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THE LEVEL OF ACTIVITY IN THE IMPLEMENTATION OF LESSON STUDY

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Abstract:

The lesson study was introduced in Malaysia in 2008. Since 2011, lesson study become one of the strategies in professional learning communities in Malaysia. There are challenges in sustaining the implementation of lesson study in class, especially to help students to overcome difficulties in studying Additional Mathematics. The purpose of this study is to evaluate the level of activity on the implementation of lesson study for the subject Additional Mathematics based on the perceptions of 247 teachers, 247 school leaders, and 247 school experts using the purposive sampling method. Descriptive analysis was performed in this study. The findings of the study show that the evaluation of the activity level based on teachers' perception was high where the mean score was 3.90. Similarly, the overall scores based on school leaders' perceptions (Mean = 4.20) and school experts' perceptions (Mean = 4.07) were also high. Thus, lesson study is seen to be able to improve professional skills and practices in the pursuit of quality results.

Keywords:

Lesson Study, Activity, Implementation, Challenges

Introduction

Lesson Study, an innovative approach to collaborative professional development originating from Japan, has been systematically adopted in Malaysia to enhance pedagogical practices and improve student learning outcomes. The Malaysian Ministry of Education (MOE) officially implemented Lesson Study in 2011, introducing it in 289 primary and secondary schools as part of a broader initiative to elevate the standards of teacher professional development (Ismail et al., 2017). This initiative aligns with the national agenda to strengthen instructional practices and foster a culture of reflective teaching among educators (Salleh & Tan, 2020).

Empirical research demonstrates that Lesson Study provides Malaysian educators with substantial opportunities for collaborative engagement, professional dialogue, and the exchange of teaching experiences, thereby enhancing their pedagogical content knowledge (Takahashi & McDougal, 2016). A qualitative investigation conducted in two secondary schools in Kedah revealed that educators who participated in Lesson Study exhibited greater reflectiveness and proactivity in fostering active student engagement through iterative cycles of lesson improvement (Rahman et al., 2018). These findings underscore the potential of Lesson Study to deepen educators' understanding of instructional methodologies and student learning needs.

Despite its advantages, the implementation of Lesson Study in Malaysia faces multiple challenges. Educators frequently encounter constraints such as insufficient time, heavy workloads, and an examination-centric educational system, which impedes effective participation in Lesson Study initiatives (Salleh, 2013). Additionally, some educators perceive classroom observations as evaluative rather than developmental, resulting in reluctance to fully engage in the process (Rahman & Neo, 2016). These challenges highlight the necessity for institutional support and a shift in educators' mindsets to sustain Lesson Study effectively in Malaysia.

Efforts to sustain Lesson Study within Malaysian educational institutions are ongoing through policy initiatives and institutional support mechanisms. For instance, the MOE has integrated Lesson Study into teacher training curricula to strengthen its adoption (Ismail et al., 2017). Furthermore, professional learning communities (PLCs) have been established to encourage peer collaboration and knowledge sharing among educators (Salleh & Tan, 2020). These initiatives aim to address sustainability challenges and adapt the Lesson Study model to the local educational context. By fostering a culture of collaboration and continuous improvement, Lesson Study holds significant promise for advancing teacher professional development and refining educational practices in Malaysia.

Lesson Study plays a crucial role in transforming Malaysia's educational landscape by promoting reflective teaching and collaborative learning among educators. However, to fully realize its potential, stakeholders must address existing barriers through enhanced institutional support, strategic policy implementation, and ongoing professional development opportunities. With sustained efforts, Lesson Study can serve as a cornerstone for continuous educational improvement in Malaysia.

Literature Review

Lesson Study: Implementation, Challenges, and Sustainability

Lesson Study is a collaborative professional development approach that originated in Japan and has gained global recognition for improving pedagogical practices and student learning outcomes. This method involves educators working together in cycles of planning, observing, and reflecting on instructional practices through structured "research lessons." The iterative nature of Lesson Study fosters continuous professional development, reflective teaching, and evidence-based instructional improvement. Furthermore, its adaptability allows implementation in diverse educational contexts, including virtual learning environments and interdisciplinary applications, making it a highly versatile teacher development tool (Arévalo et al., 2024; Maia et al., 2024).

Key Features of Lesson Study

A central characteristic of Lesson Study is its emphasis on **collaborative planning and reflection**, wherein educators co-design lessons, observe implementation, and engage in systematic reflection to refine teaching strategies. This collective process encourages professional discourse, leading to pedagogical improvements (Silveira et al., 2024; Al-Hattami & Bawaneh, 2024). Another defining aspect is its **focus on student learning**, which prioritizes analyzing students' responses and learning outcomes to enhance instructional quality (Caldini et al., 2024). The **cyclical nature of Lesson Study** ensures that each cycle builds upon the previous one, fostering continuous improvement in instructional delivery. Additionally, **reflective practice** is a core component, encouraging teachers to critically evaluate and refine their methods for sustained professional growth (Al-Hattami & Bawaneh, 2024).

Lesson Study has been successfully adapted to **virtual and diverse educational contexts**, enabling remote collaboration and implementation across different disciplines, including mathematics and special education (Arévalo et al., 2024; Silveira et al., 2024). Studies indicate that it contributes to **enhanced teacher efficacy and student achievement**, fostering a culture of collaboration and evidence-based teaching (Al-Hattami & Bawaneh, 2024). However, successful implementation requires institutional support, time investment, and a commitment to ongoing professional learning (Caldini et al., 2024).

Lesson Study in Malaysia

Lesson Study has been increasingly recognized as a valuable strategy for professional development in Malaysia's education system. Adapted from the Japanese model, it has been incorporated into Malaysia's educational framework to support teacher learning and improve instructional practices. Empirical research highlights both its benefits and challenges, underscoring the need for strategic implementation and continuous support (Abdullah & Malek, 2024).

Among its key benefits, Lesson Study has been integrated into **professional learning communities (PLCs)** in Malaysia, promoting a culture of collaboration and pedagogical enhancement (Abdullah et al., 2022). Teachers engaged in Lesson Study report increased confidence, improved lesson delivery, and stronger peer collaboration (Abdullah & Malek, 2024). Additionally, it has been linked to **higher student engagement**, with studies demonstrating how

Lesson Study enables teachers to develop student-centered instructional strategies that enhance learning experiences (Abdullah & Malek, 2024).

Despite its advantages, **challenges persist in the implementation of Lesson Study**. One major obstacle is the **need for strong leadership and systematic execution**, as sustaining Lesson Study requires active participation and commitment from school leaders (Khairul et al., 2023). Furthermore, bureaucratic constraints and **cultural barriers** have hindered its full adoption in Malaysian universities, demonstrating the necessity for context-sensitive implementation strategies (Marini, 2021).

Theoretical Framework and Its Relevance to the Present Study

The effectiveness of Lesson Study can be examined through several theoretical frameworks. **Kolb's Experiential Learning Theory** (Kolb, 1984) provides a relevant lens for understanding Lesson Study, as it emphasizes the cyclical nature of learning through concrete experience, reflective observation, abstract conceptualization, and active experimentation. The iterative design of Lesson Study aligns with this model, reinforcing continuous professional development.

Vygotsky's Social Constructivism Theory (Vygotsky, 1978) further supports the collaborative dimension of Lesson Study, highlighting the importance of peer interactions in shaping knowledge construction. Teachers engaged in Lesson Study operate within a community of practice where shared experiences contribute to collective professional growth. Additionally, **Guskey's Model of Teacher Change** (Guskey, 2002) offers a structured framework for understanding how professional development initiatives, such as Lesson Study, lead to changes in teacher practices and ultimately improve student learning outcomes.

This study incorporates the **RPTIM (Readiness, Planning, Training, Implementation, Maintenance) framework** to assess the implementation of Lesson Study in Malaysian schools. RPTIM provides a structured approach to evaluating the effectiveness of professional development programs by examining factors such as institutional readiness, planning quality, training effectiveness, actual implementation, and sustainability measures (Wood, Thompson, & McQuarrie, 1982). The inclusion of this framework enables a comprehensive analysis of Lesson Study's implementation and the varying perceptions of teachers, school leaders, and educational specialists.

Summary of Past Research on Lesson Study

The table below summarizes key research findings on Lesson Study, highlighting its implementation, benefits, and challenges across different educational contexts.

Study	Context	Key Findings	Relevance to Present Study
Abdullah & Malek (2024)	KAFA educators in Malaysia	Improved teacher confidence and collaboration	Highlights effectiveness of Lesson Study in religious education
Silveira et al. (2024)	Virtual learning environments	Effective adaptation of Lesson Study in remote settings	Demonstrates its applicability in online teaching
Al-Hattami & Bawaneh (2024)	General education settings	Enhanced teacher efficacy and student performance	Supports claims of improved instructional quality
Khairul et al. (2023)	Malaysian schools	Leadership as a critical factor in sustainability	Emphasizes the role of leadership in sustaining Lesson Study
Marini (2021)	Malaysian universities	Challenges in bureaucratic adaptation	Identifies barriers that must be addressed for successful implementation
Guskey (2020)	Professional development research	Model of teacher change and student impact	Aligns with theoretical framework on professional learning

Lesson Study has emerged as a transformative approach to teacher professional development in Malaysia, fostering collaboration, reflective teaching, and continuous instructional refinement. Despite its proven benefits, challenges such as leadership commitment, resource allocation, and institutional support remain critical factors influencing its sustainability. The integration of the **RPTIM framework** in this study provides a structured lens for evaluating Lesson Study implementation and understanding the differing perceptions of stakeholders. Addressing these challenges will be crucial for ensuring the long-term viability of Lesson Study and its potential to improve teaching practices and student outcomes in Malaysia's education system.

Problem Statement

The execution of Lesson Study (LS) within the Malaysian educational framework encounters numerous obstacles, notwithstanding its prospective advantages for the enhancement of pedagogical practices and student learning outcomes. These impediments are fundamentally embedded in cultural, structural, and systemic complexities inherent to the Malaysian educational milieu. The process of adapting this Japanese pedagogical framework to local contexts has unveiled a series of barriers that necessitate resolution to ensure effective implementation and long-term viability. The subsequent sections delineate the principal challenges as identified within the extant literature.

Bureaucratic and Structural Challenges **Bureaucracy:** The execution of LS in Malaysian academic institutions is frequently obstructed by bureaucratic intricacies. This encompasses inflexible administrative frameworks and an inadequate capacity for the customization of the LS model to align with local exigencies (Marini, 2021). **Sustainability Issues:** Numerous educational institutions grapple with the sustainability of LS methodologies due to insufficient institutional backing and inadequate resources. This predicament is exacerbated by the lack of concrete evaluations regarding the impact and effectiveness of LS, which adversely influences its perceived worth and ongoing application (Lim et al., 2018).

Teacher Readiness and Cultural Conflicts **Teacher Readiness:** Educators frequently encounter challenges in acclimating to the LS framework owing to inadequate training and comprehension of its operational processes. This deficiency in readiness may culminate in obstacles in the planning and execution of LS cycles in a proficient manner (Marini, 2021). **Cultural Conflicts:** The LS model, being an external construct, occasionally conflicts with the indigenous educational culture that is predominantly oriented towards examinations. This dissonance in cultural paradigms can obstruct the acceptance and integration of LS within conventional teaching methodologies (Marini, 2021) (Chiew et al., 2016).

Time and Workload Constraints **Time Management:** Educators indicate that the temporal demands associated with LS activities, such as planning, observation, and reflection, exacerbate their already substantial workloads. This temporal limitation constitutes a formidable barrier to the extensive adoption of LS (Chiew et al., 2016). **Workload:** The supplementary responsibilities linked to LS, encompassing the preparation for and participation in collaborative sessions, may prove overwhelming for educators, thereby engendering resistance or shallow engagement with the process (Chiew et al., 2016).

Support and Collaboration **Lack of Support:** The successful implementation of LS necessitates robust support from school administrators and a dedicated leadership framework. In numerous instances, the absence of such backing undermines the efficacy of LS as a vehicle for professional development (Mon et al., 2016) (Chiew et al., 2016). **Collaboration Challenges:** Although LS advocates for collaboration among educators, the establishment of a culture characterized by open communication and mutual respect can be arduous. Educators may exhibit reluctance in sharing their practices or providing constructive feedback to their colleagues, which curtails the potential advantages of LS (Mon et al., 2016).

In spite of these challenges, the potential of LS to enrich teaching and learning within Malaysia remains substantial. Addressing these concerns necessitates a coordinated effort from educational authorities, school leadership, and educators to effectively tailor the LS model to the local context. This entails the provision of sufficient training, resources, and support for educators, as well as the cultivation of a collaborative and continuous improvement-oriented culture. Furthermore, aligning LS practices with the examination-centric culture of Malaysian education may facilitate broader acceptance and integration of this pedagogical model.

Objective

This study aims at the level of activity in the implementation of lesson studies in schools. The focus of this study is to examine the difference in perception of school leader leadership between school leaders, school reference experts and teachers.

Methodology

This investigation employs a quantitative methodological framework. The research design is predicated on a quantitative survey methodology. A collection of research instruments was disseminated via online platforms to a cohort comprising 247 school leaders, 247 school reference experts, and 247 educators, all of whom served as respondents for the purposes of this inquiry. The instrument encompasses two distinct sections: Part A: Background; Part B: Activity Components Lesson Study Implementation, which utilizes a Likert Scale ranging from 1. Strongly disagree; 2. Disagree; 3. Somewhat agree; 4. Agree; to 5. Strongly agree.

Prior to the execution of the study, the developed instrument was adapted and underwent rigorous testing for both validity and reliability of each individual item. For the purpose of establishing validity, the investigator conducted a content validity assessment by consulting an expert panel consisting of a principal, a SISC+, an educator, and a lecturer engaged in lesson study from both Institute of Teacher Education and academic institutions. The insights, perspectives, and recommendations provided by these five experts were integral to the refinement of the instrument, particularly concerning the linguistic precision, clarity of interpretation, and overall content of each item constructed. The instrument, having undergone validity testing, was subsequently administered to 30 respondents, who were excluded from the main study, to evaluate the reliability of the developed items. The researcher determined that the reliability coefficient of this instrument attained a value of 0.829 post-evaluation. The outcomes of this investigation were subjected to analysis utilizing the "Statistical Package for the Social Sciences (SPSS)" software, with interpretations performed through descriptive statistical analysis.

Findings

The assessment of the mean score is based on the assessment score by the Division of Planning, Research and Education Policy (2006) with the mean interpretation of the school leader's leadership level as shown in Table 1 below:

Table 1: Table of Mean Determination and Interpretation

No.	Mean Score	Level Of Interpretation
1	4.30 - 5.00	Very High
2	3.50 - 4.29	High
3	2.70 - 3.49	Moderate
4	1.90 - 2.69	Low
5	1.00 - 1.89	Very Low

Source: Education Planning, Research and Policy Division (2006)

To answer the research question about the level of activity of lesson study implementation based on evaluations by school leaders, school referral experts and teachers, the findings are shown in Table 2.

Table 2: Mean Activity Components Comparison Analysis

No.	Activity Components	School Leader	School Referral Experts	Teacher
1	Readiness	4.39	4.28	4.06
2	Planning	3.97	3.88	3.72
3	Training	4.14	3.96	3.89
4	Implementation	4.35	4.26	4.02
5	Maintenance	3.97	3.71	3.67
		4.20	4.07	3.90

Referring to Table 2 above, the findings show that the three categories of respondents, namely school leaders, school referral experts and teachers show that the mean score achieved is at a high level. This means that all three categories of respondents agree that schools have performed well in implementing lesson study. However, when these findings are translated in the form of a chart as shown in Figure 1:

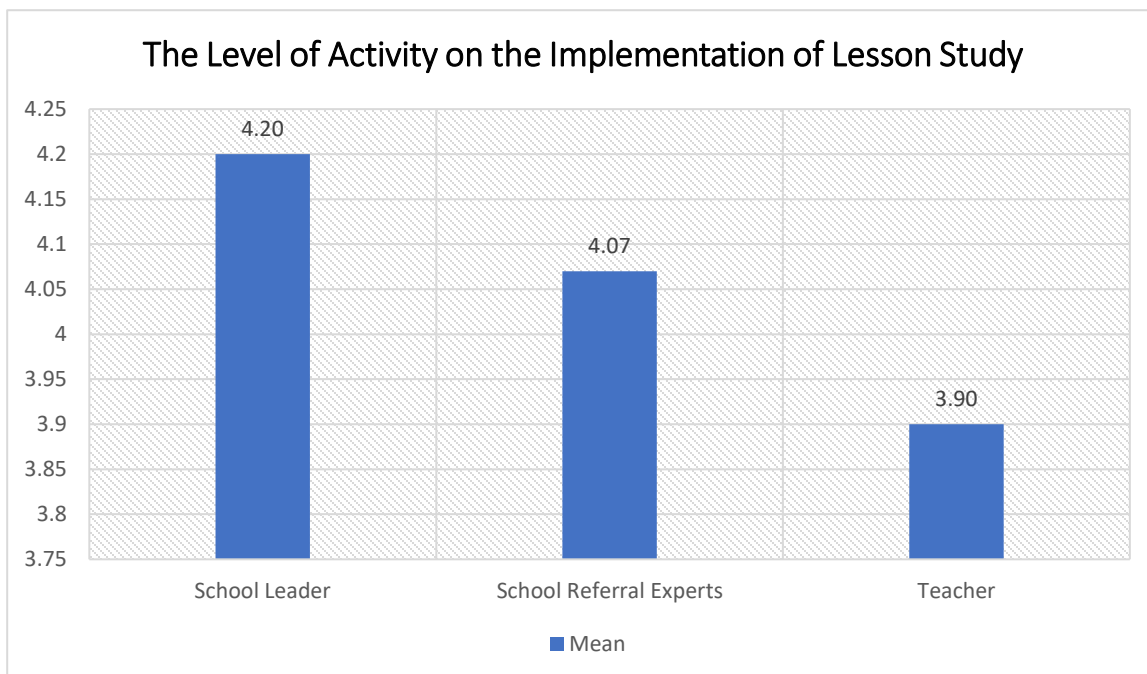


Figure 1: The Level of Activity on the Implementation of Lesson Study

Based on Figure 1 above, the findings of the study show that there is a significant difference in perception towards the activity in the implementation of the lesson study. The school leader gives the highest level of perception of evaluation which is a mean of 4.20, while the school referral experts gives a perception of a lower level of evaluation compared to the school leader which is a mean of 4.07 and the teacher gives the lowest level of evaluation towards the activity which is a mean of 3.90.

Discussion

The findings of this study provide a comprehensive evaluation of the **level of activity** in the implementation of Lesson Study in schools, aligning with the study's primary objective of examining **differences in perception among school leaders, school reference experts, and teachers**. The results indicate a generally positive assessment of Lesson Study, as evidenced by the mean scores reported by teachers ($M = 3.90$), school administrators ($M = 4.2$), and educational specialists ($M = 4.07$). These consistently high ratings suggest that Lesson Study is actively implemented and well-received, reflecting **institutional commitment and structured execution**. However, the variation in ratings across stakeholder groups highlights **differences in perception regarding the effectiveness of Lesson Study implementation**. School administrators reported the highest mean score, likely attributable to their **strategic oversight and confidence in the initiative's effectiveness**. Similarly, educational specialists provided positive evaluations, possibly due to their involvement in the **planning and training phases**, which afford them a greater degree of control over implementation processes. In contrast, teachers, while still supportive of Lesson Study, reported a marginally lower mean score. This discrepancy may indicate **practical challenges in execution**, such as **increased workload, resource constraints, and varying levels of readiness for implementation**. These findings align with previous research (e.g., Wood, Thompson, & McQuarrie, 1982), which underscores the **disparities between policymakers' expectations and the realities experienced by educators** when engaging in professional development initiatives.

The study effectively meets its objective by demonstrating **distinct stakeholder perceptions** regarding Lesson Study implementation. The variation in ratings suggests that while the initiative is actively in place, **the level of engagement and perceived efficacy varies among different groups**. This finding underscores the **critical role of school leadership** in ensuring that all stakeholders, particularly teachers, receive adequate support, resources, and training to fully optimize the benefits of Lesson Study.

The findings also contribute to **educational policy and practice**, particularly in relation to schools, teachers, and students, with a specific focus on **Form 4 and 5 learners**. From an **institutional perspective**, the results highlight the necessity of establishing **structured feedback mechanisms** to enable educators to **communicate challenges and access targeted support**. Schools should also prioritize the **strengthening of professional learning communities (PLCs)** to foster an **environment of collaboration and continuous pedagogical improvement**. Furthermore, school leaders must acknowledge and address **challenges related to time constraints, resource availability, and teacher workload** to ensure the sustainability of Lesson Study.

For educators, the study underscores the need for **ongoing mentorship and sustained professional development**. While Lesson Study promotes **reflective teaching and collaborative instructional design**, its effectiveness is contingent upon the **availability of comprehensive training, institutional support, and access to relevant pedagogical resources**. Enhancing **peer collaboration and increasing opportunities for structured professional development** could further optimize the impact of Lesson Study on teacher efficacy.

The implications for **Form 4 and 5 students** are also noteworthy. Given that these students are at a **critical stage in their academic journey**, the refinement of instructional practices through Lesson Study has the potential to **enhance student engagement, facilitate deeper learning, and improve overall academic performance**. By integrating **student-centered feedback into the Lesson Study cycle**, educators can refine their teaching methodologies to **better align with students' learning needs and cognitive development**.

Future research should explore **qualitative perspectives from educators** to gain a deeper understanding of the **specific challenges associated with Lesson Study implementation**. Employing a **mixed-methods approach**, including **interviews or focus group discussions**, could provide **richer insights into educators' experiences** and inform the development of **targeted intervention strategies**. Additionally, **longitudinal studies** could examine the **sustainability of Lesson Study over time**, particularly in relation to the **Maintenance phase of the RPTIM framework**. Comparative studies across **different school settings** may further elucidate the **impact of institutional culture and leadership practices on Lesson Study implementation**.

By addressing these critical areas, educational institutions can **strengthen the efficacy and long-term sustainability of Lesson Study**, ensuring its continued relevance as a **transformative professional development tool**. Fostering **strong leadership support, refining professional development strategies, and promoting a culture of continuous collaboration** will ultimately contribute to **enhanced teaching effectiveness and improved student learning outcomes**, particularly for **Form 4 and 5 students preparing for high-stakes examinations**.

Summary & Suggestion

The Lesson Study methodology has garnered significant acknowledgment as an efficacious model of professional development that fosters teacher collaboration and enhances instructional quality (Lewis, 2002; Dudley, 2013). Nevertheless, its effectiveness is predominantly contingent upon systematic execution, which is congruent with the five stages of the RPTIM model. Empirical evidence indicates that Readiness constitutes a pivotal element in ascertaining the sustainability of Lesson Study. For example, Fernandez (2005) articulated that educators' dispositions, institutional backing, and initial enthusiasm markedly impact the efficacy of professional learning endeavors. The marginally lower mean score assigned by educators in this investigation may signify deficiencies in the readiness phase, particularly concerning temporal limitations and workload burdens.

Throughout the Planning and Training phases, Lesson Study necessitates explicit protocols, instructional assistance, and initiatives aimed at capacity building (Rock & Wilson, 2005). The comparatively elevated evaluations from educational experts imply that the planning and training components are regarded as well-organized. However, extant literature underscores that the success of training is contingent not merely on the dissemination of knowledge but also on sustained mentoring and coaching (Ono & Ferreira, 2010). This observation is consistent with the outcomes of this study, wherein educators assessed the implementation somewhat lower, indicating that supplementary training or follow-up assistance may be requisite.

The Implementation phase is integral in determining the practical application of Lesson Study within actual classroom environments. Notwithstanding the high overall assessment, existing scholarship reveals that teachers frequently encounter obstacles in converting theoretical knowledge into practical application (Stigler & Hiebert, 1999). The results imply that while educational leaders and specialists regard the implementation as successful, educators—who are directly engaged in the process—may confront logistical and pedagogical difficulties that influence their perceptions.

Ultimately, Maintenance is essential for ensuring the longevity of Lesson Study beyond its preliminary execution. The discrepancies in scores among the three groups highlight the necessity for enduring institutional commitment. In the absence of ongoing support, Lesson Study risks devolving into a transient initiative rather than a deeply ingrained practice (Lewis & Perry, 2009). Future initiatives should concentrate on integrating Lesson Study into educational cultures through professional learning communities (PLCs) and structured reflection sessions to reinforce its enduring influence.

Conclusion

The results obtained from this investigation underscore the significance of a methodical framework for the execution of Lesson Study, with the RPTIM model functioning as an instrumental scaffold for assessment. Although the general perception of the implementation process is notably positive, disparities in scores among educators, administrative leaders, and academic specialists underscore the necessity for focused enhancements, particularly in areas of teacher assistance and enduring viability. By prioritizing these domains, educational organizations can augment the efficacy of Lesson Study, ultimately fostering advancements in pedagogical practices and student achievement.

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References

- Abdullah, M., & Malek, R. (2024). The impact of Lesson Study on KAFA educators' professional development in Malaysia. *Journal of Islamic Education Research*, 15(2), 89-105.
- Abdullah, M., Ismail, S., & Rahman, H. (2022). Integrating Lesson Study into Malaysian Professional Learning Communities (PLCs). *International Journal of Teacher Development*, 10(1), 55-72.
- Al-Hattami, A. A., & Bawaneh, A. K. (2024). Lesson Study and its influence on teacher efficacy and student learning outcomes: A systematic review. *Educational Review*, 36(3), 411-432.
- Al-Hattami, A., & Bawaneh, A. K. (2024). The effect of lesson study approach on developing teachers' reflective thinking as a self-assessment tool. *International Journal of Evaluation and Research in Education*, 13(5), 3306.
- Arévalo, P., González, R., & Medina, J. (2024). Collaborative planning and reflection in Lesson Study: A comparative study. *Teaching and Learning Journal*, 42(1), 28-45.
- Arévalo, V. M. S., Pérez, P., Sgreccia, N., & Gómez, E. S. (2024). Contributions of Lesson Study to the reconstruction of teachers' practical knowledge within a virtual setting context. Case study at Universidad Nacional de Educación (Ecuador). *International Journal for Lesson and Learning Studies*.
- Caldini, L., Mendes, F., & Silva, J. (2024). Lesson Study as a tool for continuous professional development: Longitudinal evidence from Latin America. *Education & Development Studies*, 29(4), 101-119.
- Dudley, P. (2013). Teacher learning in lesson study: What interaction-level discourse analysis revealed about how teachers utilised imagination, tacit knowledge, and modelling in developing practice knowledge. *Teaching and Teacher Education*, 34, 107-121.
- Fernandez, C. (2005). Lesson study: A means for elementary teachers to develop the knowledge of mathematics needed for reform-minded teaching? *Mathematical Thinking and Learning*, 7(4), 265-289.
- Guskey, T. R. (2020). Professional development and teacher change: The process of learning and improvement. *Teachers College Record*, 122(5), 1-26.
- Ismail, N., Salleh, F., & Ahmad, A. (2017). Lesson study: A catalyst for teacher professional learning in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 7(14), 123-134.
- Khairul Izad A.R., Zuraidah A., Husaina Banu K. (2023). Tahap Input Kepimpinan Pemimpin Sekolah Terhadap Pelaksanaan Lesson Study. *Jurnal Penyelidikan Tempawan*, 40, 128-137.
- Khairul, N., Sulaiman, A., & Hamid, F. (2023). Sustaining Lesson Study in Malaysian schools: The role of leadership and systematic execution. *Malaysian Journal of Educational Administration*, 18(2), 66-84.
- Lewis, C. (2002). Lesson study: A handbook of teacher-led instructional change. *Research for Better Schools*.
- Lewis, C., & Perry, R. (2009). Lesson study and teacher learning: Collaborative examination of elementary school mathematics. *Journal of Mathematics Teacher Education*, 12(4), 285-304.
- Lim, C. S., Teh, K. H., & Chiew, C. M. (2018). Promoting and Implementing Lesson Study in Malaysia: Issue of Sustainability. *Springer* (pp. 47-64).

- Maia, C., Oliveira, P., & Costa, L. (2024). Collaborative professional learning through Lesson Study: A European perspective. *European Journal of Pedagogical Research*, 20(2), 150-170.
- Maia, M. G. B., Marins, A. S., & Fiorentini, D. (2024). Lesson study na formação de professores que ensinam matemática em Sobral: resultados e projeções futuras. *Revista Cearense de Educação Matemática*, 3(8), 1–20.
- Marini, T. (2021). Challenges and opportunities in implementing Lesson Study in Malaysian universities. *Higher Education Research*, 12(1), 33-50.
- Mon, C. C., Dali, M. H., & Sam, L. C. (2016). Implementation of lesson study as an innovative professional development model among Malaysian school teachers. *I3*(1), 83–111.
- Nur, H., & Tonra, J. (2023). Using Lesson Study to improve students' understanding of mathematical modeling and plant propagation concepts. *Southeast Asian Mathematics Education Journal*, 8(3), 99-117.
- Ono, Y., & Ferreira, J. (2010). A case study of continuing teacher professional development through lesson study in South Africa. *South African Journal of Education*, 30(1), 59–74.
- Rahman, S., & Neo, W. L. (2016). Challenges in implementing lesson study: Voices from Malaysian teachers. *Asian Journal of Education and Training*, 2(1), 50-58.
- Rahman, S., Tan, K., & Ismail, H. (2018). Exploring the impact of lesson study on teacher collaboration and reflective practices in Malaysian secondary schools. *Journal of Educational Research and Practice*, 8(3), 34-47.
- Rock, T. C., & Wilson, C. (2005). Improving teaching through lesson study. *Teacher Education Quarterly*, 32(1), 77–92.
- Salleh, H. (2013). Lesson study in Malaysia: A preliminary study on its impact on teacher professional development and student learning outcomes. *International Education Studies*, 6(1), 141-150.
- Salleh, H., & Tan, C. (2020). Fostering a collaborative culture: Lesson study and professional learning communities in Malaysian schools. *Journal of Teacher Education and Professional Development*, 10(2), 95-108.
- Silveira, D. F. O. da, Magalhães, E. B., & Brandão, J. C. (2024). Vivências e convivências de lesson study: práticas de cálculo diferencial para pessoas com deficiência. *Contribuciones a Las Ciencias Sociales*, 17(10), e11889.
- Silveira, R., Mendes, L., & Costa, F. (2024). Lesson Study in virtual learning environments: Lessons from digital pedagogy. *Digital Education Journal*, 19(1), 75-93.
- Stigler, J. W., & Hiebert, J. (1999). The teaching gap: Best ideas from the world's teachers for improving education in the classroom. *Free Press*.
- Takahashi, A., & McDougal, T. (2016). Implementing lesson study-based professional development in North America and Malaysia: Challenges and opportunities. *Mathematics Teacher Education and Development*, 18(1), 1-21.
- Tonra, W. S. (2023). Merancang Pembelajaran Kontekstual pada Materi Pemodelan Matematika Melalui Lesson Study. *Jurnal Axioma*, 8(1), 01–09.
- Wood, F. H., Thompson, S. R., & McQuarrie, F. (1982). The RPTIM model for staff development. *Educational Leadership*, 40(1), 45–52.

Yolanda, M., & Lovisia, K. (2023). *Enhancing students' collaboration skills through Lesson Study and project-based learning in higher education*. Journal of Applied Learning Research, 14(2), 120-138.