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Perspectives of Lesson Study Implementation in Deep Learning: A Systematic Literature Review

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Abstract
The research aims to describe and synthesize previous research findings, analyze the relevance of lesson study to the achievement of deep learning, identify the benefits and challenges of its implementation and provide evidence-based recommendations for the development of lesson study that is more effective in supporting the 21st century learning paradigm. The researcher used the SLR (System Literature Rivew) method to review previous studies from the last 10 (2015-2025) years. Journal searches were conducted by researchers through journal provider databases such as Google Scholar (scholar.google.com) and Scopus. The focus of research data is journals with lesson study implementation in deep learning as many as 40 journals indexed SINTA (National) and Scopus (International) from various publishers or journal publishers. The result of this research is that lesson study is an effective collaborative framework in encouraging active and reflective engagement of learners while improving teacher professionalism in improving deep learning.

Keywords: Lesson Study, Deep Learning, Learning

Introduction

The current development of education demands a paradigm shift in the learning process from merely transferring knowledge to meaningful, reflective, and deep learning (Hadiprayitno et al., 2020). Deep learning is a learning model that not only emphasizes cognitive mastery of material but also requires critical thinking skills, analytical abilities, creativity, and the formation of students' character (Anwar, 2017). Deep learning emphasizes collaborative and reflective practices that enhance teaching quality and student engagement (Isnayanti et al., 2025). This approach model is highly effective in classrooms as it not only deepens students' knowledge but also encourages innovative instructional strategies that promote cooperative inquiry and students' problem-solving skills (Mutawadia et al., 2023).

Classroom learning often remains oriented towards short-term learning outcomes, focusing on completing the curriculum and tends to use conventional methods that do not encourage active participation of students (Konopka et al., 2015). This condition leads to low quality of deep understanding, as well as limited ability of students to relate knowledge to real contexts (Riomalen et al., 2025). Students will lose the ability to think critically, reflectively, and analytically, which is the core of deep learning that does not develop optimally (Amijaya et al., 2018). Educators need to help students improve their learning outcomes and critical thinking skills through learning models that can support students to learn actively. One learning model that can be used is through Lesson Study.

One of the approaches offered to improve the quality of the learning process is lesson study (Aas et al., 2024). Lesson study is a model for professional development of teachers that focuses on the continuous improvement of teaching practices through a collaborative cycle consisting of planning (plan) (Sairo, 2021), implementation (do) (Wiharto, 2018), and reflection (see) (Laba Jayanta et al., 2025). Teachers can share experiences, analyze students' learning difficulties, and design more effective learning strategies to achieve deeper understanding (Vermunt et al., 2023). The implementation of lesson study has a high relevance to the

concept of deep learning, which is an approach that emphasizes the ability of students to understand, relate, and apply knowledge in various situations (Auliah & Cahyani, 2025).

The literature from previous research taken from studies over the last minimum of 10 years related to the implementation of lesson study in education has been researched by (Aas et al., 2024; Aziz et al., 2016; Bjuland & Mosvold, 2015; Buwono et al., 2021; Hindun et al., 2022; Laba Jayanta et al., 2025; Mutiani et al., 2020; Rozak & Fauziah, 2013; Susiani & Suranata, 2017; Upa et al., 2024; Wahyuni, 2020; Yulianto et al., 2017). Huang & Shimizu, (2016) synthesized the research conducted into four themes which encompass the conceptualization of Lesson Study, theoretical perspectives on Lesson Study research, benefits of implementing Lesson Study, and challenges in adapting Lesson Study. The conducted literature provides insights on how the utilization of lesson study significantly impacts learning to support students and offers opportunities for teachers to further develop more effective teaching.

Ní Shúilleabháin, (2015) The results of this study provide empirical evidence for teacher planning and reflective conversation and demonstrate the learning conducted by teachers through the iterative cycle of Lesson Study. Kaendler et al., (2015) the research conducted shows that collaborative learning can be enhanced through teachers' competencies in designing, implementing, and reflecting on the learning process through the lesson study approach. Aas et al., (2024) the main findings outlined are an increased focus on student behavior, an increase in the use of contextual explanations for student behavior, significant improvements in ideas for adaptations, and the shift from external control to involving students in learning activities. The findings contribute to a deep learning approach using lesson study.

Aykan & Dursun, (2021) found that the lesson study model significantly contributes positively to the professional development of teachers in various aspects such as lesson planning, teaching methods and techniques, and course evaluation. Laba Jayanta et al., (2025) from the analysis of data collected descriptively showed an increase in positive perceptions of teachers' skills regarding the lesson study model in the independent curriculum. Their research results indicate that lesson study is effective in enhancing teacher competence, particularly in the use of technology and classroom management.

The literature study conducted shows that many previous studies have researched lesson study in the context of professional development for teachers, improving the quality of learning, and collaboration through planning, implementation, and reflection. However, there is still no systematic review that maps the benefits, instructional strategies, and challenges of implementing lesson study in supporting deep learning that emphasizes critical, reflective, analytical thinking skills, as well as character building in students. Therefore, this study aims to describe and synthesize the findings of previous research, analyze the relevance of lesson study to achieving deep learning, identify the benefits and challenges of its implementation, and provide evidence-based recommendations for more effective lesson study development in support of 21st-century learning paradigms.

Method

This research uses the type of SLR (Systematic Literature Review) research to review previous studies from the last 10 years (2015-2025). Journal searches were conducted by researchers through journal provider databases such as Google Scholar (scholar.google.com) and Scopus (Memon et al., 2020). The focus of research data is journals with lesson study implementation in deep learning as many as 40 journals indexed SINTA (National) and Scopus (International) from various publishers or journal publishers (Azwar, 2023). Systematic Literature Review (SLR) is defined as the process of identifying, assessing, and interpreting all available research evidence with the aim of providing answers to specific research questions (Sari et al., 2023). Data collection was carried out by documenting all articles related to the theme of this research using the Mendeley application. The flow of the SLR research used is shown in Figure 1.

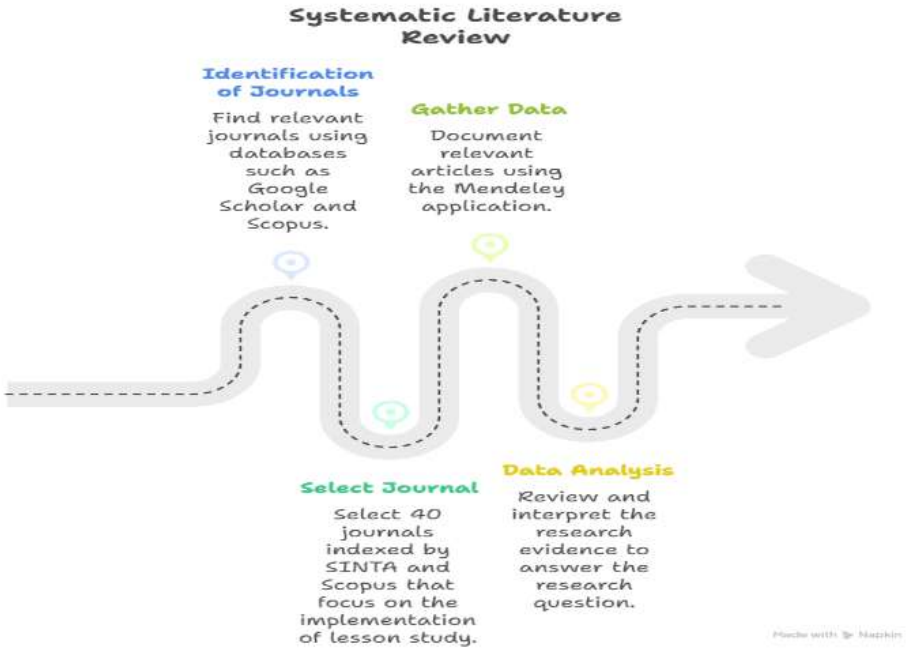

Figure 1. System Literature Review Method

The stages of conducting research using the SLR (Systematic Literature Review) method generally consist of 4 (four) stages. First, the researcher will carry out Journal Identification to determine the need for a systematic review, develop a review protocol, and evaluate the review protocol to achieve the research goals. Second, the researcher will select Articles that match the research topic (Select Journals) from various databases such as Google Scholar and Scopus, search for key review materials, select and sort the key materials for the review, collect data from the key review materials, assess the quality of the key review materials, and synthesize the data. Finally, in the third stage, the researcher conducts data collection (Gather Data), and in the fourth stage, data analysis is performed from several accumulated articles to examine in order to obtain ideas (main concepts) (Akmal et al., 2025).

Results and Discussion

Models and strategies of lesson study in encouraging students' active and reflective engagement.

Lesson Study works as a collaborative cyclic framework (Plan–Do–See–Act) that orchestrates active learning strategies (contextual, group discussion, cooperative, project-based learning, PBL) so that the design, implementation, and improvement are based on evidence of student learning behavior. In the planning stage, the team sets deep learning objectives and designs tasks/questions to trigger reflection; in the doing stage, an open class facilitates meaningful interactions; in the seeing stage, observational data is analyzed to assess participation and quality of reflection; and in the acting stage, teaching is revised (scaffolding, formative assessment, and discussion structure) (Sairo, 2021). This cycle enhances active participation (questioning, arguing, and collaborating) while deepening reflection (metacognition, concept revision, and knowledge transfer) because pedagogical decisions are always tied to concrete evidence from the student learning process (Noh et al., 2022). The results of the study obtained are as shown in Table 1.

Table 1. Results of Literature on Strategies and Lesson Study Models

No	Focus and Scope	Author	Research Results
1	A Collaborative Action Research Model: Using Lesson Study to Optimize Guided Inquiry Teaching of Blood Structure and Function at Junior High School 32 Padang	(Ismail & Insani, 2023)	The research results show that the application of lesson study in guided inquiry-based learning can enhance student engagement, motivation, critical thinking, and a deep understanding of the structure and function of blood.

No	Focus and Scope	Author	Research Results
2	Lesson Study: Contemporary Motivating Tool for Active and Reflective Learning Approach	(Zhaneta et al., 2021)	Lesson Study enhances pedagogy and subject knowledge for teachers.
3	The Effectiveness of Case Method in Teaching Calculus using Lesson Study Model	(Shan Xu & Malang, 2024)	Lesson planning, lesson implementation, and evaluation of the teaching process. The researcher conducted lesson plan development, emphasizing real-world problems and student-centered learning strategies to improve conceptual understanding in calculus.

Based on the study results in table 1 it can be concluded that the lesson study model and strategy are proven effective in encouraging active and reflective student involvement through various learning approaches. The strategy of implementing the lesson study model in guided inquiry-based learning can enhance motivation, engagement, critical thinking, and students' deep understanding of the material on the structure and function of blood. Furthermore, the use of lesson study in case study methods for calculus teaching can guide teachers in planning, implementing, and evaluating student-centered learning by emphasizing real-world problems, thus improving students' conceptual understanding. These findings indicate that lesson study is not merely a collaborative strategy for teachers but also an instrument capable of integrating active student engagement with reflective teacher practice to achieve deep learning.

The model lesson study works as a collaborative cycle that allows teachers to design inquiry-based learning, case methods, and student-centered learning. This strategy results in active engagement (discussion, exploration, and problem-solving) as well as reflective engagement (critical thinking, evaluation of understanding, and concept transfer). Thus, Lesson Study serves a dual function: to improve teacher quality while also strengthening students' deep learning achievements.

Lesson Study contributes to the development of students' critical, collaborative, and reflective thinking skills in deep learning.

Lesson study contributes through the design of problem-based learning and open-ended questions that stimulate critical thinking, facilitating group work that fosters collaboration, and reflection sessions that guide students to assess and improve their learning processes (Ratnasari et al., 2020). With this mechanism, students not only acquire knowledge but also develop higher-order thinking skills, build social understanding, and become aware of their learning process reflectively. This makes lesson study one of the effective approaches in achieving deep learning. The research findings are presented in Table 2.

Table 2. Literature Results of Lesson Study Contribution

No	Focus and Scope	Author	Research Results
1	The effect of lesson study approach on developing teachers' reflective thinking as a self-assessment tool	(Al-Hattami & Bawaneh, 2024)	The results indicate that there is a statistically significant difference supporting the group participating in Lesson Study, with a high effect size of 0.84. The results also show that lesson study contributes to improving teachers' teaching in training students' thinking skills.
2	Critical Thinking Development in Collaborative Learning: Case study	(Ratnasari et al., 2020)	The results of his research show that collaborative learning implemented through lesson study activities can enhance students' critical thinking. In addition, from

No	Focus and Scope	Author	Research Results
	of Transformer Topic through Lesson Study at Junior High School		the reflection activities in the lesson study, teachers can redesign their teaching to improve its quality.
3	Developing Problem Based Learning through Lesson Study	(Syahriridani et al., 2022)	This research highlights that Lesson Study (LS) activities enhance students' critical thinking skills through Problem-Based Learning (PBL), focusing on contextual issues and important topics, thereby encouraging collaborative and reflective thinking in the learning process.

Based on the literature results in table 2, it can be concluded that lesson study plays an important role as a model for teacher professional development as well as a means to improve the quality of learning oriented towards deep learning. Lesson study not only helps teachers to reflect on and improve their teaching practices, but it also proves to enhance students' critical, collaborative, and reflective thinking skills. Therefore, lesson study can be viewed as a strategic approach in creating a more meaningful, contextual, and high-level thinking skill development-centered learning process. Overall, Lesson Study serves as a powerful pedagogical tool that fosters important high-level thinking skills in students, preparing them for the complexities of the 21st century.

The research results indicate that lesson study functions as a collaborative framework that places students at the center of the learning process. Through the plan–do–see–act cycle, educators have the opportunity to design, implement, reflect on, and make continuous improvements to learning based on real evidence of student learning behavior (Kundariati et al., 2024). In the planning stage, the main focus is directed towards formulating deep learning objectives enriched with triggering questions and contextual activities (Louisiana et al., 2020). Next at the implementation stage, open class activities provide space for students to interact actively through discussions, problem-solving, or group work (Laba Jayanta et al., 2025). The reflection stage then becomes a crucial aspect in analyzing the level of engagement and the quality of students' thinking. Meanwhile, the follow-up stage offers teachers the opportunity to revise strategies in order to make learning more relevant and focused on improving the quality of learning outcomes (Yulianto et al., 2017).

From a strategic perspective, lesson study has proven to have flexibility as it can be integrated with various active learning approaches, including guided inquiry, problem-based learning, and case method (Ismail & Insani, 2023). Through this approach, students are not only involved in activities of asking questions, discussing, and exploring knowledge but are also trained to link concepts to contextual problems. Thus, student involvement is not merely physical but evolves into cognitive and affective engagement that demands mastery of higher-order thinking skills (Shan Xu & Malang, 2024).

The important contribution in the Lesson Study model encourages students to ask deep questions, test arguments, and formulate alternative solutions to the problems they face. This aims to provide critical skills to students through collaborative activities, where they learn to build knowledge socially, share roles, and resolve differing views constructively. Thus, lesson study not only strengthens cognitive dimensions but also fosters metacognitive awareness and social skills that support the achievement of deep learning, which is greatly needed in facing the complexities of 21st-century learning.

Conclusion

Based on the results of the literature review, it can be concluded that lesson study is an effective collaborative framework for encouraging active and reflective engagement of students while enhancing teacher professionalism. Through the plan–do–see–act cycle, teachers can design, implement, reflect on, and improve evidence-based learning based on students' learning behaviors. The integration of various active learning strategies such as guided inquiry, problem-based learning, and case method has proven to strengthen students' critical, collaborative, and reflective thinking skills, thereby supporting the achievement of deep learning. Lesson study serves not only as a strategy for improving the quality of learning but also as a relevant pedagogical instrument in preparing students to face the complexities of 21st-century challenges.

For future research it is recommended that lesson study studies be expanded to contexts that are more diverse, both in terms of educational levels, fields of study, and student characteristics, so that a more comprehensive picture of its effectiveness can be obtained. This is expected to enrich the understanding of the contribution of lesson study to the development of deep learning and provide a stronger foundation for its implementation in education policy in the future.

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