



The Influence of Principals' Digital Leadership, Learning Community Optimisation, and Work Motivation on Junior High School Teachers' Performance in Sungai Apit District, Siak Regency

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ABSTRACT

The digital transformation of education requires teachers to demonstrate high performance supported by school leadership, learning communities, and strong work motivation. This study analyses the influence of principals' digital leadership, learning community optimisation, and work motivation on the performance of junior high school teachers in Sungai Apit District, Siak Regency. A quantitative approach with an ex post facto design was employed. Data were collected through four-point Likert questionnaires measuring four variables and were analysed descriptively and inferentially using multiple linear regression with SPSS 26. The findings show that all variables are at high to very high levels. Simultaneously, the three variables significantly influence teacher performance with a coefficient of determination of 0.924; digital leadership contributes 0.9%, learning communities 12.7%, and work motivation 78.4% to the variance in performance. These results confirm that improving teacher performance in coastal areas should prioritise strengthening work motivation supported by learning-oriented digital leadership and functional learning communities. The practical implications direct local policymakers to design professional development programmes and reward schemes that enhance motivation, build principals' digital leadership capacity, and institutionalise learning communities as ongoing spaces for pedagogical reflection among teachers in remote and coastal regions.

INTRODUCTION

Teachers' performance is a key determinant of instructional quality and student learning outcomes at the lower secondary level. Empirical studies indicate that high teacher performance is directly associated with pupils' academic achievement and the overall reputation of schools (Ishak & Suyatno, 2020). In Indonesia, efforts to enhance professionalism and strengthen assessment practices have been shown to significantly affect the performance of both madrasah and general school teachers (Aqil et al., 2020). Other research confirms that effective school leadership can improve junior high school teachers' performance by reinforcing discipline and work responsibility (Harahap et al., 2023; Natsir et al., 2020). Accordingly, strengthening junior high school teachers' performance constitutes a strategic agenda for ensuring the quality of educational services, particularly in regions that still face resource constraints and disparities in quality.

Digital transformation in education requires teachers to master learning technologies and to adapt to new patterns of work that are more collaborative and data driven. In many contexts, the quality of school leadership is crucial to the success of such transformation, as principals are responsible for articulating a digital vision and nurturing a culture of innovation (Özgenel et al., 2020). Studies on digital leadership show that technologically literate leaders are able to orchestrate organisational change, manage information, and facilitate teacher learning more effectively (Wujarso & Pitoyo, 2021). In Indonesia, digital literacy training has been found to enhance teachers' readiness to integrate technology into classroom practice (Sondari et al., 2025). This is reinforced by evidence that school-based management focused on technology integration can strengthen the digital learning ecosystem in junior high schools (Supadi, 2024). Thus, principals' digital leadership becomes an essential prerequisite for ensuring that teachers can respond to the demands of the Merdeka Belajar policy.

Empirical research has highlighted positive relationships between principals' digital leadership and various indicators of teachers' performance. Studies in Indonesian schools show that visionary and supportive digital leadership contributes to strengthening teachers' innovative work culture (Hidayat & Patras, 2024). Research conducted in junior high schools suggests that systematic digital leadership practices can foster teacher engagement, instructional effectiveness, and the achievement of performance targets (Nuraini et al., 2025). In other regions, principals' digital leadership has been found to influence teacher performance through the management of work environments and the use of digital platforms (Risanto et al., 2025). In vocational education settings, digital leadership also supports teachers' reflective practices, which underpin continuous improvement (Agustina et al., 2020). These findings underline that digital leadership is a critical variable that cannot be overlooked when examining teachers' performance in secondary schools.

Beyond leadership, the optimisation of school-based learning communities or professional learning communities (PLCs) represents an important strategy for improving teachers' performance and professionalism. Studies of subject-

teacher working groups (MGMP) as a form of PLC in Indonesia show that such forums are effective for sharing experiences, discussing learning problems, and developing innovative solutions (Soraya & Supadi, 2022). Evaluations of PLC programmes in various regions indicate that they can strengthen teachers' collaboration and culture of reflection (Napitupulu & Wibawanta, 2022). Internationally, PLCs are viewed as a sustainable approach to teacher professional development that emphasises collective learning and shared responsibility for student outcomes (Admiraal et al., 2021; Meesuk et al., 2021). In Indonesia, the strengthening of learning communities is also promoted through policies and institutional support to foster collaborative ecosystems across schools (Rizqi & Syafika, 2024). Thus, well-managed learning communities constitute a strategic vehicle for improving teachers' performance collectively.

Teachers' work motivation is a psychological dimension that directly influences the quality of task implementation and performance in the classroom. Theoretical perspectives on motivation in learning highlight that highly motivated teachers tend to be more persistent, creative, and responsive to learners' needs (Filgona et al., 2020). A meta-analysis of numerous Indonesian studies shows a strong and significant relationship between motivation and teachers' performance, with effect sizes in the high category (Muflihan et al., 2024). Other studies indicate that intrinsic and extrinsic motivation both positively contribute to teacher performance at different levels of education (Najiburrahman et al., 2024; Wahyudi et al., 2023). Evidence from professional development contexts suggests that learning communities can enhance motivation through social support and professional recognition (Laia et al., 2025). Consequently, work motivation is not only an individual factor but is also shaped by the organisational climate and structural support within schools.

Research in Indonesia consistently shows that teacher performance is shaped not by a single factor but by a combination of leadership, school culture, motivation, and work climate. The simultaneous contributions of leadership, work climate, and motivation to teacher performance have been demonstrated in educational management studies (Santiari et al., 2020). Another study indicates that competence and work motivation significantly affect the performance of junior high school teachers (Susanto et al., 2021). At the organisational level, motivation, discipline, and work culture have been found to determine job satisfaction as well as performance among state junior high school teachers (Sukmawaty et al., 2021). In the context of learning community development, the empowerment of "learning communities" for teachers has been shown to increase instructional innovation and the quality of teaching practices (Laeli et al., 2025). This body of evidence suggests that teacher performance should be understood as the outcome of complex interactions among structural, cultural, and psychological factors.

Although the literature on leadership, learning communities, and work motivation is well developed, studies that integrate these three variables simultaneously in relation to teacher performance in specific local contexts remain limited. International research demonstrates that effectively managed PLCs can strengthen teachers' autonomy, collaborative learning, and sustainable

structures for professional development (Chen, 2022; Oppi et al., 2022). Other studies indicate that schools functioning as professional learning communities can establish enduring structures for teacher development that are adaptive to change (Olmo-Extremera et al., 2025). However, empirical evidence focusing specifically on the influence of principals' digital leadership, learning community optimisation, and work motivation on junior high school teachers' performance in peripheral areas such as Sungai Apit District, Siak Regency, is still scarce. This study is therefore important to fill this gap and provide an empirical basis for policy decisions related to teacher quality development in such regions.

METHOD

Research Design

This study employed a quantitative approach with an ex post facto design. The design was selected because the researcher did not manipulate the independent variables but examined the influence of existing conditions on teachers' performance as the dependent variable. Principals' digital leadership, learning community optimisation, and work motivation were observed as they were perceived by teachers and then related to junior high school teachers' performance in Sungai Apit District. Data were collected once through a survey questionnaire and analysed using descriptive and inferential statistics, particularly multiple linear regression, to test the partial and simultaneous effects among variables. Within this design, the study focuses on identifying functional relationships and the contributions of the independent variables to teacher performance without direct intervention in teaching settings.

Setting and Participants

The research was conducted in state junior high schools located in Sungai Apit District, Siak Regency, Riau Province. The district was selected because it represents a coastal context with diverse characteristics of geographical access and technological infrastructure, making it relevant for examining digital leadership, learning communities, and teachers' work motivation. The study population consisted of all teachers working in state junior high schools in the district. The sample comprised 103 teachers who met the following inclusion criteria: (1) actively teaching during the academic year when the research was conducted; (2) willing to participate as respondents; and (3) present during data collection. The sample size was determined using the Isaac and Michael table at a 5% error level, and a purposive sampling technique was used to ensure that respondents appropriately represented the characteristics of teachers in state junior high schools in Sungai Apit.

Variables and Operational Definitions

The study involved four variables: three independent variables and one dependent variable. The independent variables were: (1) Principals' Digital Leadership (X_1), (2) Learning Community Optimisation (X_2), and (3) Work Motivation (X_3). The dependent variable was Teacher Performance (Y). Teacher performance was operationalised as the quality of teachers' professional task implementation, including lesson planning, instructional delivery, assessment of learning outcomes, and other professional responsibilities. Principals' digital leadership referred to principals' ability to integrate digital technologies to manage information, communicate policies, and facilitate teacher learning. Learning community optimisation denoted the extent to which teacher learning communities (such as MGMP or school-based groups) were managed effectively,

systematically, and sustainably. Work motivation described the intrinsic and extrinsic drives that encourage teachers to work diligently, persistently, and with an orientation towards achievement.

Operationally, the four variables were measured using four-point Likert scales: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). For each variable, 16 items were developed, generating a total of 64 items. The items were derived from the theoretical framework and prior empirical studies and were mapped onto a set of key indicators for each variable. Respondents' scores were obtained by summing the scores across all items for each variable; higher scores indicated higher levels of perceived digital leadership, learning community optimisation, work motivation, or teacher performance.

Instruments and Data Collection

Research Instrument

The primary instrument was a structured, closed-ended questionnaire designed to measure teachers' perceptions of the four main variables. Each item was written in clear and straightforward language to ensure comprehensibility. Instrument development began with the construction of a specification grid based on the operational definitions and indicators of each variable, followed by the formulation of positively and negatively worded items in a balanced manner. The draft instrument was then subjected to expert judgement by specialists in educational management and research methodology, who evaluated item relevance, wording clarity, and alignment with indicators. Their feedback was used to revise and refine the items before empirical try-out.

Data Collection Procedures

Data were collected using several techniques. First, the questionnaire was distributed directly to teacher participants. The researcher explained the purpose of the study, the procedures for completing the questionnaire, and the assurance of confidentiality and anonymity. Teachers completed the questionnaire independently without researcher interference. Second, document analysis was conducted to obtain supplementary data, such as school profiles, the number of teachers, and administrative records relevant to respondent characteristics. Third, simple observations were made of the physical school environment and technological facilities (for example, availability of internet access, ICT equipment, and teacher meeting spaces) to enrich the interpretation of questionnaire results. All data collection procedures adhered to research ethics, including voluntary participation and informed consent from respondents.

Validity and Reliability

Before being administered to the main sample, the instrument's quality was assessed through validity and reliability testing. Content validity was established through expert judgement, focusing on the relevance of each item to its indicator, linguistic clarity, and appropriateness of the response scale. Construct validity was then examined empirically by correlating each item score with the total score of its respective variable using Pearson's product-moment correlation. All items showed correlation coefficients greater than the critical *r*-table value for the given sample size at the specified significance level, indicating that all items were valid and

none needed to be discarded. Instrument reliability was estimated using Cronbach's alpha with the aid of statistical software. The summary of reliability coefficients is presented in Table 1.

Table 1. Reliability Summary of Research Instruments

Variable	Code	Number of items	Cronbach's Alpha (α)	Category
Principals' Digital Leadership	X ₁	16	0.952	Highly reliable
Learning Community Optimisation	X ₂	16	0.956	Highly reliable
Work Motivation	X ₃	16	0.963	Highly reliable
Teacher Performance	Y	16	0.972	Highly reliable

All alpha values were well above the minimum threshold of 0.70, indicating very strong internal consistency. The instrument was therefore deemed reliable for measuring principals' digital leadership, learning community optimisation, work motivation, and teacher performance in the main sample.

Data Analysis

Data were analysed quantitatively in two main stages: descriptive analysis and inferential analysis. Descriptive statistics were used to summarise each variable through minimum and maximum scores, sum, mean, median, and standard deviation. These values were also used to classify respondents' scores into low, moderate, and high categories for each variable.

Inferential analysis employed multiple linear regression to test the effects of principals' digital leadership (X₁), learning community optimisation (X₂), and work motivation (X₃) on teacher performance (Y). The regression model can be expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Prior to regression analysis, classical assumptions were tested, including normality, multicollinearity, and heteroscedasticity. The normality test examined whether residuals approximated a normal distribution. Multicollinearity diagnostics (tolerance and VIF) were conducted to ensure the absence of problematic correlations among independent variables. Heteroscedasticity tests were used to check the homogeneity of residual variance. Once assumptions were satisfied, t-tests were used to assess the partial effect of each independent variable on teacher performance, and an F-test evaluated their simultaneous impact. All computations were conducted using SPSS version 26.0, allowing the results to be presented systematically and accurately.

RESULTS

Instrument Quality and Assumption Testing

Empirical validity testing using Pearson's product-moment correlation showed that all items in the principals' digital leadership (X₁), learning community optimisation (X₂), work motivation (X₃), and teacher performance

(Y) scales had item–total correlations greater than the critical r-table value at $p < .05$ for the pilot sample. All items were therefore declared valid, and none was removed.

Using Cronbach’s alpha confirmed very high internal consistency, with coefficients of 0.952 for digital leadership, 0.956 for learning community optimisation, 0.963 for work motivation, and 0.972 for teacher performance. These results indicate that the instruments were adequately robust for subsequent analysis.

Classical assumption tests were conducted before performing multiple regression. Normality testing of residuals (Kolmogorov–Smirnov) indicated that the residuals were normally distributed. Multicollinearity diagnostics showed tolerance values greater than 0.1 and VIF values below 10 for all independent variables, suggesting no multicollinearity issues. Heteroscedasticity testing (Glejser test) found no significant relationships between absolute residuals and predicted values, confirming homoscedastic residual variance. Thus, the data satisfied the assumptions required for valid interpretation of multiple linear regression results.

Descriptive Statistics

Descriptive statistics for each variable are summarised in Table 2 based on responses from 103 teachers.

Table 2. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Principals’ Digital Leadership (X_1)	103	16.00	64.00	5,329.00	51.7379	10.25648
Learning Community Optimisation (X_2)	103	16.00	64.00	5,384.00	52.2718	10.32149
Work Motivation (X_3)	103	16.00	64.00	5,481.00	53.2136	10.61875
Teacher Performance (Y)	103	16.00	64.00	5,465.00	53.0583	10.82374

On average, principals’ digital leadership scored 51.74 on a 16–64 scale, equivalent to approximately 80.86% of the maximum theoretical score, indicating a high category. Learning community optimisation had a mean of 52.27 (81.67%), falling into the very high category.

Work motivation achieved the highest mean of 53.21 (83.13%), also in the very high category. Teacher performance, with a mean of 53.06, likewise indicates that teachers’ performance in state junior high schools in Sungai Apit is generally high within the scale used.

Partial Regression Results (t-Tests)

Multiple regression analysis was performed to examine the influence of each independent variable on teacher performance. The summary of partial regression coefficients (SPSS *Coefficients* table) is presented in Table 3.

Table 3. Partial Regression Coefficients for X_1 , X_2 , and X_3 on Y

Variable	B	Std. Error	Beta	t	Sig.
Constant	0.372	1.590	-	0.234	0.815
Principals' Digital Leadership (X_1)	0.002	0.081	0.002	0.031	0.976
Learning Community Optimisation (X_2)	0.150	0.118	0.143	1.275	0.205
Work Motivation (X_3)	0.840	0.080	0.824	10.493	0.000

Principals' digital leadership (X_1) does not have a significant partial effect on teacher performance (Y), with $t = 0.031$ and $p = 0.976 (> .05)$. This indicates that variation in digital leadership scores does not directly explain variation in performance when other variables are controlled, and the hypothesis of a significant direct effect of X_1 on Y is not supported.

Learning community optimisation (X_2) also does not exhibit a significant partial effect on teacher performance, with $t = 1.275$ and $p = 0.205 (> .05)$. Statistically, X_2 does not make a meaningful direct contribution to performance changes when the other independent variables are accounted for, suggesting that learning communities function more as contextual support than as direct determinants in this model.

In contrast, work motivation (X_3) has a highly significant and strong partial effect on teacher performance, with $t = 10.493$ and $p = 0.000 (< .05)$ and a standardised beta of 0.824. This means that each unit increase in work motivation is consistently associated with an increase in teacher performance in the same direction, and X_3 is the most dominant predictor among the three independent variables in the model.

Simultaneous Regression Results (F-Test) and Coefficient of Determination

The F-test was used to evaluate the simultaneous effect of principals' digital leadership, learning community optimisation, and work motivation on teacher performance. The ANOVA table shows an F-value of 404.077 with $p = 0.000 (< .05)$, indicating that the regression model including all three independent variables significantly predicts teacher performance.

The multiple correlation coefficient (R) and coefficient of determination (R^2) from the *Model Summary* are $R = 0.962$ and $R^2 = 0.924$. The R value, which is close to 1, reflects a very strong association between the combined independent variables and teacher performance. The R^2 value of 0.924 indicates that 92.4% of the variance in teacher performance is explained by the three independent variables, while the remaining 7.6% is influenced by other factors outside the model, such as work environment, school policy, or individual characteristics not measured in this study.

Based on the contribution values summarised in the thesis, principals' digital leadership accounts for 0.9% of the variance in teacher performance, learning community optimisation contributes 12.7%, and work motivation provides the largest contribution of 78.4%. Collectively, these variables form a model with strong explanatory power, reaffirming that work motivation is the primary determinant of performance, while digital leadership and learning communities act as structural and cultural supports for enhancing teacher performance.

DISCUSSION

This study shows that the combination of principals' digital leadership, learning community optimisation, and work motivation explains 92.4% of the variance in teacher performance, with the largest contribution coming from work motivation, followed by learning communities, whilst the direct effect of digital leadership is relatively small. This finding aligns with studies indicating that secondary school teachers' performance is strongly shaped by interrelated psychological and organisational factors rather than a single variable (Amini et al., 2022; Astina, 2024). Other research highlights that work climate and motivation reinforce teachers' commitment to teaching duties (Dekawati et al., 2021; Forson et al., 2021). Accordingly, the regression results for junior high schools in Sungai Apit underline that an effective model of teacher performance must combine structural support, a collaborative culture, and strong motivational drivers to generate sustainable change.

Partially, principals' digital leadership does not have a significant direct effect on teacher performance, although the relationship remains positive. This contrasts with some studies that report a direct influence of digital leadership on teacher performance, particularly in emergency conditions during the pandemic when technology use became mandatory (Pribadi et al., 2024; Sunaryo et al., 2023). Other research suggests that digital leadership improves performance mainly by enhancing satisfaction and organisational support rather than by direct control over teachers' behaviour (Risanto et al., 2025; Zhu et al., 2025). These differences imply that in coastal schools such as those in Sungai Apit, digital leadership tends to operate as an enabling condition rather than a primary driver of performance. In other words, the quality of instructional orchestration and pedagogical support is more influential than the mere presence of digital tools.

The very small beta coefficient for digital leadership suggests the presence of indirect pathways involving work meaning, self-efficacy, and technology integration. Structural modelling in junior high schools in Balikpapan, for example, indicates that digital leadership influences teachers' technology integration primarily via the mediation of work meaning and self-efficacy (Pambudi et al., 2024). In addition, technology use in classrooms is strongly affected by teachers' beliefs about usefulness and ease of use (Spiteri & Chang Rundgren, 2020; Sunaryo et al., 2023). Consequently, a small and statistically non-significant direct contribution does not imply that digital leadership is unimportant. Rather, its role is more subtle, working through the strengthening

of pedagogical culture, professional support, and clarity of the school's learning-oriented change agenda.

Learning community optimisation contributes 12.7% to teacher performance, indicating that collaborative practices at school level are beginning to function as vehicles for professional learning. Research on primary school teachers' performance shows that well-implemented PLCs are positively associated with teachers' ability to design lessons and engage in instructional reflection (Affandi et al., 2020). Another study finds that PLC effectiveness mediates the influence of instructional leadership and literacy of the Merdeka Mengajar platform on teacher performance (Purwanti et al., 2025). The strengthening of PLCs also depends on policy and institutional support to ensure that teacher meetings are not merely formal routines (Díez et al., 2020; Rizqi & Syafika, 2024). The contribution of learning communities in Sungai Apit therefore reflects the importance of structured teacher collaboration, while indicating remaining room for deepening inquiry-based and evidence-informed PLC practices.

Although the contribution of learning communities is notable, its moderate magnitude suggests that PLC practices in coastal schools have not fully evolved into spaces for deep professional learning. Studies on professional learning communities in Indonesia note that many forums still focus on administrative routines rather than critical pedagogical dialogue (Affandi et al., 2022). Meanwhile, research on human resource management in rural education highlights the importance of sustained structural support to ensure that teacher innovation does not rely solely on individual initiatives (Burhan et al., 2024). Organisational factors such as school culture and recognition of professional initiative also contribute to variation in teachers' performance (Jayanti et al., 2024). Thus, learning communities in Sungai Apit hold considerable potential but need to be more explicitly oriented towards tackling pupils' learning problems rather than merely exchanging technical information.

Work motivation emerges as the most dominant predictor, contributing 78.4% to performance and reaffirming that teachers' behaviour is strongly driven by internal and external motivational factors. A study in tourism vocational schools in Padang reports a very strong correlation between work motivation and teachers' performance, with a coefficient of 0.863 (Astina, 2024). Similarly, motivation and work discipline jointly explain more than 90% of the variance in teachers' performance in state vocational schools in Tapanuli Tengah (Amini et al., 2022). In Brebes, work motivation and work climate significantly affect junior high school teachers' performance (Dekawati et al., 2021; Forson et al., 2021). The present findings from Sungai Apit are therefore consistent with growing evidence that strengthening teachers' work motivation is a strategic key to improving instructional quality.

The strong relationship between work motivation and teacher performance in this study also resonates with research that positions motivation as a bridge between leadership and work behaviour. Studies at the junior high school level report that principals' leadership and work motivation together significantly affect teacher performance (Putri & Jumirah, 2023). Research

published in *Edunesia* emphasises that supportive school leadership strengthens the effect of motivation on performance (Tanjaya et al., 2024). International analyses similarly show that leadership attributes and work motivation have direct effects on secondary school teachers' job performance (Khanum & Hashmi, 2023). Consequently, the finding that work motivation is the largest contributor in Sungai Apit can be understood as the outcome of synergy between teachers' perceptions of leadership support and their daily work experiences in a specific local context.

The geographical setting of Sungai Apit as a coastal district with limited infrastructure and access to professional development also shapes how leadership, learning communities, and motivation influence performance. Rural education studies stress that human resource management policies, leadership support, and access to training are crucial determinants of teachers' practice quality (Burhan et al., 2024). In private primary schools, teachers' performance is likewise affected by salary and organisational culture, which influence perceptions of fairness and recognition (Forson et al., 2021; Jayanti et al., 2024). In such environments, high work motivation often compensates for limited facilities and technological support. Accordingly, the current findings may be interpreted as evidence that teachers' motivational resilience plays a buffering role in sustaining performance under structural constraints.

Simultaneously, the F-test indicates that digital leadership, learning communities, and work motivation significantly influence teacher performance, consistent with models that treat these dimensions as components of a single ecosystem. Structural equation modelling in vocational schools shows that digital leadership, work environment, and motivation jointly contribute to satisfaction and performance (Sunaryo et al., 2023). Other research demonstrates that PLC effectiveness can be a significant mediator between instructional leadership and teacher performance (Pambudi et al., 2024; Purwanti et al., 2025). These findings highlight that interventions focusing on a single dimension are likely to yield only partial impact. Therefore, improving teacher performance in Sungai Apit calls for an integrated approach that combines digital leadership strategies, strengthened learning communities, and systematic management of teachers' work motivation.

From a quality management perspective, the combined contribution of the three variables with an R^2 of 0.924 suggests that schools already possess relatively strong structural and psychological foundations, even though 7.6% of variance remains attributable to other factors. Research on quality management systems in educational institutions shows that the integration of policy, process management, and school culture is decisive in determining organisational performance (Díez et al., 2020). Meanwhile, educational human resource management studies stress that motivation and work discipline form part of a sustainable personnel strategy (Amini et al., 2022; Burhan et al., 2024). These findings signal to district-level policymakers that teachers should be managed not merely as curriculum implementers but as strategic assets requiring coherent and long-term development frameworks.

The study's findings also align with the direction of the Merdeka Belajar reforms, which emphasise the strengthening of teacher learning communities and instructional leadership. Research on literacy of the Merdeka Mengajar platform shows that its use becomes more effective when combined with strong instructional leadership and PLCs (Purwanti et al., 2025). Policy initiatives to strengthen teacher learning communities across Indonesian regions show that institutional and regulatory support is vital to prevent activities from remaining at an administrative level only (Rizqi & Syafika, 2024). At the same time, research on leadership and motivation confirms that principals' support is key to maintaining teachers' motivation amidst policy changes (Putri & Jumirah, 2023). Thus, the present study provides local empirical evidence that reinforces the relevance of national policy directions when implemented in coastal contexts such as Sungai Apit.

Methodologically, the use of an ex post facto design and multiple regression offers a robust picture of inter-variable relationships but does not capture possible mediation pathways theorised in the literature, such as work meaning, self-efficacy, and job satisfaction. A systematic review of digital leadership research shows that many recent studies employ structural models to map direct and indirect effects (Zhu et al., 2025). Similarly, research on technology integration positions mediating variables as central to understanding how digital leadership translates into changes in teaching practices (Pambudi et al., 2024; Spiteri & Chang Rundgren, 2020). Future studies in Sungai Apit should therefore test mediation and moderation models to delineate more precisely the mechanisms through which the three variables influence teacher performance, potentially incorporating additional constructs such as organisational commitment, professional identity, and teacher wellbeing.

CONCLUSION

This study concludes that work motivation is the most dominant factor influencing junior high school teachers' performance in Sungai Apit District, contributing 78.4%. Learning community optimisation contributes 12.7%, whereas principals' digital leadership has a relatively small direct effect of 0.9%. Nevertheless, the three variables together account for 92.4% of the variance in teacher performance, indicating that performance is shaped by a combination of strong motivational drive, a collaborative culture, and digital leadership that supports learning.

The findings imply that efforts to improve teacher performance should prioritise strategies for strengthening work motivation supported by learning-oriented digital leadership and learning communities that function as genuine spaces for professional inquiry. Principals need to develop digital leadership capacities that move beyond administrative technology use towards designing and supporting high-quality teaching. District authorities and school supervisors are encouraged to provide consistent policies, mentoring, and resources to reinforce teacher learning communities in coastal areas. Such measures will help enhance teacher performance sustainably and yield tangible improvements in student learning outcomes. Future research is recommended to examine

mediation and moderation pathways within the model in order to deepen understanding of the mechanisms linking leadership, learning communities, motivation, and teacher performance.

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