



Optimizing Learning Communities through a Systematic Literature Review: A Conceptual MOKBA Model for Enhancing Teachers' Pedagogical Competence

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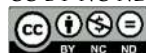
Abstract: This study examines how Learning Communities support teachers' pedagogical competence and proposes the MOKBA (Model for Optimizing Adaptive Learning Communities) as a managerial framework for sustainable professional learning. Using a qualitative systematic literature review guided by PRISMA, 18 articles published from 2020 to 2025 were selected from Google Scholar, DOAJ, and ERIC and analyzed through Miles and Huberman's interactive model. The synthesis shows that Learning Communities strengthen four core dimensions of pedagogical competence: instructional design, classroom implementation, ICT integration, and assessment literacy. The most effective mechanisms are lesson study, peer coaching, collaborative design, and data-driven reflection. Based on these findings, MOKBA is formulated through four cyclical phases: needs diagnosis, collaborative design, guided implementation, and collective reflection with impact evaluation. The model positions Learning Communities not merely as informal collaboration spaces, but as accountable systems embedded in school quality management. This study contributes a conceptual framework for strengthening teacher professionalism, instructional quality, and sustainable school-based professional development.

Abstrak: Penelitian ini mengkaji peran Learning Communities dalam meningkatkan kompetensi pedagogik guru serta merumuskan MOKBA (Model for Optimizing Adaptive Learning Communities) sebagai kerangka manajerial untuk pembelajaran profesional yang berkelanjutan. Penelitian kualitatif ini menggunakan Systematic Literature Review yang mengikuti pedoman PRISMA. Sebanyak 18 artikel terbitan 2020-2025 dipilih dari Google Scholar, DOAJ, dan ERIC, lalu dianalisis dengan model interaktif Miles dan Huberman. Hasil sintesis menunjukkan bahwa Learning Communities memperkuat empat dimensi utama kompetensi pedagogik, yaitu perancangan pembelajaran, pelaksanaan pembelajaran, integrasi TIK, dan literasi asesmen. Mekanisme yang paling efektif meliputi lesson study, peer coaching, desain kolaboratif, dan refleksi berbasis data. Berdasarkan temuan tersebut, MOKBA dirumuskan melalui empat fase siklik: diagnosis kebutuhan, desain kolaboratif, implementasi terarah, serta refleksi kolektif dan evaluasi dampak. Model ini menempatkan Learning Communities bukan sekadar ruang diskusi informal, melainkan sistem akuntabel yang terintegrasi dalam manajemen mutu sekolah. Studi ini memberikan kontribusi konseptual bagi penguatan profesionalisme guru dan pengembangan sistem pembelajaran profesional berbasis sekolah secara sistematis dan berkelanjutan.

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A. Introduction

Teachers play a central role in determining the quality of education because the effectiveness of learning is not only shaped by curriculum content, but also by how teachers translate educational goals into meaningful classroom experiences. In this sense, pedagogical competence remains one of the most essential dimensions of teacher professionalism, as it determines the teacher's ability to plan, implement, and evaluate learning in ways that support students' cognitive, affective, and social development (Faridah et al., 2020). The urgency of strengthening pedagogical competence has become even greater in the context of twenty-first-century education, where schools are expected to develop learners who are adaptive, collaborative, reflective, and capable of solving complex problems. This challenge is reinforced by the demand for student-centered learning, differentiated instruction, and continuous adaptation to curriculum reform. Therefore, pedagogical competence is not merely an instructional skill, but a strategic requirement for educational quality improvement.

At the empirical level, many teachers still encounter difficulties in responding to these demands. Studies have shown that teachers often struggle to design differentiated lessons, integrate technology meaningfully, and implement assessment practices that truly reflect student learning needs (Anisa et al., 2025; Handiyani & Muhtar, 2022). In the Indonesian context, the implementation of the Merdeka Curriculum has made these challenges even more visible, because teachers are required to move beyond conventional teaching toward more flexible, responsive, and student-oriented practices (Mulyasa, 2021). However, the reality in many schools shows that curricular expectations are not always matched by teacher readiness, resulting in uneven quality of implementation across classrooms and institutions. This condition suggests a persistent gap between educational policy and instructional practice, indicating that teacher competence development still requires stronger and more contextualized support.

One of the main reasons this gap persists is that conventional professional development models have limited impact on sustained classroom improvement. Training programs, short workshops, and centralized development activities often provide information but do not sufficiently build long-term pedagogical capacity (Kennedy, 2016). These programs are usually fragmented, top-down, and detached from the realities of teachers' daily work, which makes it difficult for teachers to transfer what they learn into actual classroom practice. Several studies have indicated that such approaches often produce only temporary changes and rarely lead to continuous improvement, especially when they are not followed by mentoring, reflection, or school-based implementation support (Henita et al., 2025). As a result, professional development remains episodic rather than developmental, and teachers tend to return to habitual practices once the training ends. This limitation points to the need for a more embedded, collaborative, and sustainable model of teacher learning.

In response to this issue, Learning Communities, often discussed in relation to Professional Learning Communities (PLCs), have emerged as a promising alternative.

Learning Communities are based on the idea that professional growth is stronger when teachers learn together, reflect together, and solve instructional problems collaboratively rather than individually. Through shared inquiry, peer support, and collective reflection, teachers can develop knowledge that is directly relevant to classroom practice and school improvement (DuFour, 2006; Yusnita et al., 2025). Practices such as lesson study, peer coaching, joint planning, and collaborative analysis of student work enable teachers to move beyond abstract understanding toward practical and contextualized improvement. In this way, Learning Communities are not only spaces for discussion, but also mechanisms for building a shared professional culture that supports continuous learning and instructional quality.

A growing body of literature supports the value of these collaborative structures. Previous studies have shown that PLCs and Learning Communities can improve teacher collaboration, strengthen reflective practice, and enhance classroom instruction when they are sustained and well supported (Stoll et al., 2006; Vescio et al., 2008; Harris & Jones, 2010). Other research suggests that such communities can help teachers respond more effectively to curriculum demands, differentiated teaching, and assessment-based decision-making (Admiraal et al., 2021; Suprayogi et al., 2017). In Indonesia, several studies have also highlighted the value of school-based collaboration, practitioner teacher mentoring, and academic supervision for strengthening pedagogical competence and improving learning quality (Arifin & Hanif, 2024; Mahmud & Syukurman, 2024). These findings collectively suggest that Learning Communities can function as an effective vehicle for teacher development, provided that they are intentionally designed and aligned with school needs (Vangrieken et al., 2017).

Even so, the literature still leaves an important gap. Most studies describe Learning Communities primarily as collaborative practices or informal professional forums, but do not sufficiently explain how they can be managed as a coherent and accountable system. In other words, the managerial side of Learning Communities remains underdeveloped. There is limited explanation of how schools can diagnose learning needs, organize collaborative activities, monitor implementation, and evaluate impact in a structured way. In addition, many studies focus on teacher perceptions or participation, while giving less attention to measurable improvement in pedagogical competence or student learning outcomes. This means that Learning Communities are often praised as useful, but not yet fully explained as sustainable school-based systems. Such a limitation weakens their practical applicability, especially for schools that need clear guidance for institutionalizing professional learning.

To address this gap, the present study introduces a conceptual novelty through the MOKBA model, or Model for Optimizing Adaptive Learning Communities. MOKBA is designed as a cyclical managerial framework consisting of four integrated phases: needs diagnosis, collaborative design, guided implementation, and collective reflection with impact evaluation. Unlike conventional PLC frameworks that mainly emphasize collegial interaction, MOKBA positions Learning Communities as part of an internal quality management system that is adaptive, data-based, and outcome-oriented. This model is

intended to ensure that professional learning is not ad hoc or occasional, but systematic and continuously responsive to classroom realities. By connecting pedagogical improvement with managerial accountability, MOKBA offers a new conceptual pathway for understanding how schools can organize professional learning more effectively and sustainably.

Theoretically, this study is situated within Educational Administration, teacher professional development, and school quality management. It extends the PLC literature by arguing that collaborative learning should not only be viewed as a pedagogical process, but also as an organizational mechanism that supports sustainable improvement. This perspective is consistent with the view that effective professional learning depends on alignment between teacher needs, leadership support, collaborative structures, and evidence-based reflection (Darling-Hammond et al., 2017; OECD, 2020). In that sense, the study contributes to a broader theoretical discussion about schools as learning organizations, where teacher development is embedded in the daily life of the institution rather than treated as a separate intervention. The conceptual framing of MOKBA therefore enriches both professional learning theory and school management theory.

Based on this foundation, the study aims to analyze how Learning Communities contribute to the development of teachers' pedagogical competence and to formulate a conceptual managerial model for optimizing them. More specifically, it seeks to identify which dimensions of pedagogical competence are most supported by Learning Communities, what mechanisms within those communities are most effective, and how these mechanisms can be organized into a sustainable model. To accomplish this, the study uses a Systematic Literature Review guided by PRISMA, enabling the synthesis of evidence from 2020 to 2025 in a transparent and structured manner. This approach is appropriate because the objective is not to test a statistical relationship, but to build a conceptual model grounded in recurring patterns across the literature.

Accordingly, the study is guided by three research questions: what dimensions of pedagogical competence are supported by Learning Communities, what mechanisms within Learning Communities effectively enhance these competencies, and how can a managerial model be formulated to optimize Learning Communities sustainably? Through these questions, the study seeks to make both theoretical and practical contributions. Theoretically, it expands the literature on PLCs and Educational Administration by introducing a more explicit managerial perspective on collaborative teacher learning. Practically, it offers school leaders a conceptual framework for designing Learning Communities that are structured, reflective, and impact-oriented. In this way, the study contributes to the development of teacher professionalism, instructional quality, and sustainable school-based professional learning systems through the proposed MOKBA model.

B. Method

This study employed a qualitative descriptive design using a Systematic Literature Review (SLR) to synthesize evidence on Learning Communities and their contribution to teachers' pedagogical competence. The design was selected because the purpose of the study was not to test a causal relationship empirically, but to identify recurring patterns, extract conceptual themes, and formulate a managerial model grounded in prior research. In line with the article's direction, the review was structured to support the development of the MOKBA model as a conceptual framework for optimizing adaptive Learning Communities.

The research scope was limited to studies published between 2020 and 2025 and focused on Learning Communities or Professional Learning Communities in relation to teacher pedagogical competence. The review prioritized peer-reviewed journal articles that discussed instructional design, classroom implementation, assessment literacy, ICT integration, reflective practice, and collaborative professional learning. To keep the analysis focused, studies that did not address teacher professional development were excluded from the review.

The database and search strategy followed a systematic approach using Google Scholar, DOAJ, and ERIC. Keywords were developed around the central constructs of the study, including "Learning Communities," "Professional Learning Communities," "pedagogical competence," and "teacher professional development." Search terms were combined with Boolean logic to capture both conceptual and applied studies relevant to school-based collaborative learning. This strategy was intended to balance breadth and relevance, while still allowing the review to remain aligned with the study's conceptual focus.

Inclusion and exclusion criteria were applied to ensure that only studies with sufficient relevance and quality were retained. The inclusion criteria were: articles published from 2020 to 2025, peer-reviewed publications, direct relevance to Learning Communities or PLCs, and explicit connection to pedagogical competence. The exclusion criteria removed non-peer-reviewed sources, studies unrelated to teacher development, and conceptual papers that did not contribute empirical or theoretical insights to the review. These criteria helped maintain consistency across the selected literature and reduced the risk of irrelevant evidence entering the synthesis.

The screening process followed the PRISMA logic to maintain transparency in article selection. The study initially identified 32 articles, then screened them by title and abstract, removed duplicates, assessed full-text eligibility, and finally included 18 studies in the qualitative synthesis. This flow shows that the review did not rely on a loose narrative reading, but instead on a staged filtering process that narrowed the literature to the most relevant sources.

Data extraction was conducted by recording each article's author, year, research purpose, context, findings, and contribution to pedagogical competence development. The extracted information was organized to identify which dimensions of competence were

most frequently supported by Learning Communities and which collaborative mechanisms appeared most effective across studies. This made it possible to compare studies systematically and to identify conceptual regularities across the literature.

Data analysis used the interactive model of Miles and Huberman, consisting of data condensation, data display, and conclusion drawing. The condensed data were coded thematically to identify recurring categories, such as lesson study, peer coaching, collaborative design, and data-driven reflection. These themes were then displayed in comparative form and interpreted to build a coherent synthesis of how Learning Communities strengthen pedagogical competence. The analysis was not limited to listing findings; it also examined how the studies collectively pointed toward a managerial structure for sustainable professional learning.

Trustworthiness was strengthened through systematic source selection, repeated comparison across studies, and transparent use of inclusion criteria. Because the study was based on published literature rather than primary field data, credibility depended on careful screening, consistent coding, and close alignment between the extracted evidence and the final conceptual claims. This process supported dependability and reduced interpretive drift while building the basis for a defensible conceptual model.

The conceptual model development stage synthesized the recurring findings into the MOKBA framework, which integrates needs diagnosis, collaborative design, guided implementation, and collective reflection with impact evaluation. The model was developed from the repeated patterns found across the reviewed studies, especially the emphasis on collaboration, reflective practice, and instructional improvement. In this way, the model emerged not as a speculative idea, but as a structured synthesis of the literature.

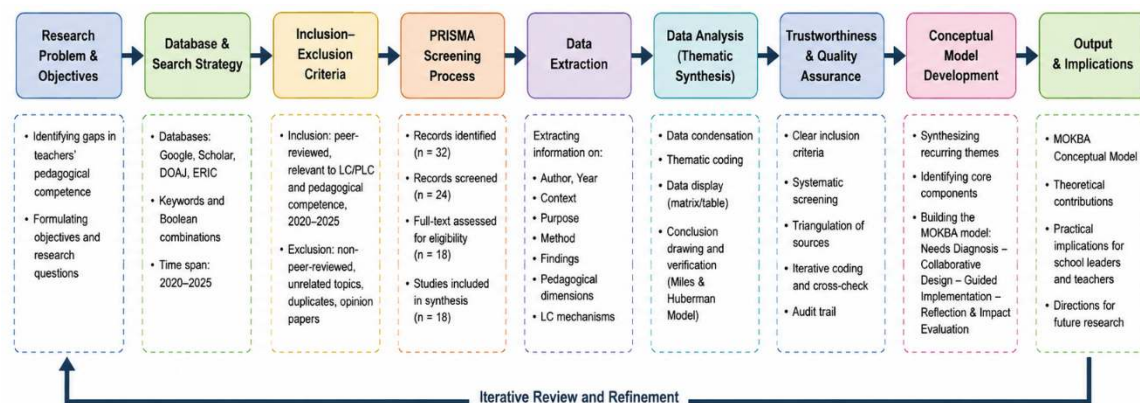


Figure 1. Research Flow for Developing the MOKBA Conceptual Model

Figure 1 illustrates a sequential research pathway that begins with literature identification, proceeds through screening and eligibility assessment, and culminates in thematic synthesis and conceptual model formulation. The flow shows that the study moves from evidence collection to analytical coding, then from synthesis to model development.

C. Result

The systematic literature review identified 32 articles at the initial search stage. After duplicate removal, title and abstract screening, and full-text eligibility assessment, 18 studies were included in the final synthesis. The selected studies consistently addressed Learning Communities or Professional Learning Communities in relation to teacher pedagogical competence, particularly in the context of instructional design, classroom implementation, assessment literacy, ICT integration, and reflective practice. This pattern indicates that the literature in this field has developed around both pedagogical improvement and collaborative professional learning, but with varying emphasis on managerial structuring and sustainability. The final corpus of studies provided sufficient depth to identify recurring themes, compare mechanisms, and formulate a conceptual model grounded in empirical patterns.

Table 1. Characteristics of Selected Studies

No	Author(s)	Year	Method	Research Focus	Context	Main Findings	Contribution to Pedagogical Competence
1	Faridah et al	2020	Qualitative	Teacher pedagogical competence	Elementary education	Pedagogical competence influences learning quality	Strengthened instructional planning and evaluation
2	Handiyani & Muhtar	2022	Descriptive study	Differentiated learning	School learning	Differentiated instruction increases student engagement	Improved learning design competence
3	Indrawan & Marvida	2023	Qualitative	ICT-based learning	Technology integration	ICT supports interactive learning practices	Strengthened ICT integration competence
4	Yusnita et al	2025	Literature review	Learning Communities	Classroom learning	Collaborative learning improves teaching quality	Enhanced reflective and collaborative practice
5	Henita et al	2025	Qualitative	Role of Learning Communities	Teacher professional development	Sustainable collaboration supports competence growth	Improved continuous professional learning
6	Mahmud & Syukurman	2024	Case study	Practitioner teacher mentoring	Student-centered learning	Peer mentoring improves implementation quality	Strengthened classroom implementation
7	Arifin & Hanif	2024	Qualitative	Learning Community management	School management	Structured management supports sustainability	Improved managerial support
8	Admiraal et al	2021	Mixed methods	Professional Learning Communities	School organizations	PLCs improve instructional quality	Strengthened collaborative learning systems
9	Suprayogi et al	2017	Quantitative	Differentiated instruction	Classroom learning	Teachers require adaptive pedagogy	Enhanced adaptive instructional competence
10	Vescio et al	2008	Literature review	PLC effectiveness	Educational settings	PLCs affect teaching and student outcomes	Improved collaborative teaching practices

No	Author(s)	Year	Method	Research Focus	Context	Main Findings	Contribution to Pedagogical Competence
11	Harris & Jones	2010	Conceptual study	Professional Learning Communities	School improvement	Leadership supports collaborative learning culture	Strengthened organizational learning
12	Stoll et al	2006	Literature review	Professional Learning Communities	Educational institutions	PLCs encourage reflective practice and collaboration	Improved reflective pedagogical competence
13	Darling-Hammond et al	2017	Policy review	Teacher professional development	Professional learning systems	Effective professional learning must be collaborative and sustained	Supported sustainable pedagogical development
14	OECD	2020	International report	Teacher lifelong learning	Global education systems	Evidence-based professional learning improves teaching quality	Strengthened reflective and evidence-based practice
15	Anisa et al	2025	Descriptive study	Teacher pedagogical competence	Junior high school	Teachers still face challenges in differentiated learning	Identified pedagogical competence gaps
16	Aryana et al	2022	Qualitative	Teacher professionalism	Indonesian language education	21st-century teachers require adaptive competence	Strengthened professional adaptability
17	Setyowati & Nugroho	2021	Descriptive study	Teacher professionalism in digital era	Educational technology	Digital competence affects instructional quality	Supported ICT-based pedagogy
18	Retnowati & Djamdjuri	2023	Situational analysis	Independent curriculum implementation	Higher education and curriculum development	Curriculum adaptation requires collaborative teacher learning	Strengthened curriculum adaptation competence

Table 1 shows that the reviewed studies consistently emphasize the importance of collaborative and sustainable professional learning in strengthening teachers' pedagogical competence. The studies cover various educational contexts, including elementary schools, secondary schools, higher education, and broader professional learning systems, indicating that Learning Communities are applicable across multiple educational levels. Methodologically, the literature is dominated by qualitative studies, literature reviews, and descriptive approaches, suggesting that research in this field primarily focuses on conceptual understanding and contextual analysis rather than experimental measurement. The synthesis also demonstrates that pedagogical competence is multidimensional, encompassing instructional design, classroom implementation, ICT integration, assessment literacy, reflective practice, and curriculum adaptation. In addition, many studies highlight that sustainable pedagogical improvement depends not only on teacher collaboration, but also on leadership support, organizational culture, and structured professional learning systems. These recurring findings provide the empirical and conceptual foundation for the development of the MOKBA model proposed in this study.

Dimensions of Pedagogical Competence Supported by Learning Communities

The synthesis of the reviewed studies shows that Learning Communities contribute to four major dimensions of pedagogical competence. First, instructional design emerged as a dominant theme, especially in studies discussing differentiated learning, lesson planning, and curriculum adaptation. Teachers who participated in collaborative discussion were more capable of designing learning modules that aligned with student needs and curriculum demands. Second, classroom implementation was strengthened through collaborative observation, peer reflection, and lesson study practices. These mechanisms supported teachers in developing more student-centered and interactive instruction. Third, assessment literacy was enhanced through collective analysis of student learning outcomes, allowing teachers to identify learning difficulties and revise instruction accordingly. Fourth, ICT integration appeared as an increasingly relevant dimension, particularly in studies showing how teachers shared strategies for using digital media, simulation tools, and technology-based learning resources. Collectively, these findings suggest that Learning Communities support pedagogical competence not as a single ability, but as a multidimensional professional capacity.

Table 2. Pedagogical Competence and Learning Communities Mechanisms

Dimensions of Pedagogical Competence	Supporting Learning Communities Mechanisms	Evidence from the Literature
Instructional Design	Collaborative lesson planning and differentiated design	Teachers collaboratively develop adaptive teaching modules and differentiated strategies (Handiyani & Muhtar, 2022)
Classroom Implementation	Lesson study and peer coaching	Teachers improve classroom interaction through collaborative observation and reflection (Yusnita et al., 2025)
ICT Integration	Sharing innovative digital practices	Learning Communities facilitate ICT-based instructional innovation (Indrawan & Marvida, 2023)
Assessment Literacy	Collective analysis of learning outcomes	Teachers collaboratively evaluate formative and summative assessment data (Anisa et al., 2025)
Reflective Practice	Collaborative reflection and feedback	Reflection supports continuous professional improvement (Henita et al., 2025)
Problem Solving	Peer discussion and mentoring	Teachers solve instructional challenges collectively (Mahmud & Syukurman, 2024)

Table 2 demonstrates that each dimension of pedagogical competence is strengthened through specific collaborative mechanisms within Learning Communities. Instructional design is supported through collaborative lesson planning, while classroom implementation develops through lesson study and peer coaching. ICT integration and assessment literacy are reinforced through the sharing of digital practices and collective data analysis. The table also shows that reflective practice and collaborative problem-solving play important roles in sustaining professional growth. These findings confirm that

Learning Communities function not only as discussion spaces, but as structured professional learning systems that directly support pedagogical competence development.

Dominant Mechanisms within Learning Communities

Across the reviewed studies, four mechanisms repeatedly appeared as the most effective in strengthening pedagogical competence: lesson study, peer coaching, collaborative design, and data-driven reflection. Lesson study was the most frequently cited mechanism because it enables teachers to plan, observe, and reflect on teaching collectively. This mechanism promotes direct transfer from reflection to practice and helps teachers refine classroom strategies based on shared observation. Peer coaching also appeared consistently as an effective form of professional support, especially when experienced teachers mentored colleagues in adapting learner-centered practices. Collaborative design supported teachers in producing teaching modules, lesson plans, and assessment instruments that were more responsive to classroom realities. Meanwhile, data-driven reflection helped communities move beyond general discussion by grounding their improvement efforts in actual student performance data. These mechanisms show that the strength of Learning Communities lies not merely in interaction, but in structured collaborative action supported by evidence and reflection.

Table 3. Managerial Conditions Supporting Effective Learning Communities

Managerial Conditions	Supporting Evidence	Impact on Sustainability	Implications for MOKBA
Regular collaborative schedule	Communities with structured meetings show stronger continuity	Supports sustainable professional learning	Integrated into the implementation cycle
School leadership support	Principal involvement strengthens participation	Increases institutional commitment	Included in managerial coordination
Clear focus and objectives	Focused discussions improve relevance	Prevents ineffective collaboration	Supports needs diagnosis phase
Monitoring and evaluation	Reflection and monitoring improve accountability	Ensures continuous improvement	Integrated into impact evaluation
Peer mentoring system	Experienced teachers guide peers	Strengthens instructional transfer	Applied in guided implementation
Data-driven decision making	Student data supports instructional revision	Improves evidence-based practice	Integrated into reflection phase

Table 3 indicates that the effectiveness of Learning Communities depends heavily on managerial and organizational support. Communities that operate with regular schedules, leadership involvement, clear objectives, and monitoring systems tend to produce more sustainable professional development outcomes. The findings also show that peer mentoring and data-driven decision-making are essential for ensuring that collaborative learning leads to measurable instructional improvement. These managerial conditions form

the conceptual basis of the MOKBA model, particularly in connecting collaborative professional learning with institutional accountability and school quality management.

Learning Communities as a Managerial System

The reviewed studies also reveal an important pattern: Learning Communities are more effective when they are treated as structured managerial systems rather than informal discussion forums. Studies that included regular schedules, clear leadership, focused agendas, and monitoring procedures showed stronger and more sustainable outcomes. In contrast, communities that operated sporadically or depended solely on voluntary participation tended to produce weaker professional impact. This finding confirms that the sustainability of Learning Communities depends on managerial coherence, institutional support, and continuous reflection. The literature therefore suggests that collaboration alone is not sufficient; it must be embedded within a cycle of needs analysis, collaborative planning, implementation, and evaluation. This insight becomes the conceptual bridge toward the MOKBA model developed in this study.

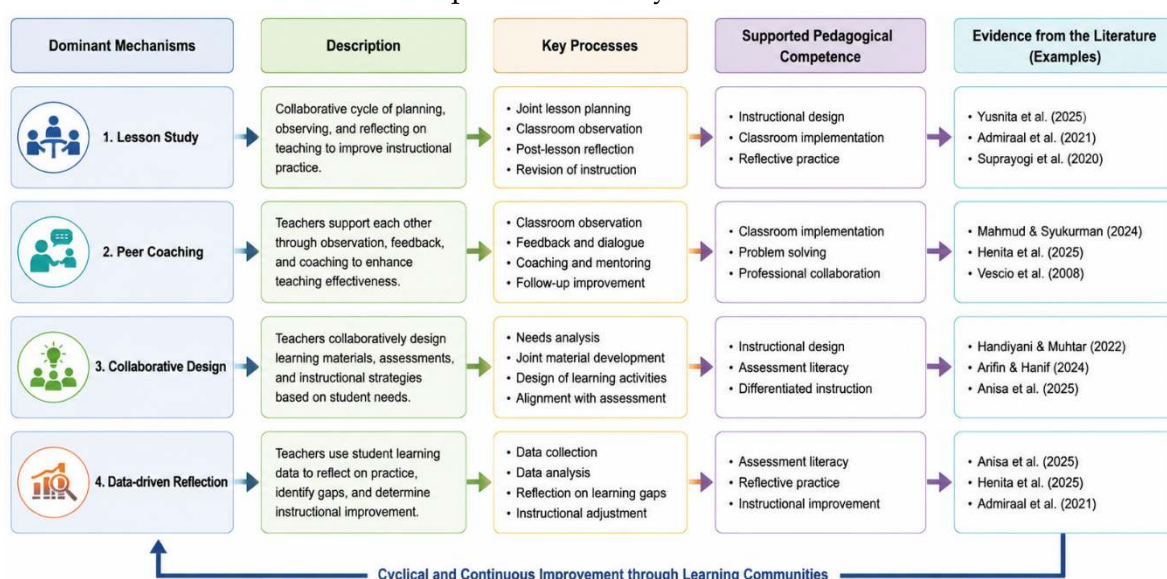


Figure 2. Dominant Mechanisms within Learning Communities

Figure 2 illustrates four dominant mechanisms within Learning Communities that contribute to the development of teachers' pedagogical competence, namely lesson study, peer coaching, collaborative design, and data-driven reflection. The figure shows that these mechanisms operate as interconnected and continuous professional learning processes that support instructional design, classroom implementation, assessment literacy, reflective practice, and collaborative problem-solving. Lesson study and peer coaching strengthen classroom practice through observation, mentoring, and reflection, while collaborative design and data-driven reflection support the development of adaptive instructional strategies based on student learning needs and assessment outcomes. Overall, the figure confirms that Learning Communities function not merely as informal discussion forums,

but as structured and evidence-based systems that promote sustainable instructional improvement and professional growth.

Development of the MOKBA Conceptual Model

Based on the recurring findings, this study formulates the MOKBA (Model for Optimizing Adaptive Learning Communities) as a conceptual framework for sustainable professional learning. The model consists of four interconnected phases. The first phase needs diagnosis, in which teachers and school leaders identify learning problems, student outcome patterns, and competence gaps. The second phase is collaborative design, where teachers collectively develop lesson plans, learning materials, and assessment tools. The third phase is guided implementation and coaching, during which the designed strategies are applied in classrooms and supported through lesson study or peer mentoring. The final phase is collective reflection and impact evaluation, where teachers analyze learning outcomes, reflect on implementation, and determine the next cycle of improvement. This cyclical structure positions Learning Communities as an adaptive, data-based, and institutionally grounded system for teacher development.

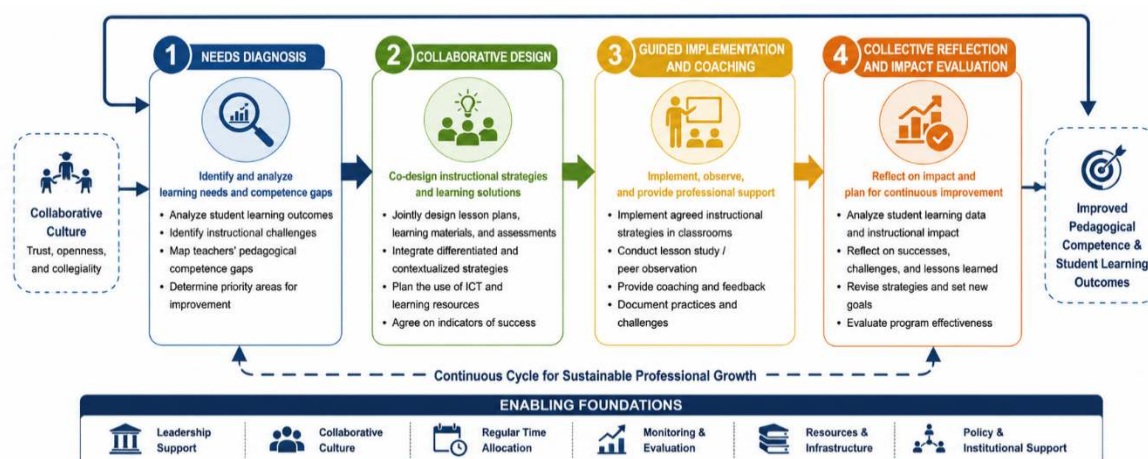


Figure 3. MOKBA Conceptual Model

Figure 3 presents the MOKBA Conceptual Model as a cyclical and adaptive framework for optimizing Learning Communities to strengthen teachers' pedagogical competence. The model consists of four interconnected phases: needs diagnosis, collaborative design, guided implementation and coaching, and collective reflection with impact evaluation. The first phase focuses on identifying instructional challenges, student learning needs, and teachers' competence gaps as the basis for professional improvement. The second phase emphasizes collaborative planning, where teachers jointly design learning strategies, teaching materials, and assessment approaches. The third phase involves classroom implementation supported by lesson study, peer coaching, and professional mentoring to ensure the transfer of collaborative learning into instructional practice. The final phase centers on reflection and evaluation through the analysis of student outcomes and instructional effectiveness, which then becomes feedback for the next improvement

cycle. The figure also highlights enabling factors such as leadership support, collaborative culture, monitoring systems, and institutional resources that sustain the implementation of the model. Overall, the MOKBA model positions Learning Communities as a structured, data-driven, and sustainable professional learning system within school quality management.

Overall, the findings show that Learning Communities support teacher pedagogical competence through collaborative, reflective, and evidence-based practices. The most dominant contributions are seen in instructional design, classroom implementation, assessment literacy, and ICT integration. At the same time, the literature indicates that the sustainability of these communities depends on managerial structure and systematic evaluation. For this reason, the MOKBA model is proposed as a conceptual solution that integrates pedagogical collaboration with school-level management. This model extends the existing literature by positioning Learning Communities not only as professional forums, but also as strategic mechanisms within educational administration and school quality improvement.

D. Discussion

The findings of this study show that Learning Communities are effective for strengthening teachers' pedagogical competence because they create a collaborative space in which instructional knowledge is developed through shared inquiry, reflection, and continuous improvement rather than through isolated training experiences. This result supports the view of [Faridah et al \(2020\)](#) that pedagogical competence is a core dimension of teacher professionalism because it determines how teachers plan, implement, and evaluate learning. In the context of curriculum change, especially the Merdeka Curriculum, teachers are expected to move toward more student-centered, differentiated, and adaptive instruction; however, the literature reviewed in this study indicates that many teachers still face challenges in translating these demands into practice ([Anisa et al., 2025](#); [Handiyani & Muhtar, 2022](#)). Therefore, Learning Communities appear to be a relevant and sustainable strategy for bridging the gap between curriculum expectations and classroom realities, because they support professional learning that is closely connected to the actual work of teaching.

More specifically, the synthesis confirms that Learning Communities strengthen four major dimensions of pedagogical competence, namely instructional design, classroom implementation, ICT integration, and assessment literacy. Instructional design and classroom implementation emerged as the most frequently supported dimensions, showing that collaborative professional learning is especially effective when it helps teachers improve lesson planning and enact more student-centered instruction. This is consistent with [Vescio et al \(2008\)](#), who found that Professional Learning Communities influence classroom practice and student learning outcomes, and with [Admiraal et al \(2021\)](#), who emphasized the role of schools as professional learning communities in supporting teacher development. At the same time, the presence of ICT integration and assessment literacy in

the findings shows that pedagogical competence in contemporary education is no longer limited to lesson delivery, but also includes the ability to use digital tools and interpret learning data for instructional improvement. In this regard, the results align with [Indrawan & Marvida \(2023\)](#) and [OECD \(2020\)](#), both of which stress the importance of technology use and evidence-based reflection in improving instructional quality.

The analysis also identifies lesson study, peer coaching, collaborative design, and data-driven reflection as the dominant mechanisms through which Learning Communities enhance pedagogical competence. Lesson study supports teachers in planning, observing, and reflecting on teaching practices, while peer coaching allows more experienced teachers to guide their colleagues through feedback and mentoring. These mechanisms reflect the collaborative inquiry and reflective practice principles discussed by [Stoll et al \(2006\)](#) and are also in line with [Darling-Hammond et al \(2017\)](#), who argue that effective professional development must be active, collaborative, and embedded in teachers' daily work. Collaborative design and data-driven reflection further strengthen the quality of professional learning because they help teachers co-develop instructional materials and use student learning outcomes as a basis for revising teaching strategies. This finding is important because it shows that the effectiveness of Learning Communities lies not only in collegial interaction, but in structured collaborative action supported by evidence and systematic reflection.

A further contribution of this study is the identification of managerial conditions that make Learning Communities more sustainable and impactful. The reviewed literature shows that Learning Communities are more effective when they are supported by regular schedules, clear goals, school leadership, monitoring systems, and peer mentoring structures. This supports the arguments of [Harris & Jones \(2010\)](#), [Lomos et al \(2011\)](#), and [Hairon et al \(2017\)](#) that professional learning communities require organizational support in order to contribute meaningfully to school improvement. Without these managerial conditions, collaborative learning tends to become sporadic and fragmented, limiting its long-term influence on teacher competence ([Maryati et al., 2025](#)). Based on this pattern, the proposed MOKBA model extends existing PLC frameworks by integrating pedagogical collaboration with managerial accountability through four cyclical phases: needs diagnosis, collaborative design, guided implementation, and collective reflection with impact evaluation. In this sense, MOKBA does not only describe how teachers learn together, but also how Learning Communities can be institutionalized as part of school quality management.

Overall, this study demonstrates that Learning Communities are most effective when they function as structured, data-based, and reflective systems for professional growth. The theoretical contribution of the study lies in expanding Professional Learning Communities literature by emphasizing the managerial dimension of collaborative teacher learning, while the practical contribution lies in offering school leaders a conceptual framework for building sustainable professional development at the school level. The findings suggest that schools need to move beyond short-term workshops and toward

continuous learning structures that are integrated into daily instructional life. In this regard, the MOKBA model provides a useful conceptual bridge between teacher development and school improvement, and it reinforces the broader idea that effective pedagogical competence grows through collaboration, reflection, and institutional support, not through individual effort alone (DuFour, 2006; OECD, 2020; Yusnita et al., 2025).

E. Implication

The findings of this study provide important implications for theory, practice, and educational policy in strengthening sustainable teacher professional development systems. Theoretically, this study extends the literature on Professional Learning Communities by integrating pedagogical and managerial dimensions within the MOKBA framework, thereby positioning Learning Communities not only as collaborative forums but also as structured systems within Educational Administration. Practically, the findings emphasize the importance of institutional support, collaborative culture, lesson study, peer coaching, and data-driven reflection in improving teachers' pedagogical competence, particularly in the implementation of student-centered and differentiated learning demanded by the Merdeka Curriculum. The study also highlights the strategic role of school leaders in organizing continuous professional learning through structured scheduling, monitoring, and evaluation mechanisms. At the policy level, the findings suggest that educational authorities should strengthen policies that institutionalize Learning Communities as sustainable school-based professional development systems supported by leadership, resources, and evidence-based evaluation to ensure continuous instructional improvement and teacher professionalism.

F. Limitations and Suggestions for Further Research

This study has several limitations that should be acknowledged. First, the findings were derived from a qualitative Systematic Literature Review and did not involve primary empirical data collected directly from schools or teachers, limiting the generalizability of the results across different educational contexts. Second, the review was restricted to articles published between 2020 and 2025 and retrieved from Google Scholar, DOAJ, and ERIC, which may have limited the diversity of perspectives and introduced publication bias. Third, the study focused primarily on conceptual and thematic synthesis rather than quantitative meta-analysis, making it difficult to measure the statistical magnitude of the impact of Learning Communities on teachers' pedagogical competence and student learning outcomes. In addition, the proposed MOKBA model remains conceptual and has not yet been empirically validated in real educational settings.

Future research is therefore recommended to empirically test the MOKBA model using qualitative, quantitative, or mixed-method approaches across different educational levels and institutional contexts. Further studies may investigate how the model operates in primary, secondary, and higher education environments, as well as explore its adaptability

in diverse cultural and organizational settings. Experimental or quasi-experimental designs could also be employed to examine the causal relationship between Learning Communities implementation, pedagogical competence improvement, and student achievement. In addition, future research should explore the role of leadership, organizational culture, and digital technology in supporting sustainable collaborative professional learning systems, particularly within the context of curriculum reform and educational transformation.

G. Conclusion

This study confirms that Learning Communities function as effective and sustainable mechanisms for strengthening teachers' pedagogical competence through collaborative, reflective, and evidence-based professional learning processes. The findings demonstrate that Learning Communities significantly support key dimensions of pedagogical competence, including instructional design, classroom implementation, ICT integration, and assessment literacy, through dominant mechanisms such as lesson study, peer coaching, collaborative design, and data-driven reflection. More importantly, the study reveals that the effectiveness of Learning Communities depends not only on teacher collaboration, but also on structured managerial support, institutional commitment, continuous evaluation, and leadership involvement. These findings indicate that professional learning becomes more meaningful when it is embedded within school systems rather than implemented through fragmented and short-term training activities.

The major contribution of this study lies in the formulation of the MOKBA (Model for Optimizing Adaptive Learning Communities) framework as a conceptual managerial model that integrates needs diagnosis, collaborative design, guided implementation, and collective reflection with impact evaluation into a continuous professional learning cycle. By positioning Learning Communities as part of Educational Administration, the study extends existing Professional Learning Communities literature beyond collaborative interaction toward systematic and accountable professional development systems. Therefore, the MOKBA model offers both theoretical and practical value for strengthening teacher professionalism, improving instructional quality, and supporting sustainable school-based educational transformation in the context of contemporary curriculum reform.

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