning outcomes. However, PLCs extend beyond ordinary teacher collaboration because they involve sustained collective inquiry, shared responsibility for professional improvement and student learning, reflective dialogue, and the systematic use of evidence to inform teaching practices. This approach has become increasingly important as traditional, isolated forms of professional development are often insufficient to address complex educational challenges such as teacher workload, instructional inconsistency, curriculum reform, and declining student engagement. Recent literature has expanded the understanding of PLCs beyond informal teacher meetings, positioning them instead as structured organisational learning systems shaped by leadership practices, trust, shared vision, and evidence-based collaboration (de Jong et al., 2025; Dzieciatko-Szendrei et al., 2024; Handayani et al., 2025). Within this perspective, PLCs are not merely professional gatherings but sustained learning communities that rely on systematic inquiry, collective responsibility, and pedagogical improvement. This shift reflects a broader recognition that meaningful teacher learning requires continuous interaction, collaboration, and reflection rather than one-off training sessions.

The importance of PLCs is further reinforced in contemporary education systems, where teachers are expected to respond to rapid changes including digital transformation, curriculum reform, learning loss, and increased accountability demands. PLCs provide structured opportunities for teachers to analyse student data, reflect on teaching practices, test instructional strategies, and build professional identity through collegial support. Empirical studies indicate that PLCs contribute positively to teacher professional growth, self-efficacy, and collaborative problem-solving; however, their effectiveness is highly dependent on contextual factors such as leadership support, school culture, and resource availability (Abdullah et al., 2025; Charong & Haruthaithanasan, 2025; de Jong et al., 2025; Liou et al., 2025; Mazzuki, 2025; Mthembu et al., 2025; Olmo-Extremiera et al., 2025; Toikka & Tarnanen, 2025; Truong et al., 2025; Ye, 2025; Yeap & Ali, 2025). Despite the growing body of research, inconsistencies remain in how PLCs are defined, implemented, and evaluated across different educational contexts. Variations in leadership models, collaboration structures, and institutional support systems have resulted in uneven outcomes, particularly in relation to student achievement impacts. These gaps highlight the need for a systematic synthesis of recent empirical evidence to better understand the conditions under which PLCs are most effective.

This systematic literature review therefore synthesises empirical studies published between 2023 and 2025 on PLC implementation among teachers. It aims to examine: (1) how leadership and organisational support influence PLC implementation, (2) how collaborative practices shape teacher learning, and (3) how PLCs impact teacher professionalism, collective efficacy, and school development. By integrating a structured PRISMA-based approach (Page et al., 2021) and thematic synthesis, this review provides a comprehensive and methodologically transparent analysis aligned with current expectations for high-quality academic publications.

Literature Review

Conceptual Development of PLCs

Recent literature shows that PLCs are not defined solely by teacher collaboration, but by the quality and purpose of collaboration. Key indicators include shared vision, collective responsibility, reflective dialogue, deprivatised practice, evidence-informed inquiry, and organisational support (de Jong et al., 2025; Dzieciatko-Szendrei et al., 2024). These dimensions distinguish PLCs from ordinary teacher collaboration, which may involve the exchange of information or coordination of routine activities without sustained inquiry into teaching and learning. In a PLC, collaboration is intentionally directed towards collective professional learning, improvement of pedagogical practice, and student learning. Therefore, the existence of teacher interaction alone is insufficient to classify a group as a PLC; the interaction must be sustained, purposeful, reflective, and connected to evidence of practice and shared improvement goals.

A systematic review of teacher communities highlighted that conceptual ambiguity remains a significant challenge because different studies use overlapping terms such as professional learning community, teacher community, community of practice, and professional learning network (Dzieciatko-Szendrei et al., 2024). This ambiguity makes operational clarity essential in any systematic literature review on PLCs. Accordingly, this review adopts a more specific conceptual boundary in which PLCs are recognised through the combination of sustained collaboration, collective inquiry, shared responsibility, reflective professional dialogue, and an explicit orientation towards improving teaching and student learning.

In this review, PLCs are defined as structured and sustained school-based communities in which teachers collaborate to improve professional knowledge, pedagogical practice, and student learning. This definition is broad enough to include whole-school, departmental, face-to-face, and online PLCs, while remaining sufficiently specific to exclude general professional development programmes that do not involve collective inquiry or shared practice. The definition also distinguishes PLCs from one-off professional development activities because PLC participation involves an ongoing process through which teachers collectively examine practice, interpret evidence, exchange professional knowledge, and refine instructional approaches.

The literature also positions PLCs within wider traditions of social learning, organisational learning, and communities of practice. Teachers learn not only through formal training but also through participation in professional dialogue, shared problem-solving, classroom observation, experimentation, and collective interpretation of evidence from practice (Babichenko et al., 2024; Toikka & Tarnanen, 2025). From an organisational learning perspective, PLCs provide a mechanism through which individual teacher knowledge can be shared, examined, and incorporated into collective professional practice. Their connection with communities of practice is reflected in teachers' participation in shared professional activities, problem-solving, and the development of common understandings through interaction. At the same time, PLCs are connected with collective efficacy because sustained collaborative experiences can strengthen teachers' shared beliefs in their collective capacity to address instructional challenges and improve student learning. These theoretical connections position PLCs as more than a structure for teacher interaction; they represent a social and organisational process through which individual learning, collective capability, and school improvement are interconnected. Consequently, PLCs are frequently associated with strengthening teacher

professional identity, collective efficacy, and sustainable school improvement rather than merely enhancing individual teaching competencies (Abdullah et al., 2025; Liou et al., 2025; Olmo-Extremera et al., 2025).

Leadership, Culture and Organisational Conditions

Leadership is consistently identified as a critical factor influencing the sustainability of Professional Learning Communities (PLCs). Recent studies emphasise the important roles of school principals, middle leaders, district administrators, and other key stakeholders in allocating time, legitimising collaborative practices, fostering trust, and aligning PLC activities with broader school improvement goals (Abbaspour et al., 2024; Ansari & Asad, 2024; Truong et al., 2025; Ye, 2025; Yeap & Ali, 2025). However, leadership does not always produce positive outcomes. Although centralised or hierarchical education systems may facilitate PLC implementation through clear structures, policy direction, and resource allocation, they may also constrain teacher autonomy when collaboration becomes compliance-oriented rather than professionally driven. This tension suggests that sustainable PLC implementation requires a balance between effective formal leadership and distributed professional responsibility.

School culture is another recurring determinant of PLC effectiveness. Trust, psychological safety, and shared professional norms influence teachers' willingness to engage in reflective dialogue, open their classrooms to peer observation, and continuously refine instructional practices. Evidence from studies conducted in Malaysia, China, Vietnam, Pakistan, Chile, Bahrain, Oman, and South Africa demonstrates that although PLC implementation varies across educational systems and cultural contexts, successful and sustainable PLCs consistently depend on common organisational conditions, including supportive leadership, active teacher participation, structured collaborative routines, and meaningful professional dialogue (Ansari & Asad, 2024; McKie, 2024; Mohd Zabidi et al., 2023; Mthembu et al., 2025; Truong et al., 2025; Abdullah et al., 2025; Almahdi et al., 2023).

Collaborative Practices and Teacher Learning

Collaboration within Professional Learning Communities (PLCs) occurs through various professional learning activities, including lesson study, collaborative inquiry, data-based decision making, action research, peer observation, and reflective professional dialogue (Babichenko et al., 2024; Charong & Haruthaithanasan, 2025; McKie, 2024; Mthembu et al., 2025; O'Connor & Park, 2023; Sonsupap & Cojorn, 2024). The strongest evidence indicates that PLCs are most effective when collaborative activities are centred on authentic classroom challenges and supported by systematic evidence from teaching and learning. Rather than merely exchanging ideas, teachers engage in analysing student learning, testing instructional strategies, and reflecting on classroom practices to improve teaching quality (Babichenko et al., 2024; O'Connor & Park, 2023; Sonsupap & Cojorn, 2024). However, collaboration may become superficial when meetings lack a clear instructional focus, dedicated time is insufficient, or teachers face excessive administrative workloads (McKie, 2024; Mthembu et al., 2025).

The distinguishing feature of these practices is therefore not collaboration itself, but the extent to which collaboration is organised around sustained professional inquiry, evidence-informed reflection, and collective improvement of teaching and learning. Simply meeting to exchange opinions rarely produces meaningful instructional change. By contrast, collaborative analysis of student work, interpretation of learning data, classroom observation, and joint lesson redesign transform collaboration into a mechanism for pedagogical improvement. Data-based

decision making is particularly valuable because it shifts PLC discussions from general conversations toward evidence-informed instructional decision making (O'Connor & Park, 2023). However, meaningful use of data requires teachers to develop the capacity to interpret evidence constructively, avoid blame-oriented discussions, and translate findings into effective pedagogical actions. Without these capabilities, data discussions risk becoming administrative reporting exercises rather than opportunities for professional inquiry.

Several studies also demonstrate that PLCs play an important role in supporting preservice and early-career teachers by reducing professional isolation and facilitating their understanding of school culture (Klatt et al., 2023; Mazzuki, 2025). Within these contexts, PLCs function not only as professional development mechanisms but also as induction environments that foster teacher confidence and socialisation into the profession. Emotional support, a sense of belonging, and positive team dynamics therefore represent essential dimensions of teacher learning, particularly for novice teachers and those working in challenging educational settings (Beddoes et al., 2023; Klatt et al., 2023). Overall, Theme 2 challenges the assumption that collaboration is inherently beneficial. Instead, collaboration generates meaningful professional learning only when it is characterised by clear instructional focus, evidence-informed inquiry, effective facilitation, professional trust, and sustained engagement. Consequently, the design of collaborative activities is equally as important as teachers' willingness to participate.

Outcomes, Challenges and Gaps

The reviewed literature consistently associates participation in PLCs with improvements in teacher professionalism, self-efficacy, reflective practice, instructional quality, collaborative culture, and collective responsibility (Abdullah et al., 2025; McKie, 2024; Mohd Zabidi et al., 2023; O'Connor & Park, 2023; Zorde & Lapidot-Lefler, 2025). Nevertheless, evidence regarding direct impacts on student achievement remains relatively limited. Several studies report positive outcomes, including improved school readiness, higher-order thinking skills, and enhanced learning in challenging educational contexts; however, these effects are generally mediated by factors such as leadership support, favourable organisational conditions, collaborative culture, and well-designed pedagogical interventions (Abdullah et al., 2025; Olmo-Extremera et al., 2025; Ren et al., 2024; Sonsupap & Cojorn, 2024). Consequently, the key research question is no longer whether PLCs are beneficial, but rather the organisational and pedagogical conditions under which they generate measurable, sustainable, and transferable improvements in student learning.

The current body of literature also reveals several important research gaps. These include the limited availability of longitudinal studies, inconsistent reporting of methodological limitations, variations in the operational definitions of PLCs, insufficient attention to equity-oriented and inclusive PLC practices, and a lack of comparative evidence across different educational systems and cultural contexts. These limitations justify the need for an updated systematic literature review that extends beyond describing existing studies. Instead, a robust review should synthesise emerging patterns, identify contradictions, explain contextual variations, and generate evidence-informed implications for educational leadership, policy development, and future research.

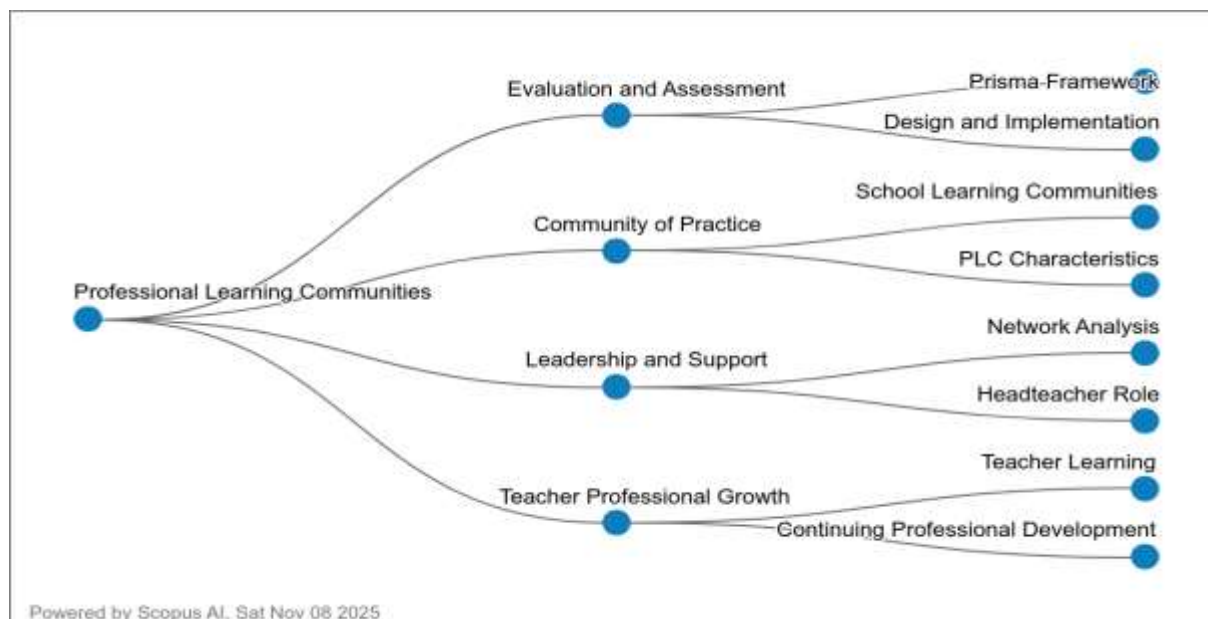


Figure 1: Concept Map of Interconnected Domains Within PLC Literature

Figure 1 is retained because it remains relevant to the PLC article. It shows four connected domains: evaluation and assessment, community of practice, leadership and support, and teacher professional growth. The revised text uses this figure to support the argument that PLC implementation is multidimensional rather than limited to teacher meetings.

Methodology

Review Protocol and Databases

This systematic literature review followed the PRISMA 2020 reporting guidelines for systematic reviews, which emphasise transparent and systematic reporting throughout the identification, screening, eligibility, and inclusion stages of the review process (Page et al., 2021). Consistent with the format of journal articles, the methodology focuses on the practical application of the PRISMA framework rather than providing an extensive theoretical explanation. Emphasis is therefore placed on how the PRISMA 2020 guidelines were operationalised to ensure methodological transparency, reproducibility, and rigour throughout the review process.

The literature search was conducted using two internationally recognised databases, Scopus and Web of Science, selected because of their comprehensive coverage of high-quality, peer-reviewed educational research. The ERIC database was excluded from the revised methodology because the final search records and data extraction tables contained only studies retrieved from Scopus and Web of Science. This revision ensures methodological consistency between the search strategy, PRISMA flow diagram, data tables, and the final corpus of included studies, thereby avoiding any overstatement regarding database coverage.

Table 1: Revised Search Strings

Database	Search String and Limits
Scopus	TITLE-ABS-KEY ("professional learning communities" AND teacher AND school AND collaborative) AND PUBYEAR > 2022 AND PUBYEAR < 2026 AND DOCTYPE(ar) AND SRCTYPE(j) AND LANGUAGE(English) AND PUBSTAGE(final)
Web of Science	Topic: "professional learning communities" AND teacher AND school AND collaborative; Publication years: 2023, 2024, 2025; Document type: Article; Language: English

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria retained only recent, English-language, peer-reviewed journal articles related to PLC implementation among teachers in school or teacher education contexts. Non-English papers, publications before 2023, reviews, books, conference papers, in-press items and unrelated fields were excluded. The criteria were applied systematically at the screening and full-text eligibility stages to ensure that only studies meeting all predefined criteria were retained for quality assessment and final synthesis.

Table 2: Selection Criteria

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2023-2025	Before 2023
Literature type	Peer-reviewed journal article	Conference paper, book chapter, review article, editorial
Publication stage	Final publication	Article in press
Subject focus	PLC, teacher collaboration, school improvement and teacher professional learning	Unrelated organisational learning, non-school contexts or non-teacher studies

PRISMA Flow and Eligibility

The corrected PRISMA logic is as follows: 1,480 records were identified from Scopus (n = 739) and Web of Science (n = 741). Database limits and criteria removed 1,266 records, leaving 214 records. After duplicate removal (n = 32), 182 records were screened by title and abstract. A further 84 records were excluded because they did not align with PLC implementation among teachers. Ninety-eight full-text articles were assessed, 62 were excluded because of full-text inaccessibility or insufficient empirical relevance, 36 articles proceeded to quality assessment, and 7 were excluded after quality assessment. The final synthesis therefore used 29 primary studies. No empty exclusion category is retained in the revised PRISMA diagram. This resolves the earlier inconsistency between 29 and 36 studies. The screening process was conducted against the predefined inclusion and exclusion criteria, with differences in screening decisions discussed between the authors until agreement was reached. The same approach was applied during full-text eligibility assessment to ensure that the final studies retained for quality assessment met the established selection criteria.

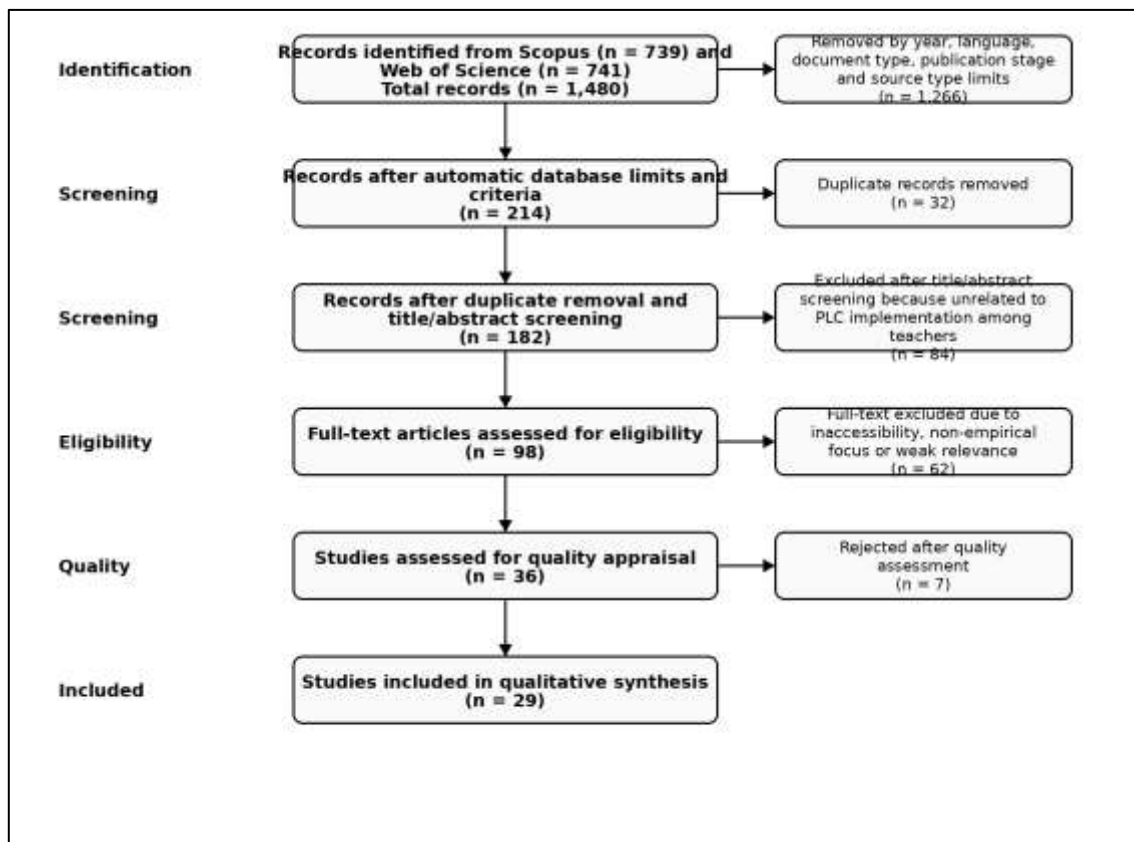


Figure 2: Corrected PRISMA Flow Diagram with Internally Consistent Study Counts

Data Abstraction and Analysis

Data abstraction focused on the author(s), publication year, article title, journal, database source, research context, PLC implementation factors, reported outcomes, and study limitations. Thematic synthesis was undertaken through open coding, clustering of related findings, and cross-theme comparison, with all analyses centred on the implementation of Professional Learning Communities (PLCs) among teachers. References unrelated to the review focus, such as previous descriptions of e-learning in Malaysia, were excluded to ensure that the data abstraction process remained fully aligned with the review objectives, research questions, and final dataset. Rather than summarising each study individually, the coding process compared recurring patterns of evidence across studies to identify common themes, relationships, and contextual variations in PLC implementation. To strengthen the transparency of the thematic synthesis, the extracted evidence was reviewed across the coding and theme-development stages to check the consistency of interpretations. Where differences in coding or theme interpretation occurred, these were discussed and resolved through consensus before the final themes were established. This process helped ensure that the synthesis reflected recurring patterns across the included studies rather than individual interpretations of isolated findings.

The methodological quality of the included studies was assessed using six appraisal criteria adapted from established guidelines for conducting systematic literature reviews (Kitchenham & Charters, 2007). The criteria evaluated (1) clarity of research purpose, (2) usefulness of the study, (3) methodological transparency, (4) conceptual clarity, (5) comparison with related literature, and (6) acknowledgement of study limitations. Each criterion was scored using a three-point scale: Yes = 1, Partly = 0.5, and No = 0. Studies obtaining a total quality score of

3.0 or above were retained for the final thematic synthesis to ensure that the review was based on studies of acceptable methodological quality.

Table 3: Final Primary Studies Included in the Synthesis (n = 29)

PS	Authors	Focus/title summary	Context/focus
PS1	Toikka & Tarnanen (2025)	School development through team learning	Finland / school development
PS2	Yeap & Ali (2025)	Middle leadership and teacher participation	Malaysia / leadership
PS3	Liou et al. (2025)	Collaborative conditions for teacher professional growth	Networked professional learning
PS4	Charong & Haruthaithanasan (2025)	Japanese lesson study in a Thai private school	Thailand / lesson study
PS5	Mazzuki (2025)	Preservice teachers and rural professional learning	Rural teacher education
PS6	Zorde & Lapidot-Lefler (2025)	PLCs, inclusive practices and well-being	Inclusive education
PS7	Mthembu et al. (2025)	Collaborative practices in semi-rural mathematics PLCs	South Africa / mathematics
PS8	Truong et al. (2025)	Stakeholders in Vietnamese primary-school PLCs	Vietnam / primary schools
PS9	Olmo-Extremera et al. (2025)	PLCs in secondary schools and challenging contexts	Secondary schools
PS10	Abdullah et al. (2025)	PLC, teacher self-efficacy and collective efficacy	Sarawak, Malaysia
PS11	Ye (2025)	Principals HRM and PLCs in rural Shanghai	China / HRM
PS12	Babichenko et al. (2024)	Teacher collaborative inquiry and activity type	School-based inquiry
PS13	Moore et al. (2024)	Evaluation partnerships for professional development projects	Evaluation partnership
PS14	McKie (2024)	Sustained success in PLCs	STEM / sustained PLC
PS15	Phillips et al. (2024)	Action research and logic modelling	Student engagement and well-being
PS16	Sonsupap & Cojorn (2024)	Collaborative PD and higher-order thinking	Teacher pedagogy
PS17	Ansari & Asad (2024)	School leaders and PLC culture in Pakistan	Pakistan / leadership
PS18	Abbaspour et al. (2024)	Principals and teacher professional learning	Centralised system
PS19	Ren et al. (2024)	Teacher PLCs and children's school readiness	China / early learning

PS	Authors	Focus/title summary	Context/focus
PS20	Peña-Ruz & Armengol Asparó (2024)	Dimensions of PLCs in Chile	Chile / dimensions
PS21	O'Connor & Park (2023)	Collaborative data-based decision making	Data-based practice
PS22	Mohd Zabidi et al. (2023)	Inside the Malaysian PLC black box	Malaysia / teacher collaboration
PS23	Voelkel et al. (2023)	District office leadership and collaborative teams	District leadership
PS24	Almahdi et al. (2023)	PLCs in private schools in Bahrain and Oman	Middle East / private schools
PS25	Shand & Batts (2023)	Inclusive PLCs	Equity and inclusion
PS26	Efe et al. (2023)	PLC and principals classroom observation	Turkey / observation
PS27	Beddoes et al. (2023)	Emotional side of PLCs and team dynamics	Team dynamics
PS28	Mei Kin & Kareem (2023)	PLC and teacher attitudes toward change	Teacher attitudes
PS29	Klatt et al. (2023)	Induction and school culture through PLCs	Teacher induction

Quality Assessment

The quality assessment table is corrected so that it includes only the same 29 primary studies listed in Table 3. Studies that appeared in the earlier QA table but were not part of the final 29-study corpus were removed from the QA table to protect data integrity. The methodological quality of the included studies was assessed by the authors using the six predefined appraisal criteria. Where differences in appraisal judgements occurred, the authors discussed the assessments and reached agreement before the final quality scores were recorded. This process was applied consistently across all 29 included studies to ensure that the decision to retain studies for the final thematic synthesis was based on an agreed assessment of methodological quality.

Table 4: Revised Quality Assessment Table Aligned with the 29 Included Studies

PS	QA1	QA2	QA3	QA4	QA5	QA6	Total
PS1	Y	Y	P	P	P	N	3.0
PS2	Y	Y	Y	P	P	N	3.5
PS3	Y	Y	Y	Y	P	N	4.0
PS4	Y	Y	Y	Y	P	N	4.0
PS5	Y	Y	P	P	P	N	3.0
PS6	Y	Y	Y	Y	P	N	4.0
PS7	Y	Y	Y	P	P	N	3.5
PS8	Y	Y	Y	Y	P	N	4.0
PS9	Y	Y	Y	P	P	N	3.5
PS10	Y	Y	Y	Y	P	Y	4.5
PS11	Y	Y	Y	P	P	N	3.5
PS12	Y	Y	Y	Y	Y	N	4.5
PS13	Y	Y	Y	Y	P	N	4.0

PS	QA1	QA2	QA3	QA4	QA5	QA6	Total
PS14	Y	Y	P	P	P	N	3.0
PS15	Y	Y	Y	P	P	N	3.5
PS16	Y	Y	Y	P	P	N	3.5
PS17	Y	Y	Y	Y	P	Y	4.5
PS18	Y	Y	Y	Y	P	N	4.0
PS19	Y	Y	Y	Y	P	N	4.0
PS20	Y	Y	Y	P	P	N	3.5
PS21	Y	Y	Y	P	P	N	3.5
PS22	Y	Y	Y	Y	P	Y	4.5
PS23	Y	Y	Y	P	P	N	3.5
PS24	Y	Y	P	P	P	N	3.0
PS25	Y	Y	Y	P	P	N	3.5
PS26	Y	Y	Y	P	P	N	3.5
PS27	Y	Y	P	P	P	N	3.0
PS28	Y	Y	Y	P	P	N	3.5
PS29	Y	Y	P	P	P	N	3.0

The revised QA results show that all retained studies scored at least 3.0, with stronger studies usually reporting clearer methodology, conceptual grounding and limitations. A recurring weakness across the corpus is limited explicit discussion of study limitations, which is considered in the interpretation of findings rather than ignored.

Supplementary Bibliometric Profiling

A supplementary bibliometric profile was included to address current expectations for systematic literature review (SLR) articles, particularly those published in high-impact academic journals. Given the relatively small final corpus ($n = 29$), the bibliometric analysis was intended to provide descriptive insights rather than a comprehensive network analysis. The profile summarised publication trends, geographical and contextual distribution, and keyword co-occurrence patterns using a VOSviewer-compatible analytical framework (van Eck & Waltman, 2010). This approach enabled the identification of broad research patterns while avoiding overinterpretation of network structures or bibliometric relationships that may not be sufficiently robust within a limited dataset.

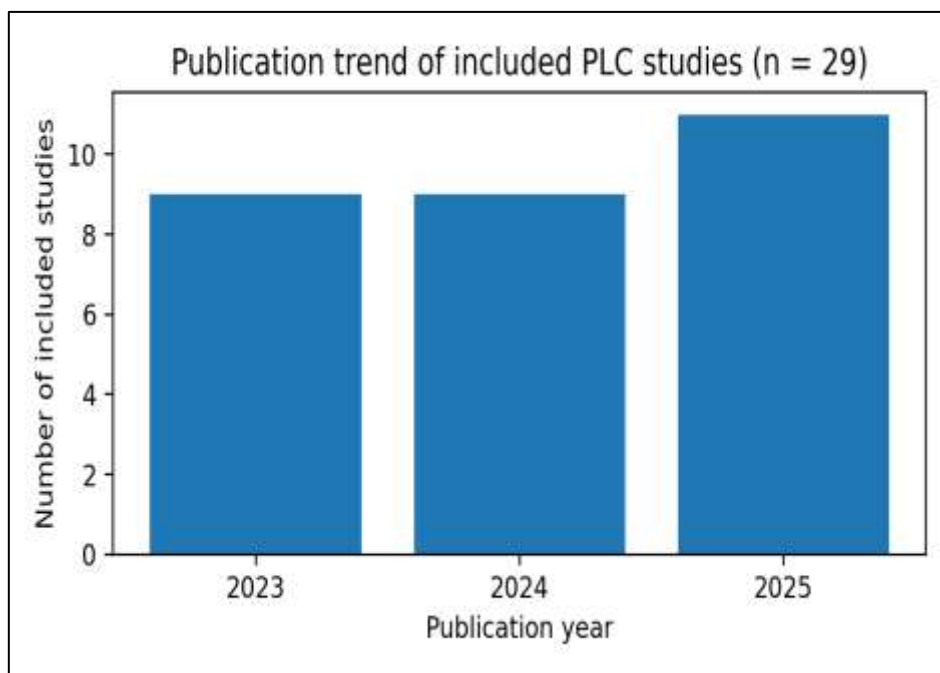


Figure 3: Publication Trend of Included Primary Studies From 2023 to 2025

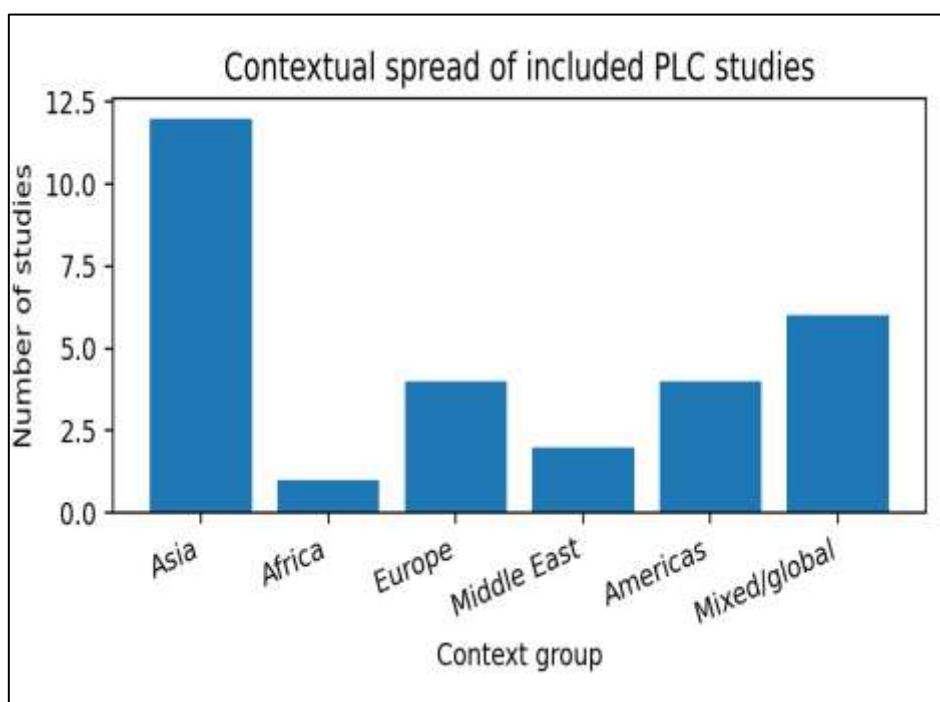


Figure 4: Contextual Spread of Included Primary Studies

Table 5: Descriptive Keyword Clusters from the Included Studies

Cluster	Recurring Keywords/Concepts	Interpretation
Leadership and support	principal leadership; middle leadership; stakeholder support; district office; HRM	PLC implementation is strongly shaped by formal and distributed leadership support.
Collaboration and inquiry	lesson study; collaborative inquiry; data-based decision making; peer dialogue	Teacher learning improves when collaboration is structured around classroom problems and evidence.
Teacher growth	professional learning; self-efficacy; collective efficacy; professional identity	PLCs are linked to teacher professionalism and confidence in instructional improvement.
School improvement	school readiness; inclusive practice; challenging contexts; school development	Student or school outcomes appear when PLCs are tied to broader improvement strategies.
Sustainability challenges	time; workload; trust; resources; emotional dynamics	Sustainability depends on organisational conditions and teachers' willingness to participate authentically.

Results and Findings

Overview of Included Studies

The final 29 studies cover different PLC contexts, including primary schools, secondary schools, teacher education, private schools, semi-rural districts, centralised education systems, district-level support structures and subject-based PLCs. Publication years were distributed across 2023 (nine studies), 2024 (nine studies) and 2025 (eleven studies), indicating growing recent interest in PLC implementation. The studies used qualitative, quantitative and mixed approaches, but many abstracts and articles gave limited attention to explicit limitations, which explains the moderate QA profile in Table 4. The evidence base is geographically and contextually diverse, but still uneven. Asian studies are more visible in the final corpus, especially Malaysia, China, Thailand and Vietnam. This provides useful insight into PLC adaptation in collectivist, hierarchical and reform-oriented education systems, but it also means that findings should not be generalised uncritically to all schooling contexts.

Theme 1: Leadership and Organisational Support in PLC Implementation

Leadership emerges as the most consistent enabling factor across the reviewed studies. Evidence from research on middle leadership, principals' human resource management, district office support, and stakeholder involvement suggests that PLCs are more likely to function effectively when school leaders create the necessary time, organisational structures, and legitimacy for collaborative professional learning (Abbaspour et al., 2024; Ansari & Asad, 2024; Truong et al., 2025; Voelkel et al., 2023; Ye, 2025; Yeap & Ali, 2025). Leadership support therefore extends beyond motivational encouragement to include practical organisational decisions such as scheduling collaborative sessions, reducing unnecessary administrative workload, aligning PLC goals with school improvement priorities, and recognising teachers' professional contributions.

A key finding from the synthesis is that leadership operates through both structural and cultural mechanisms. Structurally, school leaders provide time, resources, organisational support, and coordination. Culturally, they foster trust, encourage shared responsibility, and create psychologically safe environments that reduce teachers' fear of professional judgement. These complementary mechanisms help explain why similar PLC models may succeed in one school while remaining symbolic or ineffective in another. The evidence also highlights an important tension between top-down and distributed leadership. In centralised education systems, principal leadership can institutionalise PLC routines and align them with policy objectives. However, when PLC participation becomes compliance-driven, teachers are more likely to engage passively without meaningful professional inquiry. Conversely, distributed leadership and active teacher participation in decision-making enhance teacher ownership, commitment, and the long-term sustainability of PLC initiatives (Abbaspour et al., 2024; Ye, 2025; Yeap & Ali, 2025). Middle leaders play a particularly important role by translating whole-school expectations into subject-specific or departmental practices, facilitating professional dialogue, and sustaining collaborative routines. Studies consistently indicate that PLCs are more sustainable when teacher leaders are formally recognised and empowered to participate in decision-making processes (Yeap & Ali, 2025). Collectively, these findings demonstrate that successful PLC implementation should be viewed primarily as an issue of organisational design rather than simply the scheduling of collaborative meetings. Leadership, time allocation, role clarity, professional trust, and policy coherence therefore represent essential organisational conditions for enabling teacher collaboration to develop into meaningful and sustained professional learning.

Theme 2: Collaborative Practices and Teacher Learning in PLCs

The reviewed studies identify a wide range of collaborative practices within PLCs, including lesson study, collaborative inquiry, action research, data-based decision making, evaluation partnerships, and reflective professional dialogue (Babichenko et al., 2024; Charong & Haruthaithanasan, 2025; Moore et al., 2024; O'Connor & Park, 2023; Phillips et al., 2024; Sonsupap & Cojorn, 2024). Although these collaborative approaches differ in their organisational structure, they share a common objective of enabling teachers to use evidence, critically reflect on instructional practice, and collaboratively improve teaching. Lesson study, for example, integrates lesson planning, classroom observation, professional feedback, and lesson revision into a continuous cycle of collective learning.

The synthesis further indicates that collaboration is most effective when it is structured, inquiry-oriented, and grounded in authentic classroom evidence. Simply meeting to exchange opinions rarely produces meaningful instructional change. By contrast, collaborative analysis of student work, interpretation of learning data, classroom observation, and joint lesson redesign transform collaboration into a mechanism for pedagogical improvement. These practices distinguish PLC-based collaboration from routine collegial interaction because they involve sustained inquiry, reflective examination of practice, and collective responsibility for improving teaching and learning. Data-based decision making is particularly valuable because it shifts PLC discussions from general conversations toward evidence-informed instructional decision making (O'Connor & Park, 2023). However, meaningful use of data requires teachers to develop the capacity to interpret evidence constructively, avoid blame-oriented discussions, and translate findings into effective pedagogical actions. Without these capabilities, data discussions risk becoming administrative reporting exercises rather than opportunities for professional inquiry.

Several studies also demonstrate that PLCs play an important role in supporting preservice and early-career teachers by reducing professional isolation and facilitating their understanding of school culture (Klatt et al., 2023; Mazzuki, 2025). Within these contexts, PLCs function not only as professional development mechanisms but also as induction environments that foster teacher confidence and socialisation into the profession. Emotional support, a sense of belonging, and positive team dynamics therefore represent essential dimensions of teacher learning, particularly for novice teachers and those working in challenging educational settings (Beddoes et al., 2023; Klatt et al., 2023). Overall, Theme 2 challenges the assumption that collaboration is inherently beneficial. Instead, collaboration generates meaningful professional learning only when it is characterised by clear instructional focus, evidence-informed inquiry, effective facilitation, professional trust, and sustained engagement. Consequently, the design of collaborative activities is equally as important as teachers' willingness to participate.

Theme 3: Impact of PLCs on Teacher Professionalism, Collective Efficacy and School Development

The reviewed studies consistently associate participation in PLCs with enhanced teacher professionalism, reflective practice, professional confidence, and collaborative learning. Teachers actively involved in well-functioning PLCs are more likely to exchange instructional strategies, seek constructive feedback, experiment with innovative pedagogical approaches, and regard professional growth as a collective rather than individual responsibility. This pattern is consistently observed across diverse educational contexts, including Malaysia, China, South Africa, Thailand, Pakistan, and several European countries (Abdullah et al., 2025; Ansari & Asad, 2024; Charong & Haruthaithanasan, 2025; Mthembu et al., 2025; Mohd Zabidi et al., 2023; Ye, 2025; Yeap & Ali, 2025). The evidence further indicates that the most immediate and robust impacts of PLCs occur at the teacher level, particularly in relation to teacher self-efficacy, collective efficacy, instructional improvement, and professional identity. By comparison, evidence regarding student achievement remains more limited and appears to depend on mediating factors such as instructional quality, supportive organisational conditions, and sustained implementation (Abdullah et al., 2025; Ren et al., 2024).

Collective teacher efficacy emerges as one of the most significant outcomes because it connects individual teacher confidence with shared beliefs about the school's collective capacity to improve student learning. Evidence from Malaysia and China demonstrates that supportive organisational conditions and cooperative school cultures strengthen the relationship between PLC participation and both teacher- and student-related outcomes (Abdullah et al., 2025; Ren et al., 2024). In this respect, collective efficacy provides an important link between collaborative professional learning and broader school development by strengthening teachers' shared capacity to translate collective learning into improved instructional practice. These findings suggest that PLCs contribute to school development through a sequential pathway in which collaborative learning enhances teacher efficacy, strengthens instructional practice, and ultimately supports student learning. School improvement is particularly evident when PLCs are embedded within broader strategic improvement initiatives. In challenging educational contexts, PLCs provide a collaborative structure through which teachers coordinate interventions, respond to diverse student needs, and sustain educational innovation (Olmo-Extremera et al., 2025). Similarly, in inclusive educational settings, PLCs promote shared responsibility for diverse learners while supporting teacher well-being and sustainable professional practice (Shand & Batts, 2023; Zorde & Lapidot-Lefler, 2025). Nevertheless, these organisational benefits require long-term continuity, as short-term or compliance-oriented PLC initiatives are unlikely to generate deep institutional change. Consequently, Theme 3 suggests

that PLC effectiveness should not be evaluated solely by the frequency of meetings but rather by indicators such as the quality of professional dialogue, evidence-informed practice, teacher agency, instructional improvement, collective efficacy, and alignment with school improvement priorities.

Cross-Theme Synthesis

Across the three themes, the central finding is that PLC effectiveness depends on the interaction between leadership conditions, collaborative practice design and teacher-level outcomes. Leadership creates enabling conditions; collaborative routines convert those conditions into professional learning; and teacher professionalism or collective efficacy represents the most immediate outcome of PLC participation. Taken together, the three themes indicate that PLCs operate as an interconnected process in which organisational support enables sustained collaborative inquiry, collaborative inquiry strengthens teacher learning and collective efficacy, and these outcomes contribute to broader school development. The evidence also reveals important contradictions. First, while many studies praise leadership support, some contexts show that strong leadership can become overly directive if teacher voice is weak. Second, while collaboration is repeatedly valued, not all collaborative activity leads to learning; superficial meetings may increase workload without changing practice. Third, while PLCs are linked to school development, evidence on student achievement remains indirect and needs stronger longitudinal designs. The revised discussion therefore interprets the literature as a conditional model: PLCs work when structural support, relational trust, inquiry-based collaboration and instructional follow-up are present together. If one component is missing, PLCs may remain symbolic, fragmented or unsustainable.

Discussion

This review was designed to synthesise recent evidence on PLC implementation among teachers and to identify the conditions that make PLCs meaningful in school improvement. The findings confirm that PLCs are relevant across diverse education systems, but they also show that the concept is often implemented unevenly. Schools may use the term PLC while practising very different forms of collaboration, ranging from administrative meetings to rigorous inquiry cycles. This distinction is important because the presence of collaborative meetings alone does not necessarily indicate meaningful PLC implementation. This variation explains why systematic synthesis is necessary. The first major contribution of the review is the clarification of PLC implementation as a layered process. At the surface level, PLCs involve scheduled teacher collaboration. At a deeper level, they require shared norms, inquiry routines, supportive leadership and evidence-informed practice. At the organisational level, they require policy coherence, time protection, role clarity and leadership capacity. This layered understanding helps explain implementation success and failure.

The findings also extend the discussion on leadership by showing that different leadership actors matter at different stages of PLC development. Principals legitimise PLCs and align them with school priorities. Middle leaders facilitate subject or grade-level collaboration. District offices and external stakeholders can provide resources, professional development and continuity. However, teachers themselves remain central because PLCs cannot produce professional learning without authentic participation and shared ownership. The second contribution is the shift from descriptive reporting to analytical synthesis. Rather than presenting the findings study by study, this review identifies patterns of convergence, divergence and gaps. Convergent evidence shows that leadership, trust, structured collaboration and evidence use are central to PLC success. Divergent evidence appears in the degree to which

PLCs affect student outcomes, because this relationship depends on pedagogical quality and contextual support. Taken together, these findings suggest that PLC implementation is best understood as an organisational learning process in which sustained collaboration, shared professional practice and collective efficacy interact to support instructional improvement and school development.

The bibliometric profile adds another layer to the discussion. The publication trend indicates sustained and slightly increasing interest from 2023 to 2025. Keyword clusters show that PLC research is organised around leadership, collaboration, teacher learning, school improvement and sustainability challenges. The contextual spread suggests increasing attention to non-Western settings, which is important because PLC models developed in one system may not transfer directly to another. A practical implication is that school leaders should evaluate PLC quality rather than only PLC existence. Useful evaluation questions include: Are teachers discussing real classroom evidence? Is collaboration connected to student learning needs? Do teachers have time and support? Are middle leaders trained to facilitate inquiry? Are PLC outcomes linked to changes in pedagogy and professional confidence?. The review also highlights implications for policymakers. PLC policies should avoid assuming that mandating collaboration will automatically improve practice. Policies need to allocate protected time, support leadership development, reduce unnecessary workload and recognise the emotional dimension of teacher collaboration. Without these supports, PLCs may become additional administrative tasks rather than spaces for professional learning.

Practical Implications for PLC Implementation

A practical implication section is added to make the SLR more useful for educational leaders, policymakers and school practitioners. The synthesis indicates that PLCs should be designed as professional learning systems rather than administrative routines. The following implications translate the review findings into implementation priorities.

First, school leaders should protect collaboration time. Across the reviewed studies, time pressure and workload repeatedly appear as barriers to meaningful teacher participation. PLCs require scheduled time that is recognised as part of teachers' professional work, not an additional informal task after teaching hours. Protected time allows teachers to examine evidence, plan lessons, discuss problems and evaluate instructional changes without reducing PLCs to brief reporting sessions. Second, PLC facilitation should be treated as a leadership skill. Principals and middle leaders need capacity to guide inquiry, manage professional dialogue, encourage participation and prevent collaboration from becoming compliance-driven. This is especially important in hierarchical or centralised systems where teachers may wait for direction rather than initiate professional inquiry. Training middle leaders to facilitate PLCs can strengthen teacher ownership and sustain the quality of collaboration.

Third, PLC activities should be linked to classroom evidence. The review shows that lesson study, collaborative inquiry and data-based decision making are stronger when teachers analyse actual student work, assessment data, classroom observation notes or lesson outcomes. Evidence gives PLC discussion a concrete focus and helps teachers move from opinion-sharing to pedagogical decision-making. In this way, evidence-informed inquiry helps distinguish sustained PLC learning from routine information-sharing or collegial interaction. This also makes PLC outcomes more visible and easier to evaluate. Fourth, school systems should evaluate PLC quality using process and outcome indicators. Process indicators may include frequency of evidence-based dialogue, teacher participation, quality of facilitation, shared

planning and reflective documentation. Outcome indicators may include changes in instructional strategies, teacher efficacy, student engagement and school improvement priorities. These indicators are more meaningful than counting the number of meetings held.

Fifth, policymakers should avoid one-size-fits-all PLC models. The included studies show that PLCs are shaped by culture, leadership structure, resources, teacher workload and school context. A model that works in one context may need adaptation in another. Therefore, policy guidance should define core PLC principles while allowing schools to adapt routines to local needs. These implications also strengthen the manuscript by connecting the synthesis to actionable recommendations. They show how the review can inform school-level planning while maintaining appropriate caution about context and evidence limitations.

Table 6: Implementation Implications Derived from the Synthesis

Implementation Priority	Rationale From Synthesis	Suggested Action
Protected collaboration time	Time pressure and workload weaken PLC participation.	Build PLC time into official school schedules and reduce competing administrative tasks.
Middle-leader facilitation	Distributed leadership supports teacher ownership and sustainability.	Train middle leaders to facilitate inquiry, feedback and evidence-based dialogue.
Evidence-informed inquiry	Collaboration is stronger when linked to real classroom evidence.	Use student work, assessment data, lesson observations and reflective notes in PLC discussions.
Trust and professional safety	Teachers need psychological safety to discuss weaknesses and change practice.	Create norms for respectful feedback, confidentiality and shared responsibility.
Quality-based evaluation	Counting meetings does not measure PLC effectiveness.	Track dialogue quality, instructional change, teacher efficacy and links to school improvement.
Contextual adaptation	PLC models vary across cultures and systems.	Adapt routines to school level, subject area, leadership structure and teacher readiness.

Limitations and Future Research

This review has several limitations. First, it included only English-language journal articles published from 2023 to 2025 in Scopus and Web of Science. Relevant regional studies, dissertations, reports or non-English publications may therefore have been excluded. Second, the bibliometric profile is descriptive because the final corpus is small and full export metadata for a complete VOSviewer map was not available. Third, the synthesis depends on the quality and reporting transparency of the included studies. Future research should prioritise longitudinal and mixed-method designs that follow PLC implementation over time and connect teacher learning to measurable student outcomes. More comparative studies are also needed across rural, urban, high-performing, under-resourced, centralised and decentralised education systems. Such studies would help clarify how context moderates PLC effectiveness. Future studies should also examine equity-focused PLCs, teacher well-being, digital or hybrid PLCs and the role of middle leaders in sustaining professional inquiry. Given the recurring weakness

in reporting limitations, future PLC research should improve methodological transparency by explicitly stating study boundaries, contextual constraints and transferability limits to support more transparent interpretation and strengthen the evidence base for future synthesis.

Conclusion

This systematic literature review synthesised 29 primary studies on PLC implementation among teachers published from 2023 to 2025. The findings show that PLCs remain a relevant and powerful structure for teacher professional learning, but their effectiveness depends on how they are implemented. PLCs are most meaningful when leadership support, structured collaboration, teacher agency, trust and organisational infrastructure operate together. The review concludes that PLCs contribute strongly to teacher professionalism, self-efficacy, collaborative practice and school development. However, evidence on direct student achievement remains promising but insufficiently established. The relationship between PLCs and student outcomes appears to be mediated by instructional improvement, supportive conditions, cooperative culture and sustained follow-up. Overall, the review highlights that PLC effectiveness depends not simply on establishing collaborative structures, but on creating the organisational and professional conditions that enable sustained inquiry, meaningful teacher learning and collective improvement.

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