

Managing Learning Communities for Teachers' Pedagogical Competence in Deep Learning: Evidence from Indonesian Secondary Schools

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Abstract:

This study examines how learning communities are managed to improve teachers' pedagogical competence related to Deep Learning at SMAN 19 Bandung and SMAN 26 Bandung, Indonesia. The study employed a qualitative multiple-case study design. Data were collected through in-depth interviews, direct observations, and document analysis involving school principals, vice principals for curriculum affairs, learning-community coordinators, teachers, and students. Data were analyzed using the interactive model of data condensation, data display, and conclusion drawing and verification. Trustworthiness was ensured through source triangulation, method triangulation, member checking, and repeated observations. The findings indicate that learning-community management was implemented by integrating planning, organizing, actuating, and controlling functions. Planning was based on teacher-needs analysis, school-quality indicators, policy directions, and teacher proposals. Organizing involved formal learning-community structures, role allocation, and leadership support. Actuating was conducted through peer coaching, best-practice sharing, collaborative discussion, and reflective learning activities. Controlling was implemented through reflective academic supervision, classroom observation, teaching-document review, and teacher reflection. These processes contributed to improvements in teachers' pedagogical competence, particularly in designing more mindful, meaningful, and joyful learning experiences. Teachers increasingly applied contextual learning strategies, encouraged student participation, created psychologically safer classroom environments, and used more varied instructional methods. However, time constraints, teacher fatigue, uneven participation, and resistance to changing conventional teaching practices remained important challenges. This study's novelty lies in analyzing learning-community management through the POAC framework as a strategic mechanism for strengthening teachers' pedagogical competence in implementing Deep Learning at the senior secondary school level.

Keywords: Deep Learning; Educational Management; Learning Community Management; Pedagogical Competence; Senior Secondary Schools; Teacher Professional Development.

Introduction

The quality of learning at the senior secondary school level plays a crucial role in shaping students' intellectual development, character formation, and readiness for higher education and future participation

in society. In this context, teachers are expected not only to deliver subject content but also to design learning experiences that encourage students to think critically, explore ideas, solve problems, and construct meaning from what they learn. Such expectations are increasingly relevant in contemporary education, where schools are required to prepare learners with higher-order thinking skills, creativity, collaboration, and adaptability (Bandur et al., 2022; Mourtzis, 2018).

One approach that has gained increasing attention in Indonesian education is Deep Learning. Deep Learning refers to a learning orientation that promotes mindful, meaningful, and joyful learning experiences. Rather than focusing merely on content coverage or task completion, Deep Learning encourages students to understand concepts deeply, connect learning materials with real-life contexts, engage actively in inquiry, and reflect on their learning processes. The implementation of Deep Learning therefore requires teachers to possess strong pedagogical competence, particularly in designing instructional activities, facilitating student engagement, using meaningful learning contexts, and creating psychologically safe classroom environments (Gunawan, 2026; Setiyowati et al., 2025).

Teacher pedagogical competence is a fundamental component of educational quality because it determines how teachers understand students' characteristics, organise learning, select instructional strategies, assess learning processes, and develop students' potential. In the Indonesian context, pedagogical competence remains one of the core teacher competencies stipulated in the National Education Standards. However, the demand for Deep Learning expands this competence beyond conventional lesson planning. Teachers are required to shift from teacher-centred instruction toward learning designs that enable students to question, investigate, collaborate, reflect, and apply knowledge in meaningful ways (Daniel et al., 2019; Dikdayana, 2026).

The implementation of Deep Learning is not always easy in school practice. Teachers may face difficulties in translating the principles of mindful, meaningful, and joyful learning into concrete classroom activities. In many cases, learning still tends to focus on completing curriculum content, preparing students for assessment, and fulfilling administrative requirements. Such conditions may limit opportunities for students to engage in critical inquiry, active discussion, reflection, and exploration. Consequently, the quality of instructional practice may not yet fully support the development of higher-order literacy, numeracy, creativity, and problem-solving skills (LeCun et al., 2015; Suherman et al., n.d.).

This issue was also identified in the preliminary conditions at SMAN 19 Bandung and SMAN 26 Bandung. Based on initial observations and school-quality indicators, instructional quality still required strengthening, particularly in relation to the activation of teacher learning communities and their impact on classroom practice. Some teachers continued to experience challenges in designing learning scenarios that systematically promoted critical thinking, student engagement, and contextual understanding. Although teachers had begun to recognise the importance of Deep Learning, the translation of its principles into practical teaching strategies had not yet been consistently implemented across learning activities.

Learning communities, locally known as *Komunitas Belajar* or Kombel, offer a strategic mechanism for supporting teachers' professional development. A learning community provides a collaborative space where teachers can discuss instructional challenges, share good practices, analyse student-learning needs, reflect on teaching experiences, and develop instructional innovations collectively. Through such collaborative processes, teachers are not required to improve their pedagogical practice individually; instead, they are supported by peer learning, coaching, reflection, and professional dialogue.

From an educational management perspective, the effectiveness of a learning community depends on how it is planned, organised, implemented, and evaluated. George R. Terry's management functions of planning, organising, actuating, and controlling provide a relevant framework for understanding how learning communities can be managed systematically. Planning is needed to identify teachers' professional-learning needs and establish programme priorities. Organising involves defining roles, forming working teams, and allocating resources. Actuating refers to the implementation of collaborative learning activities, including peer coaching, best-practice sharing, lesson discussion, and reflective dialogue. Controlling involves monitoring programme implementation, conducting reflective supervision, and evaluating changes in teachers' instructional practices.

Previous studies have shown that professional learning communities can improve teacher efficacy, collaboration, instructional competence, and readiness to implement curriculum changes. Structured teacher collaboration has been associated with stronger professional confidence, more effective problem-solving, and improved instructional innovation. Studies have also indicated that peer coaching and reflective discussion can help teachers respond to real pedagogical challenges in classroom settings. However, many existing studies focus broadly on teacher professional development, curriculum implementation, or general collaborative practices. Limited research has specifically examined how the management of learning communities can strengthen teachers' pedagogical competence in implementing Deep Learning at the senior secondary school level (Dikdayana, 2026; Miller & Krajcik, 2019; Setiyowati et al., 2025).

Previous studies have demonstrated that professional learning communities can strengthen teacher efficacy, collaboration, instructional competence, and readiness for educational change. Research on peer coaching and reflective professional dialogue has also shown that collaborative learning can help teachers address practical pedagogical problems. Meanwhile, recent studies on Deep Learning have emphasised the importance of teachers' pedagogical competence in designing mindful, meaningful, and joyful learning. However, these two strands of research remain largely separated: studies on professional learning communities tend to focus on general teacher development and collaboration, while studies on Deep Learning primarily examine instructional design and teacher competence. Consequently, limited attention has been given to how learning communities are systematically managed to support teachers in translating Deep Learning principles into classroom practice.

This gap is particularly important because the effectiveness of a learning community depends not only on teacher participation but also on how its activities are planned, organised, implemented, and monitored. Without systematic management, learning communities may remain routine forums with limited influence on pedagogical practice. Therefore, this study examines learning-community management through the functions of planning, organising, actuating, and controlling to explain how these management processes contribute to teachers' pedagogical competence in implementing mindful, meaningful, and joyful learning. The novelty of the study lies in integrating educational management, teacher professional development, and Deep Learning within a single analytical framework at the senior secondary school level.

This study aims to analyse the management of learning communities in improving teachers' pedagogical competence related to Deep Learning at SMAN 19 Bandung and SMAN 26 Bandung. Specifically, the study examines: (1) the planning of learning-community programmes; (2) the organisation of learning-community structures and roles; (3) the implementation of collaborative activities, including peer coaching and best-practice sharing; (4) the monitoring and evaluation of learning-community activities; and (5) the supporting and inhibiting factors affecting the implementation of learning-community management.

This study is important both theoretically and practically. Theoretically, it contributes to the literature on educational management, teacher professional development, and Deep Learning by explaining how learning-community management can facilitate pedagogical transformation. Practically, the findings are expected to provide recommendations for school principals, curriculum coordinators, learning-community leaders, and teachers in designing more structured, collaborative, and sustainable professional-learning systems. Ultimately, strengthening learning-community management may help schools create classroom environments in which students can learn more mindfully, meaningfully, and joyfully.

Literature Study

Learning community management can be understood as a systematic mechanism for organising teachers' continuous professional learning through planning, organising, actuating, and controlling. Its contribution to teacher development depends not merely on the existence of collaborative forums, but on how these management functions respond to teachers' actual pedagogical needs, distribute responsibilities, facilitate professional interaction, and provide feedback on instructional practice. Previous studies indicate that professional learning communities can strengthen teacher collaboration, confidence, and instructional innovation (DuFour et al., 2021; Gunawan, 2021). However, these benefits are more likely to emerge when collaboration is intentionally managed and connected to classroom improvement rather than conducted as a routine administrative activity.

Pedagogical competence constitutes the key link between learning-community management and the implementation of Deep Learning. Teachers require the capacity to understand learners, design appropriate learning experiences, facilitate active participation, assess learning, and create supportive classroom environments. These competencies become particularly important in Deep Learning, which emphasises mindful, meaningful, and joyful learning. Thus, collaborative activities such as peer coaching, best-practice sharing, lesson discussion, and reflective dialogue are relevant because they provide opportunities for teachers to examine instructional problems, develop alternative strategies, and receive feedback. Through these processes, learning-community management can strengthen teachers' pedagogical competence and help them translate Deep Learning principles into actual classroom practices.

Accordingly, this study conceptualises the relationship among the three concepts as an integrated professional-development process: **Learning Community Management (Planning–Organising–Actuating–Controlling) → Strengthening Teachers' Pedagogical Competence → Implementation of Mindful, Meaningful, and Joyful Learning**. Planning identifies teachers' pedagogical needs; organising establishes collaborative roles and structures; actuating provides professional-learning experiences; and controlling facilitates reflection and continuous improvement. These interconnected management functions are expected to influence Deep Learning indirectly by strengthening teachers' pedagogical competence. Therefore, learning-community management is positioned not simply as an organisational activity, but as a strategic mechanism through which schools support pedagogical transformation and the implementation of Deep Learning.

Methods

This study employed a qualitative approach using a multiple-case study design to examine the management of learning communities in improving teachers' pedagogical competence related to Deep Learning at SMAN 19 Bandung and SMAN 26 Bandung, Indonesia. A qualitative case study was selected because it enabled an in-depth exploration of how learning-community management was planned, organised, implemented, and evaluated within the natural context of each school. The study focused on the ways in which collaborative professional-learning activities supported teachers in applying the principles of

mindful, meaningful, and joyful learning in classroom practice (Adrias & Ruswandi, 2025; Creswell & Creswell, 2018; Gay, 2011; Stake, 1995; Yin, 2017).

The study was conducted from February to March 2026 at SMAN 19 Bandung and SMAN 26 Bandung, West Java Province, Indonesia. The two schools were selected purposively because both had demonstrated an institutional commitment to activating learning communities as part of teacher professional development. The selection of two schools also enabled the study to identify similarities and differences in the management of learning communities across comparable senior secondary school contexts.

Participants were selected through purposive sampling based on their direct involvement in learning-community management and Deep Learning implementation. The main participants consisted of two school principals, two learning-community coordinators, two vice principals for curriculum affairs, and four teachers, with two teachers selected from each school. In addition, several students were involved as supporting informants to provide perspectives on changes in classroom learning experiences. The inclusion of multiple stakeholder groups enabled the study to obtain a more comprehensive understanding of programme management, teacher participation, instructional change, and student responses (Lincoln & Guba, 1985; Miles, Huberman, & Saldana, 2014; Shenton, 2004; Tisdell et al., 2025).

Data were collected through in-depth interviews, direct observations, and document analysis. Semi-structured interviews were conducted with school leaders, learning-community coordinators, curriculum vice principals, teachers, and students to explore their experiences, perceptions, and practices related to learning-community management and Deep Learning implementation. Direct observations were carried out during learning-community activities and classroom instruction to examine teacher collaboration, peer-coaching practices, instructional strategies, student participation, and the application of mindful, meaningful, and joyful learning principles. Document analysis included annual learning-community work programmes, meeting records, teaching modules, teacher evaluation reports, supervision records, and school Education Report Card data.

Data analysis followed the interactive model of Miles, Huberman, and Saldaña, consisting of data condensation, data display, and conclusion drawing and verification. During data condensation, interview transcripts, observation notes, and documents were organised, coded, and categorised according to the study focus. The main categories included planning, organising, actuating, and controlling learning-community activities; teacher pedagogical competence; Deep Learning practices; and supporting and inhibiting factors. The coded data were then displayed in narrative descriptions and comparison matrices to identify patterns across the two schools. Conclusions were developed through continuous interpretation and verification throughout the research process (Miles, Huberman, & Saldaña, 2014).

Trustworthiness was established through source triangulation and method triangulation. Data obtained from school principals, learning-community coordinators, curriculum vice principals, teachers, and students were compared to identify converging and contrasting perspectives. Interview findings were also cross-checked against observation results and documentary evidence. In addition, member checking was conducted with key participants to confirm the accuracy of the researcher's interpretation. Repeated observations and sustained engagement in the field were used to strengthen the credibility and dependability of the findings. (Alexander, 2019; Nowell et al., 2017; Shenton, 2004)

Results

Planning of Learning Community Programmes Based on Teachers' Needs

The findings show that learning-community programmes at SMAN 19 Bandung and SMAN 26 Bandung were planned through an analysis of teachers' professional-learning needs. In both schools, programme planning was not developed solely as an administrative requirement; rather, it was based on teacher proposals, instructional challenges, school policy directions, and data from the Education Report Card. The planning process focused on identifying areas in which teachers required support, particularly in designing learning activities that could foster critical thinking, student participation, contextual understanding, and the principles of mindful, meaningful, and joyful learning.

At SMAN 19 Bandung, observations and document analysis indicated that the learning-community programme was developed through regular discussions among school leaders, the learning-community coordinator, and participating teachers. Meeting agendas and programme plans reflected teachers' needs related to lesson design, classroom engagement, learning reflection, and the implementation of Deep Learning principles. At SMAN 26 Bandung, planning was also oriented toward improving instructional quality, particularly through the development of learning scenarios that connected subject content with students' daily experiences and encouraged more active student participation.

The learning-community coordinator at SMAN 19 Bandung explained:

"There are several processes that I use to determine the topic: analysing the needs of fellow teachers, considering members' proposals, being sensitive to policy information, and following the principal's direction." (Learning Community Coordinator, SMAN 19 Bandung, February 3, 2026)

A teacher at SMAN 26 Bandung similarly indicated that learning-community activities became more relevant when they addressed actual difficulties encountered in classroom instruction:

"[Insert a verified verbatim quotation from a teacher at SMAN 26 Bandung regarding the identification of pedagogical needs and the selection of learning-community topics.]"

Overall, the findings indicate that planning in both schools functioned as a needs-based professional-development process rather than a routine meeting arrangement. The use of teacher input and school-quality data enabled the learning communities to focus on practical pedagogical issues. However, planning could be strengthened through more systematic documentation of teacher needs, clearer indicators of expected instructional change, and follow-up plans that connect learning-community discussions with classroom implementation.

Organisation of Learning Community Structures and Collaborative Roles

The organisation of learning communities in both schools involved the establishment of formal structures and the allocation of roles among school leaders, curriculum coordinators, learning-community coordinators, and teachers. The findings indicate that school principals provided policy support and institutional legitimacy, while vice principals for curriculum affairs coordinated the alignment between learning-community activities and school instructional programmes. Learning-community coordinators facilitated discussions, arranged activity schedules, and encouraged teacher participation. Teachers acted as active participants who shared experiences, discussed classroom challenges, and developed instructional strategies collaboratively.

Document analysis showed that the learning communities in both schools had formal organisational arrangements, including appointment letters, programme schedules, meeting records, and activity plans. This formalisation was important because it positioned the learning community as an official component of school professional development rather than an informal or optional teacher activity. Observations further showed that role distribution supported the continuity of learning-community activities, especially when coordinators actively facilitated discussion and school leaders provided organisational support.

At SMAN 19 Bandung, a school leader stated:

“[Insert a verified verbatim quotation from the principal or vice principal of SMAN 19 Bandung regarding the formal establishment and institutional support of the learning community.]”

A learning-community coordinator at SMAN 26 Bandung explained:

“[Insert a verified verbatim quotation from the learning-community coordinator of SMAN 26 Bandung regarding role distribution, teacher participation, or coordination mechanisms.]”

The findings suggest that formal organisation provided an important foundation for sustaining collaborative teacher learning. The presence of assigned roles, structured schedules, and leadership support reduced the risk that learning-community activities would become incidental or dependent on individual teacher initiative. Nevertheless, the organisational structure needs to be supported by clearer role descriptions, more consistent attendance mechanisms, and stronger coordination between learning-community activities, instructional supervision, and school development priorities.

Implementation of Learning Community Activities for Deep Learning Practice

The implementation of learning-community activities in both schools was primarily carried out through best-practice sharing, collaborative discussion, peer coaching, reflection on teaching experiences, and the development of learning tools. These activities were directed toward improving teachers' pedagogical competence in implementing Deep Learning. The findings indicate that the learning communities created professional spaces in which teachers could discuss how to translate the principles of mindful, meaningful, and joyful learning into concrete classroom practices.

Classroom observations showed that teachers who participated in learning-community activities began to apply more student-centred instructional strategies. Teachers used contextual questions, reflective activities, collaborative tasks, and varied learning media to encourage students to engage more actively with lesson content. At SMAN 26 Bandung, observations indicated that teachers used creative strategies, including games in Sundanese language learning, to make difficult material more accessible and enjoyable. At both schools, teachers increasingly attempted to create classroom environments in which students felt safe to ask questions, express opinions, and make mistakes during the learning process.

A teacher at SMAN 26 Bandung stated:

“After applying the principles of Deep Learning, I try to relate the material to students' real lives so that it becomes meaningful, and I create a safer and more enjoyable learning atmosphere, so students are more confident in asking questions.” (Teacher, SMAN 26 Bandung, February 4, 2026)

A teacher at SMAN 19 Bandung stated:

“[Insert a verified verbatim quotation from a teacher at SMAN 19 Bandung regarding peer coaching, best-practice sharing, or changes in classroom instruction after participating in the learning community.]”

Overall, the findings demonstrate that learning-community implementation contributed to a gradual shift from teacher-centred instruction toward more reflective, contextual, and student-centred learning practices. The collaborative activities enabled teachers to experiment with instructional strategies and receive support from peers. However, sustained implementation requires continuous coaching, opportunities for classroom-based feedback, and stronger links between discussion sessions and evidence of student learning.

Monitoring and Evaluation of Teachers' Pedagogical Development

The monitoring and evaluation of learning-community activities in both schools were conducted through reflective academic supervision, routine activity reports, teacher reflection, classroom observation, and review of teaching documents. The findings show that evaluation did not focus exclusively on attendance or programme completion. Instead, school leaders and coordinators attempted to monitor whether learning-community participation contributed to changes in teachers' lesson design, instructional strategies, classroom interaction, and implementation of Deep Learning principles.

Observation findings indicated that teachers' pedagogical development was visible in several classroom practices. Teachers increasingly used learning activities that encouraged student participation, questioning, reflection, and connection between learning materials and real-life contexts. Students also appeared more willing to express opinions and ask questions. One student at SMAN 19 Bandung described the classroom climate as follows:

"We feel that when we ask questions or answer, we are not judged. So, when we express our opinions, it feels comfortable." (Student, SMAN 19 Bandung, February 3, 2026)

A curriculum coordinator at SMAN 26 Bandung stated:

"[Insert a verified verbatim quotation from the vice principal for curriculum affairs of SMAN 26 Bandung regarding reflective supervision, teacher evaluation, or changes in instructional practice.]"

The findings indicate that reflective monitoring supported teachers in recognising the strengths and limitations of their instructional practice. Rather than functioning as a punitive mechanism, supervision became a means of professional dialogue and continuous improvement. Nevertheless, evaluation could be improved through the use of more structured pedagogical-competence indicators, systematic classroom-observation rubrics, and documented evidence of how learning-community participation affects student engagement and learning outcomes.

Supporting and Inhibiting Factors in Learning Community Management

Several factors supported the management of learning communities in both schools. These included school leadership support, formal learning-community structures, teacher willingness to collaborate, routine meeting schedules, peer-sharing practices, and the availability of teaching documents and school-quality data. The existence of institutional support enabled learning-community activities to be recognised as part of school professional development. In addition, teachers' willingness to discuss challenges and share successful practices helped create a collaborative culture that encouraged pedagogical improvement.

However, the study also identified several inhibiting factors. The most frequently reported challenge was limited time, particularly when learning-community meetings were held after teachers had completed a full day of teaching. Teachers' physical fatigue reduced the quality of participation and limited the depth of professional discussion. Other challenges included differences in teachers' readiness to change, uneven

participation, the persistence of conventional teaching habits, and the need for more consistent coaching to support the implementation of Deep Learning.

A teacher at SMAN 19 Bandung explained:

“Physical factors also have an influence. When meetings are held in the afternoon, many teachers are already tired after teaching since the morning, so not everyone can participate actively in the discussion.”
(Teacher, SMAN 19 Bandung, February 3, 2026)

A teacher or learning-community coordinator at SMAN 26 Bandung stated:

“[Insert a verified verbatim quotation from SMAN 26 Bandung regarding time constraints, teacher readiness, resistance to change, or recommendations for strengthening learning-community activities.]”

Overall, the findings indicate that the effectiveness of learning-community management depended not only on programme design but also on the school’s ability to manage time, teacher workload, participation, and professional motivation. Sustainable implementation requires school leaders to integrate collaboration into teachers’ effective working time, provide ongoing coaching, and ensure that learning-community activities remain focused on instructional improvement rather than administrative compliance.

To provide a clearer comparison of learning-community management across the two research sites, Table 1 summarises the major similarities and differences identified from interviews, observations, and document analysis. The comparison focuses on programme planning, organisational structure, collaborative activities, Deep Learning practices, monitoring mechanisms, and implementation challenges.

Table 1. Comparative Summary of Learning Community Management at SMAN 19 and SMAN 26 Bandung

Aspect	SMAN 19 Bandung	SMAN 26 Bandung	Comparative Interpretation
Planning basis	Teacher needs, policy information, principal direction, and school-quality indicators	Teacher needs, instructional challenges, and efforts to improve contextual learning	Both schools used needs-based planning, although the emphasis in practice may differ across school contexts.
Organisational structure	Formal learning-community coordination supported by school leadership	Formal learning-community coordination linked to curriculum-development activities	Both schools positioned Kombel as an institutional professional-development mechanism.
Main collaborative activities	Teacher discussion, sharing of instructional challenges, peer learning, and reflection	Best-practice sharing, lesson discussion, peer coaching, and learning-tool development	Both schools used collaborative learning to improve pedagogical practice.
Deep Learning orientation	Efforts to create safe classroom interaction and encourage student expression	Stronger emphasis on meaningful and joyful learning through contextual activities and creative media	Both schools promoted student-centred learning, but instructional strategies reflected local teacher practices.
Monitoring and evaluation	Reflective supervision, teacher reflection, and classroom observation	Review of teaching documents, reflective	Evaluation in both schools focused on instructional development, although more

		supervision, and structured indicators are needed.
Supporting factors	Leadership support, teacher participation, and formal programme arrangements	Collaborative culture, teacher innovation, and support for instructional development
Main challenges	Afternoon fatigue, limited time, uneven participation, and conventional teaching habits	Time constraints, variation in teacher readiness, and the need for sustained coaching
		Both schools faced workload and change-management challenges.

As shown in Table 1, both schools implemented learning communities as structured professional-learning spaces that supported teachers in developing Deep Learning practices. The main similarities were found in needs-based planning, formal organisational support, collaborative discussion, and reflective evaluation. The differences were primarily related to the instructional emphasis and local implementation strategies adopted by teachers in each school.

To further explain the management pattern of learning communities, Table 2 presents the findings according to the four management functions of planning, organising, actuating, and controlling. Supporting and inhibiting factors are also included because they influenced the effectiveness and sustainability of learning-community implementation in both schools.

Table 2. Summary of Key Findings Based on POAC Management Functions

Management Function	Key Findings	Implications for Teachers' Pedagogical Competence
Planning	Learning-community topics were selected through teacher needs analysis, school-quality data, policy information, and teacher proposals.	Teachers received professional support that was more relevant to their actual classroom challenges.
Organising	Formal teams, coordinators, school leaders, curriculum staff, and teacher participants were involved in programme implementation.	Role clarity and institutional support strengthened teacher participation and collaboration.
Actuating	Activities included best-practice sharing, peer coaching, lesson discussion, collaborative reflection, and development of teaching strategies.	Teachers developed more student-centred, contextual, reflective, and engaging instructional practices.
Controlling	Monitoring was conducted through reflective supervision, observation, activity reports, teaching-document review, and teacher reflection.	Teachers received feedback on instructional practice and opportunities for continuous improvement.
Supporting factors	Leadership support, formal structures, teacher willingness, peer collaboration, and scheduled activities.	These factors enabled the learning community to function as an ongoing professional-development mechanism.
Inhibiting factors	Time constraints, teacher fatigue, uneven participation, resistance to change, and limited coaching continuity.	These constraints could reduce the depth, consistency, and sustainability of pedagogical transformation.

As presented in Table 2, the management of learning communities in both schools involved interconnected POAC functions.

Discussion

The findings demonstrate that learning-community management at SMAN 19 Bandung and SMAN 26 Bandung functioned as a strategic mechanism for improving teachers' pedagogical competence related to Deep Learning. In both schools, the learning community was not merely used as a forum for routine meetings or administrative coordination. Instead, it became a professional space where teachers identified instructional challenges, exchanged experiences, reflected on classroom practice, and developed more student-centred learning strategies. This finding suggests that the management of teacher collaboration can play an important role in supporting pedagogical transformation at the senior secondary school level.

The needs-based planning process identified in both schools reflects the importance of grounding professional-development programmes in teachers' actual classroom challenges. Learning-community topics were selected through teacher proposals, school-quality indicators, policy information, and instructional concerns identified by school leaders. This approach is consistent with the view that effective teacher development should be responsive to teachers' professional contexts rather than based solely on predetermined training agendas. When professional-learning activities are connected to real instructional problems, teachers are more likely to perceive the programme as relevant and applicable to their daily practice.

The planning findings also support Terry's management perspective, particularly the importance of planning as the initial stage for directing organisational activities toward shared goals. In the context of learning-community management, planning involved more than scheduling meetings. It required schools to identify pedagogical needs, determine priority topics, prepare collaborative activities, and establish expected instructional changes. This indicates that learning-community planning should be understood as an educational-management process that connects school improvement priorities with teacher professional learning.

However, the findings also indicate that planning needs to be strengthened through clearer indicators of pedagogical improvement and systematic follow-up mechanisms. Although teachers' needs were considered in programme planning, the documentation of expected changes in classroom practice was still limited. Schools therefore need to develop more explicit planning instruments, such as teacher-needs maps, lesson-design targets, observation indicators, and follow-up schedules. Such instruments would help ensure that learning-community activities lead to measurable changes in instructional practice rather than ending at the level of discussion.

Monitoring and evaluation in both schools were conducted through reflective academic supervision, teacher reflection, classroom observation, and the review of teaching documents. These practices show that controlling, in the context of learning-community management, was not implemented primarily as a mechanism for compliance. Instead, it functioned as a process of professional reflection and instructional improvement. This interpretation is consistent with contemporary approaches to educational supervision, which emphasise feedback, dialogue, and teacher development rather than inspection alone (Priansa, 2018; Mulyasa, 2023).

Nevertheless, the evaluation process needs further development. The findings indicate that teachers' pedagogical changes were generally observed through participation, reflection, lesson documents, and classroom interaction. However, more structured assessment instruments are needed to document the

impact of learning-community participation on teacher competence and student learning. Schools could develop pedagogical-observation rubrics based on Deep Learning principles, including indicators of student engagement, contextual learning, reflective practice, psychological safety, and meaningful assessment. This would provide stronger evidence of the relationship between learning-community management and instructional improvement.

The study also identified several barriers, particularly teacher fatigue, limited time, uneven participation, and resistance to changing conventional instructional habits. These factors show that professional learning cannot be separated from teachers' workload and well-being. When learning-community meetings are scheduled after long teaching hours, teachers may have limited energy to participate actively in discussion and reflection. This finding is consistent with studies highlighting the influence of workload and time management on teacher collaboration and professional development (Mardiana, 2022; Ramadhan, 2023).

Overall, the findings indicate that the success of learning-community management depends on the integration of planning, organising, actuating, and controlling functions with supportive leadership, teacher motivation, structured collaboration, and sustainable follow-up. The results support Fullan's (2015) argument that meaningful educational change requires collective capacity building rather than isolated individual effort. Therefore, learning communities should be positioned as a core element of school improvement. Schools need to integrate collaboration into teachers' effective working time, strengthen the facilitation capacity of learning-community coordinators, provide continuous peer coaching, and use reflective supervision to sustain teachers' pedagogical development in implementing Deep Learning.

Conclusions

This study demonstrates that learning-community management should be understood not merely as a forum for teacher collaboration, but as a strategic school mechanism for pedagogical transformation. The integration of planning, organising, actuating, and controlling creates a structured professional-learning process through which teachers can identify instructional needs, collaborate with peers, experiment with teaching strategies, and reflect on classroom practice. In this way, learning-community management contributes to strengthening teachers' pedagogical competence in implementing mindful, meaningful, and joyful learning.

Conceptually, the findings suggest that the contribution of learning communities to Deep Learning is mediated by teachers' pedagogical development. Effective management provides the organisational conditions for professional learning, while improved pedagogical competence enables teachers to translate Deep Learning principles into more contextual, reflective, student-centred, and psychologically safe classroom practices. Therefore, the effectiveness of learning communities depends not only on teacher participation, but also on leadership support, structured collaboration, sustained coaching, and systematic monitoring.

The study extends existing discussions on teacher professional development by positioning learning-community management as an integrated mechanism linking educational management, pedagogical competence, and Deep Learning. Practically, schools should institutionalise learning communities within teachers' effective working time, strengthen the facilitation role of coordinators, and use reflective supervision and pedagogical indicators to sustain instructional improvement.

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