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# The Influence of PMM Literacy and Teacher Learning Leadership on Teacher Performance: The Mediating Role of Professional Learning Community Effectiveness

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## Abstract

This study is motivated by the need to improve the quality of learning, as indicated by the Indonesian Education Report Card in 2024. PMM (Platform Merdeka Mengajar) is a digital platform designed to support teachers in implementing the Merdeka Curriculum in Indonesia. The study aims to examine the influence of PMM literacy and teacher learning leadership on teacher performance, with Professional Learning Community (PLC) effectiveness serving as a mediating variable. Data were collected from 321 teachers, selected from a population of 1,626 teachers at public junior high schools in Kendal Regency, Indonesia. The data were analyzed using Structural Equation Modeling with Partial Least Squares (SEM-PLS), employing SmartPLS 4.1 as the analysis tool. The results suggest that PMM literacy and PLC effectiveness have direct effects on teacher performance, while teacher learning leadership does not have a direct effect. However, both PMM literacy and teacher learning leadership have significant indirect effects on teacher performance through PLC effectiveness. This study highlights the practical need to support PLC to promote PMM literacy and teacher learning leadership, in order to enhances teacher performance.

**Keywords**: Literacy of PMM, Professional Learning Community, Teacher Learning Leadership, Teacher Performance.

## INTRODUCTION

Improving the quality of education remains a key focus within the broader context of national development. Learning is the core productive process within educational institutions (Creemers, 2002). Therefore, enhancing the quality of education must be linked to the continuous improvement of learning processes, with careful consideration of students' needs.

Teacher performance is one of the critical components that determine the quality of education. As managers, leaders, and facilitators, teachers play a central role in planning, organizing learning components, and motivating students to ensure that the learning process is effective and aligned with educational goals (Aslam et al., 2023). Teacher performance not only affects student outcomes in the classroom but also significantly contributes to the long-term investment in the quality of human resources (Fadillah, 2022).

The Indonesian Education Report Card (2024), released by the Ministry of Education, Culture, Research, and Technology, revealed that the quality of learning in Indonesia—particularly at the junior high school level—is still categorized as moderate, with a score of 62.94 in aspects such as classroom management, psychological support, and learning methods. This indicates an ongoing need to improve teacher performance for the purpose of enhancing learning quality.

Teacher performance is reflected in their roles both as educators and as administrators of teaching activities, includes planning, implementing, and evaluating the teaching and learning process, all of which should be carried out with a strong work ethic and professional discipline (Jenkins, 2009). According to the Regulation of the Director General of Teachers and Educational Staff (Perdirjen GTK) Number 7607/B. B1/HK.03/2023 on Technical Guidelines for Teacher and Principal Performance Management, teacher performance refers to the achievement of work results or behaviors related to tasks such as planning and implementing instruction, assessing learning outcomes, mentoring and training students, and undertaking additional responsibilities.

Efforts to improve teacher performance must consider both professional learning and the integration of technology. According to Armstrong (2006), performance improvement at the individual level can be

achieved by enhancing individuals' abilities, motivation, and opportunities to train and develop their skills. Learning, both at the individual and group levels—as a process of acquiring, organizing, transforming, or assimilating information, skills, and attitudes—plays a vital role in building competence and fostering innovation, which in turn positively influences performance (Atatsi et al., 2019). Information and communication technology (ICT) functions as a key organizational asset that drives performance improvements (Tuffaha, 2020). In this context, digital literacy becomes a crucial factor that supports both work and collaborative learning, in particular, within environments that promote mutual interaction and knowledge sharing (Marín & Castañeda, 2023).

Digital literacy involves the use of technology to fulfill information needs, including accessing, evaluating, managing, and organizing information sources; integrating and synthesizing information from diverse sources; creating and communicating information to various audiences; and applying information to solve problems (Sparks et al., 2016). According to (Carretero et al., 2017), digital literacy encompasses five core competencies: information and data literacy, communication and collaboration, digital content creation, safety, and problem solving. UNESCO supports the development of ICT competencies for teachers through a three-stage model: knowledge acquisition, knowledge deepening, and knowledge creation (Marín & Castañeda, 2023). These stages provide a framework for equipping teachers with the digital skills necessary to enhance their professional performance in an increasingly technology-driven educational environment.

To support teachers' digital literacy in relation to the implementation of the *Merdeka Curriculum*, the Ministry of Education, Culture, Research, and Technology has provided the *Platform Merdeka Mengajar* (PMM) as a source of information and reference. PMM is a digital platform designed to assist teachers in accessing references, gaining inspiration, and deepening their understanding of the *Merdeka Curriculum* (Ministry of Education, Culture, Research, and Technology, 2024). It carries the vision of creating a collaborative ecosystem that fosters effective learning and a positive work climate (Hidayat, 2023).

As a digital learning platform, PMM offers three main features: *Pengembangan Diri, Mengajar*, and *Inspirasi.*

- The *Pengembangan Diri* feature includes self-training, community, and performance management menus. The self-training menu provides learning materials that help teachers develop a variety of teaching practices aligned with the *Merdeka Curriculum*. The community menu offers opportunities for teachers to collaborate and exchange best practices through an online learning community.
- The *Mengajar* feature provides a variety of teaching and assessment documents that serve as practical references for classroom implementation.
- The *Inspirasi* feature allows teachers to explore and develop relevant and innovative educational content through inspirational videos. In addition, the *Bukti Karya* menu functions as a digital portfolio where teachers can store and share their work—such as articles, teaching materials, videos of best practices, teaching modules, and other instructional resources—with other PMM users.

Optimal utilization of digital literacy through PMM is expected to enhance teacher learning and collaboration. Ultimately, this can contribute to improved teacher performance, particularly in the implementation of effective and innovative teaching practices aligned with the *Merdeka Curriculum*.

Another factor that influences teacher performance is leadership. Principal leadership has been proved to have a significant positive impact on teacher performance (Rizky Rahayuningtyas & Yulianto, 2016; Eko Prasetiyo & Oktarina, 2017; Hardono & Yusuf, 2017). Several studies provide empirical evidence that instructional leadership by school principals can enhance teacher performance (Hendawy Al-Mahdy et al., 2024; Dorukbaşi & Cansoy, 2024).

Learning leadership places teaching and learning at the core of school leadership practices. This form of leadership focuses on improving the quality of learning (Jenkins, 2009). Tubin in a research report published by the Organization for Economic Co-operation and Development (2013), defines learning leadership as the ability to influence others in achieving shared goals related to enhancing the learning environment both inside and outside the classroom.

Importantly, learning leadership is not solely the responsibility of school principals—it is also part of teachers' leadership roles. Educational reform depends on teachers' leadership capacity to implement new approaches and support colleagues in adapting those approaches to their own values, skills, and areas of expertise (Cheung et al., 2018). Frost & Durrant states that through their leadership, teachers can make a significant impact on their own personal and interpersonal capacities, on student learning outcomes, and on the structure and culture of the school as an organization (Murphy, 2005).

Learning leadership involves teachers' ability to interpret their professional identity, roles, and responsibilities not only as educators, but also as members of a broader school community. It refers to teachers' leadership directed toward themselves, their students, their colleagues, and the wider school environment, with the goal of improving learning. According to the Regulation of the Director General of Teachers and Education Personnel (Perdirjen GTK) Number 6565/B/GT/2020 concerning the Competency

Model in Teacher Professional Development, learning leadership includes four core competencies: (1) leading the development of a student-centered learning environment; (2) leading the planning and implementation of a learner-centered learning process; (3) leading reflection and continuous improvement of the quality of the learner-centered learning process; and (4) involving students' parents in the learning process.

The findings of previous studies examining the effects of digital literacy and teacher leadership on teacher performance have shown inconsistencies. Research by Damanik & Widodo (2024) indicates that digital literacy has a significant impact on teacher performance. However, this contradicts the findings of Sari et al. (2023), who report that digital literacy does not have a significant effect on teacher performance. Similarly, while Simaremare et al. (2023) found that teacher leadership significantly influences teacher performance, Kılınç et al. (2021) reported that teacher leadership does not have a direct effect on teachers' instructional practices.

These contrasting findings have prompted researchers to consider environmental factors, specifically the effectiveness of Professional Learning Communities (PLC), as a potential mediating variable. PLC is defined as a group of teachers and educational staff who engage in continuous, scheduled collaboration and collective learning as an effort to improve the quality of instruction, ultimately impacting student learning outcomes (Ferayanti et al., 2023). Previous studies have shown that PLC have a positive and significant influence on teacher performance (Kouhsari et al., 2023; Mydin et al., 2024).

Collaboration among members of PLC enhances teachers' skills in instructional practice. Through PLC, teachers gain new knowledge by engaging in mutual interaction, applying that knowledge in practice, and deepening their understanding through reflective experience (Sigurdardóttir, 2010). Participation in PLC supports teachers in improving their teaching by implementing new strategies or methods in the classroom. It also promotes changes related to reflective dialogue, active learning strategies, a focus on institutional improvement and student achievement, as well as collaboration and a strong sense of community (Doğan & Adams, 2018).

The PLC model developed by (Uno & Lamatenggo, 2014) outlines six key components of an effective PLC: a shared vision, mission, and values; collective inquiry; a culture of collaboration; action orientation and improved instructional practices; commitment to continuous improvement; and a focus on results. Roy & Hord (2006) propose five core dimensions of an effective PLC, including shared values and vision; supportive and shared leadership; collective learning; shared personal practice; and supportive conditions, which encompass both structural and interpersonal support.

This study aims to analyze: (1) the direct effects of PMM literacy, teacher learning leadership, and the effectiveness of professional learning communities on teacher performance; (2) the effects of PMM literacy and teacher learning leadership on the effectiveness of professional learning community; and (3) the indirect effects of PMM literacy and teacher learning leadership on teacher performance mediated by the effectiveness of professional learning community.

**METHOD**

This study uses a quantitative approach to test the causal relationship between variables. The population was 1626 teachers from public junior high schools in Kendal Regency. The samples size is 321 determined using *stratified cluster random sampling* technique based on differences in geographical location and school accreditation status. Table 1 shows that the respondents were mostly female (69%), dominated by bachelor degree graduates (95%) and distributed evenly across the age range of 25 to 60 years.

Table 1 . Demographic of Respondents

| Characteristics | | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Female | 222 | 69 |
| | Male | 99 | 31 |
| Education Level | Bachelor | 305 | 95 |
| | Master | 16 | 5 |
| Age | 25 - 30 | 62 | 19 |
| | 31 - 35 | 48 | 15 |
| | 36 - 40 | 41 | 13 |
| | 41 - 45 | 49 | 15 |
| | 46 - 50 | 31 | 10 |
| | 51 - 55 | 48 | 15 |
| | 56 - 60 | 42 | 13 |

Source: Primary data processed, 2025

Data were collected using a Likert scale questionnaire. A Score of 1 indicates disagreement, while a score of 5 indicates strong agreement. The data were analyzed using Structural Equation Modeling - Partial Least Square (SEM-PLS) with SmartPLS 4.1 as analysis tool. SEM-PLS can analyze the relationship between latent variables in complex structural models and does not require normally distributed data (Hair et al., 2021). The description of variables used in this study are presented in Table 2.

Table 2 . Description of Research Variables

| Variables | Definition | Dimensions |
|---|---|---|
| Teacher Performance (TP)[a] | Teacher work behavior in carrying out learning tasks | Planning Learning (PL) Implementing Learning (IL) Concucting Assesment (CA) |
| Literacy PMM (LPMM)[b] | The ability to access, evaluate, use and create information through digital features available on PMM. | Literacy of Information (LI) Communication and Collaboration (CC) Creation of Digital Content (CDC) |
| Teacher Learning Leadership (TL)[c] | Teachers' ability to lead themselves, students, colleagues and others school community to improve learning | Learning Environment Leadership (LEL) Leadership in Planning and Implementing Learning (LPIL) Reflective Leadership (RL) Involving Students Parents (ISP) |
| Professional Learning Community Effectiveness (PLC)[d] | Characteristics of PLC that can support changes in teacher attitudes, knowledge and teaching practices. | Sharing Values and Vision (SSV) Sharing Leadership (SSL) Collective Learning (CL) Sharing Practices (SP) Supportive Conditions (SC) |

[a] (Perdirjen GTK No 7607/B.B1/HK.03/2023); [b](Carretero et al., 2017) ; [c](Perdirjen GTK Number 6565/B/GT/2020); [d](Roy & Hord, 2006)

The instrument was evaluated based on convergent validity, discriminant validity, and reliability. The convergent validity assessment showed that 56 questionnaire items are valid, with outer loading values greater than 0.6 and Average Variance Extracted (AVE) values above 0.5. Discriminant validity was fulfilled, as all variables have cross-loading values above 0.7 and meet the Fornell-Larcker criterion, which requires the square root of the AVE for each construct must exceed its correlations with all other constructs in the model. The instrument also demonstrates good reliability, as Cronbach's alpha and Composite Reliability (rho_c) values for all variables exceed 0.7.

SEM-PLS analysis consists of two main stages: measurement model analysis (outer model) and structural model analysis (inner model). The evaluation of the reflective measurement model is based on convergent validity, discriminant validity, and reliability. Structural model evaluation includes model fit assessment and hypothesis testing.

## RESULT AND DISCUSSION

### Results of the Measurement Model Analysis

The measurement model shows the relationship between constructs or latent variables and indicators. The results of the measurement model analysis for convergent validity and reliability are shown in Table 3.

Table 3 . Convergent Validity and Reliability

| Variables | Outer loading | AVE | Cronbach's alpha | rho_c |
|---|---|---|---|---|
| **TP** | | 0.820 | 0.890 | 0.901 |
| PL | 0.874 | | | |
| IL | 0.931 | | | |
| CA | 0.909 | | | |
| **LPMM** | | 0.722 | 0.815 | 0.855 |
| LI | 0.854 | | | |
| CC | 0.870 | | | |
| CCD | 0.825 | | | |
| **TL** | | 0.675 | 0.840 | 0.848 |
| LEL | 0.853 | | | |
| LPIL | 0.848 | | | |
| RL | 0.802 | | | |
| ISP | 0.781 | | | |
| **PLC** | | 0.806 | 0.940 | 0.941 |
| SSV | 0.895 | | | |
| SL | 0.893 | | | |
| SP | 0.902 | | | |
| CL | 0.888 | | | |
| SC | 0.911 | | | |

Source: Primary data processed, 2025

Table 3 shows that all variable dimensions have outer loading values greater than 0.7 and AVE values exceeding 0.5, indicating that they meet the criteria for convergent validity. Additionally, Cronbach's Alpha and Composite Reliability (rho_c) of all variabels are above 0.7, demonstrating good reliability.

Tables 4 and 5 demonstrate that discriminant validity has been established, as evidenced by the cross-loading values of each variable dimension exceeding 0.7 and the square root of the AVE for each construct exceeds the correlations between constructs.

Table 4 . Cross Loading Matrix

|      | TP        | LPMM      | TL        | PLC       |
|------|-----------|-----------|-----------|-----------|
| PL   | **0.874** | 0.556     | 0.524     | 0.569     |
| IL   | **0.931** | 0.662     | 0.662     | 0.704     |
| CA   | **0.909** | 0.699     | 0.619     | 0.679     |
| LI   | 0.710     | **0.854** | 0.549     | 0.688     |
| CC   | 0.564     | **0.870** | 0.579     | 0.426     |
| KKD  | 0.483     | **0.825** | 0.517     | 0.386     |
| LEL  | 0.645     | 0.508     | **0.853** | 0.701     |
| LPIL | 0.540     | 0.552     | **0.848** | 0.634     |
| RL   | 0.502     | 0.583     | **0.802** | 0.566     |
| ISP  | 0.493     | 0.490     | **0.781** | 0.598     |
| SSV  | 0.667     | 0.554     | 0.671     | **0.895** |
| SL   | 0.595     | 0.496     | 0.644     | **0.893** |
| SP   | 0.677     | 0.631     | 0.734     | **0.902** |
| CL   | 0.679     | 0.597     | 0.698     | **0.888** |
| SC   | 0.619     | 0.489     | 0.674     | **0.911** |

Source: Primary data processed, 2025

Table 5 . Fornell Larcker Criterion Matrix

|      | PLC   | TL    | TP    | LPMM  |
|------|-------|-------|-------|-------|
| PLC  | 0.916 |       |       |       |
| TL   | 0.682 | 0.852 |       |       |
| TP   | 0.678 | 0.786 | 0.940 |       |
| LPMM | 0.584 | 0.625 | 0.716 | 0.906 |

Source: Primary data processed, 2025

**Results of the Structural Model Analysis**

The structural model assesses the relationships between exogenous and endogenous latent variables. Model fit is evaluated using collinearity diagnostics, the Standardized Root Mean Square Residual (SRMR), Norm Fit Index (NFI) and the coefficient of determination (R-squared). Hypothesis testing involves analyzing direct effects through path coefficients and examining mediation through specific indirect effects.

The collinearity test is conducted to ensure that there is no multicollinearity among latent variables in the model, as indicated by a Variance Inflation Factor (VIF) value below 5 (Ghozali, 2021). Table 6 presents the results of the inner VIF estimations, all of which are below 5, indicating the absence of collinearity among variables. These findings support that the parameter estimates in SEM-PLS are unbiased.

Table 6 . Collinearity Test Results

|            | Inner VIF values |
|------------|------------------|
| LPMM -> PLC | 1.716 |
| TL -> PLC   | 1.716 |
| LPMM -> TP  | 1.836 |
| TL -> TP    | 2.717 |
| PLC -> TP   | 2.569 |

Source: Primary data processed, 2025

The model fit criteria are fulfilled by a SRMR value of less than 0.08 and a NFI approaching 1 (Ghozali, 2021). The results of the model fit test show an SRMR value of 0.079 and an NFI of 0.831, indicating that the research model is acceptable

Table 7 . Coefficient of Determination ($R^2$)

|     | Adjusted R-square |
|-----|-------------------|
| PLC | 0.608 |
| TP  | 0.636 |

Source: Primary data processed, 2025

Table 7 shows that the coefficient of determination ($R^2$) for the professional learning community effectiveness variable is 60.8%, indicating it is influenced by the PMM literacy and teacher learning

leadership variables, while the remaining 39.2% is explained by other variables. Similarly, the teacher performance variable is influenced by PMM literacy, teacher learning leadership, and PLC effectiveness variables by 63.6%, with the remaining 36.4% attributed to other variables. According to Hair et al. (2021), an R² value of 0.75, 0.50, and 0.25 indicates strong, moderate, and weak model, respectively. Therefore, it can be concluded that the model used in this study falls within the moderate category.

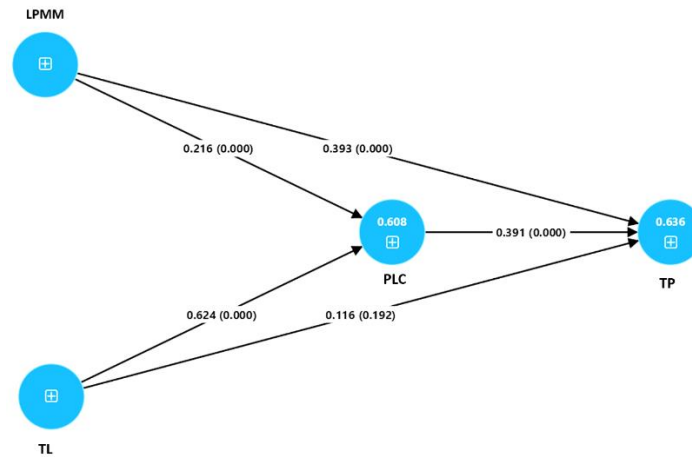The results of the direct effect test are illustrated in the structural model diagram presented in Figure 1.



Figure 1 . Structural Model of the Research

Table 8. Direct Effect Test Results

|  | Original Sample | p-values | $f^2$ | Hypothesis |
|---|---|---|---|---|
| LPMM -> TP | 0.393 | 0.000 | 0.234 | Accepted |
| TL -> TP | 0.116 | 0.192 | 0.014 | Rejected |
| PLC -> TP | 0.391 | 0.000 | 0.165 | Accepted |
| LPMM -> PLC | 0.216 | 0.000 | 0.070 | Accepted |
| TL -> PLC | 0.624 | 0.000 | 0.583 | Accepted |

Source: Primary data processed, 2025

Table 8 show that PMM literacy has a positive effect on teacher performance, with a path coefficient of 0.393 and a p-value less than 0.05, indicating a statistically significant effect. According to Ghozali (2021), $f^2$ values of 0.02, 0.15, and 0.35 represent small, medium, and large effect sizes. The $f^2$ value of 0.234 suggests that the effect of PMM literacy on teacher performance falls into the medium category.

The direct effect of teacher learning leadership on teacher performance is 0.116, with a p-value of 0.192; this effect is not statistically significant since the p-value is greater than 0.05. Meanwhile, the effectiveness of PLC has a direct effect on teacher performance with a path coefficient of 0.391 and a p-value of 0.000, indicating a significant positive effect. The $f^2$ value of 0.165 indicates that this effect is also in the medium category.

The direct effect of PMM literacy on PLC effectiveness is 0.391, with a p-value of 0.000, indicating that PMM literacy has a significant positive effect on PLC effectiveness. The $f^2$ value of 0.070 suggests that this effect falls into the small category. Teacher learning leadership has a direct effect on PLC effectiveness of 0.624, with a p-value of 0.000, indicating a significant positive effect. The $f^2$ value of 0.583 indicates that this effect is in the large category.

Table 9 . Mediation Test Results

|  | Original sample | p-values | $\hat{v}$ | Hypothesis |
|---|---|---|---|---|
| LPMM -> PLC -> TP | 0.084 | 0.000 | 0.007 | Accepted |
| TL -> PLC -> TP | 0.244 | 0.000 | 0.060 | Accepted |

Source: Primary data processed, 2025

The effect of PMM literacy on teacher performance through the effectiveness of PLC is 0.084, with a p-value of 0.000. The p-value being less than 0.05 indicates a significant mediation effect. The mediation effect size $\hat{v}$ is calculated as the product of the squared path coefficient from the exogenous variable to the intervening variable and the squared path coefficient from the intervening variable to the endogenous variable (Lachowicz et al., 2018). According to Ogbeibu et al. (2021), mediation effect sizes are interpreted as follows: 0.175 indicates a large effect, 0.075 a moderate effect, and 0.01 a small effect. The mediation effect size of PMM literacy on teacher performance through the effectiveness of PLC is 0.007, indicating a small mediation effect. Despite its small size, the mediation effect is statistically significant, showing that PMM literacy positively affects teacher performance through PLC effectiveness.

The effect of teacher learning leadership on teacher performance through the effectiveness of PLC is 0.244, with a p-value of 0.000, indicating that the mediation effect is significant. Although the mediation effect size $\hat{v}$ of 0.060 suggests a small effect, teacher learning leadership still has a significant and positive influence on teacher performance through the effectiveness of PLC.

**Discussion**

PMM literacy has a significant positive effect on teacher performance. This finding is consistent with previous studies by Rosliani (2024) and Damanik & Widodo (2024), which indicate that digital literacy significantly enhances teacher performance. The results of this study also support Gibson's performance theory, which posits that most organizational behaviors are learned. Information literacy, communication and collaboration skills, as well as digital content creation facilitated through PMM support teachers' professional learning processes, thereby improving their performance. Digital self-learning resources enable teachers to expand and connect their knowledge to instructional development (Kijkuakul & Bongkotphet, 2024).

In contrast, the direct effect of teacher learning leadership on teacher performance is not statistically significant. This result aligns with the findings of Kılınç et al. (2021) , who reported that teacher leadership does not directly influence teaching-related performance. According to Gibson et al. (2011), individual performance is shaped by both internal and external factors. While teacher learning leadership is considered an internal factor, it does not directly impact performance, suggesting the presence of mediating variables that bridge its influence on teacher outcomes.

The effectiveness of PLC has a significant and positive effect on teacher performance. An effective PLC—characterized by shared values and vision, distributed leadership, collective learning, sharing of best practices, and supportive conditions—can enhance teacher performance. This finding is supported by research from Mydin et al. (2024), which demonstrates that the five dimensions of PLC significantly contribute to improved teacher performance. A strong PLC fosters collaboration and continuous learning, integrating teachers' pedagogical knowledge and skills to enhance shared instructional practices (Kouhsari et al., 2023).

Furthermore, these results support Social Cognitive Theory proposed by Bandura (2012), which highlights reciprocal determination among behavior, cognition, and environment. In this context, PLC serves as an environmental factor that positively influences teacher performance through collaborative practices. PLC facilitate the exchange of pedagogical competencies, particularly in classroom management and teaching strategies (Mabunda & McKay, 2024). Collective learning and practice sharing within PLC provide valuable learning experiences through social interaction and positive modeling, ultimately contributing to improved teacher performance.

PMM literacy has a significant positive influence on the effectiveness of PLC. Information literacy gained through self-training modules, inspirational videos, and teaching tools available on the PMM platform can support collective learning within these communities. Digital technologies and online communities contribute to teachers' professional development by providing access to instructional resources that can be planned, shared, and demonstrated virtually (Kijkuakul & Bongkotphet, 2024). As a digital learning platform, PMM facilitates collaboration through its community features, enabling teachers to share best practices via webinars. These webinars serve as effective tools to foster collaboration, allowing teachers to stay updated on educational trends and continuously engage in professional growth (Shal et al., 2024). Technology thus becomes an integral part of teachers' professional practice, with virtual professional communities providing valuable support for informal teacher learning (Sharimova, 2025).

Teacher learning leadership also significantly and positively affects the effectiveness of PLC. This finding aligns with research by Zheng et al. (2016), which concludes that leadership practices have a strong positive impact on PLC dimensions, including shared vision, collaborative activities, learning focus, sharing of practice, and reflective dialogue. The results underscore the importance of teacher learning leadership in fostering effective PLC. Through their leadership, teachers can inspire colleagues to embrace shared visions and learner-centered values. Social equivalence, such as shared norms and values, strengthens interpersonal connections and supports collective learning (Nijland & Vermeulen, 2025). Leaders play a critical role in establishing collaborative structures, which are essential for facilitating and sustaining collective learning processes (Nijland & Vermeulen, 2025).

The indirect effect of PMM literacy on teacher performance through the effectiveness of PLC is significant, indicating that PLC effectiveness mediates the relationship between PMM literacy and teacher performance. This finding aligns with the study by Liu et al. (2024), which demonstrates that digital teacher professional development indirectly affects learning practices through PLC. Effective PLC serve as catalysts for changes in teaching practices by fostering collaboration. Members of PLC tend to provide pedagogical support to one another through both in-person and online meetings, enabling them to jointly address

challenges related to instructional practices (Mabunda & McKay, 2024). The results of this study also support Gibson's performance theory (2011), which states that individual performance is influenced by both internal factors and environmental conditions. In this context, PLC effectiveness functions as an environmental factor that enhances the impact of the internal factor—PMM literacy—on teacher performance.

Similarly, PLC effectiveness mediates the effect of learning leadership on teacher performance. This is consistent with the findings of Sebastian et al. (2017), who assert that teacher leadership positively influences instructional practices through PLC. Teacher learning leadership does not improve performance directly; rather, it operates through the strengthening of PLC as collaborative spaces. These forums provide opportunities for teachers to engage with peers, which in turn promotes leadership development (Liu et al., 2024). The creation of a collaborative environment can significantly enhance leadership practices (Liu et al., 2024); Shal et al., 2024).

## CONCLUSION

This study found the extent to which PMM literacy and teacher learning leadership contribute to teacher performance. This study also shows that the effectiveness of learning communities as a mediating variable has a significant impact on teacher performance. Model analysis shows that PMM literacy has a direct influence on teacher performance, as well as through the effectiveness of learning communities as an intervening variable. Meanwhile, teacher learning leadership has no direct effect on teacher performance but shows mediation through learning community effectiveness. The findings provide further insight into the factors that influence teacher performance and confirm theories about teacher performance through empirical evidence.

The results of this study are expected to have implications on efforts to improve teacher performance through support for improving the literacy of PMM, developing effective professional learning communities and developing teacher learning leadership through collaborative practices. Synergy and cooperation between education stakeholders, the Education and Culture Office, and school management are needed to determine relevant policies. This research can motivate teachers to actively participate in professional learning communities as an effort to improve their performance.

Although this study provides insight into teacher performance, it still has several limitations and suggestions for further research. First, the study was limited to public junior high schools in Kendal Regency with sampling considering geographical conditions differences and school accreditation status. The research may provide different results if it is conducted thoroughly in both public and private schools. The findings may not be applicable to areas outside Kendal Regency. Data collection that depends on self-assessment questionnaires by teachers is susceptible to bias. The absence of external assessments, such classroom observations, limits the validity of the data. Future research could incorporate multiple data sources including external assessments to provide a more objective measure of teacher performance. Broader geographical coverage and wider range of research areas will enhance the generalizability of the findings. A mixed-methods approach combining quantitative and qualitative methods could offer a deeper understanding of the factors affecting teacher performance.

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