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Modeling Teacher Performance Optimization: Integrating Technology, Knowledge Management, and Local Wisdom in Vocational Education

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ABSTRACT

This study examines an integrative model of teacher performance in Vocational High Schools designated as Centers of Excellence in Banten Province, Indonesia, by analyzing the roles of leadership, religiosity, empowerment, knowledge management, local wisdom (Sabilulungan), and information technology utilization. Using a mixed-methods sequential exploratory design, the research combines qualitative exploration with quantitative analysis through Partial Least Squares–Structural Equation Modeling (PLS-SEM) and the Scientific Identification Theory for Operational Research in Education Management (SITOREM). Data were collected from 254 civil servant teachers across 28 vocational schools using structured questionnaires. The findings indicate that information technology utilization has the strongest direct effect on teacher performance, followed by knowledge management, Sabilulungan, and empowerment. In contrast, Banten local leadership and religiosity do not show significant direct effects. Mediation analysis reveals that information technology utilization significantly strengthens the influence of empowerment and knowledge management on teacher performance, whereas Sabilulungan does not function as a significant mediator. The study contributes to the literature by proposing an optimization-oriented performance model that integrates technological capability with cultural and managerial dimensions, offering practical implications for improving teacher performance in vocational education.

Keywords: *Empowerment, Information Technology Utilization, Knowledge Management, Local Wisdom (Sabilulungan), Teacher Performance, Vocational Education*

INTRODUCTION

Education constitutes a fundamental pillar of national development and plays a decisive role in shaping human resources capable of responding to social transformation, technological advancement, and global competition (Talan & Tyagi, 2020). In Indonesia, education is constitutionally mandated to develop individuals who are intellectually competent, morally grounded, and socially responsible, as articulated in the 1945 Constitution and further elaborated in Law No. 20 of 2003 on the National Education System. This law defines education as a deliberate and systematic effort to create learning environments that enable learners to develop spiritual strength, self-control, intelligence, noble character, and practical skills necessary for personal, societal, and national advancement. Within this framework, education is not merely a mechanism for knowledge transmission but a strategic instrument for building sustainable national capacity.

Teachers occupy a central position in achieving these educational objectives. Law No. 14 of 2005 on Teachers and Lecturers explicitly defines teachers as professional educators responsible for educating, teaching, guiding, directing, training, assessing, and evaluating learners at early childhood, primary, and secondary education levels. Teacher professionalism is grounded in the mastery of pedagogical, professional, personal, and social competencies, which collectively determine instructional quality and learning effectiveness (Blömeke et al., 2022; Yang & Kaiser, 2022). Consequently, teacher performance becomes a critical determinant of educational success, as it directly influences classroom processes, student engagement, and learning outcomes. Empirical evidence from recent Indonesian studies confirms that teacher performance is a decisive factor in strengthening organizational commitment, instructional effectiveness, and school outcomes when supported by appropriate managerial and cultural mechanisms (Juliwardi et al., 2024).

In the context of twenty-first-century education, the demands placed upon teachers have intensified. UNESCO emphasizes that education must go beyond the acquisition of cognitive knowledge and instead promote holistic human development through four interrelated learning pillars: learning to know, learning to do, learning to be, and learning to live together (Biswas, 2025). These pillars underscore the evolving role of teachers as facilitators of critical thinking, creativity, collaboration, and ethical citizenship rather than mere transmitters of content. Accordingly, strong teacher performance is increasingly associated not only with subject mastery but also with adaptability, innovation, and social responsibility in teaching practice (Mailizar et al., 2024).

Despite continuous reforms and policy interventions, Indonesia continues to face persistent challenges in vocational education outcomes, particularly at the secondary level. Vocational High Schools (*Sekolah Menengah Kejuruan / SMK*) are designed to produce graduates equipped with practical skills aligned with labor

market needs. However, national labor statistics reveal a structural paradox: while SMK graduates demonstrate relatively high labor force participation rates, they consistently contribute the highest Open Unemployment Rate (*Tingkat Pengangguran Terbuka*) compared to other educational levels. Data from Statistics Indonesia (BPS) indicate that as of February 2024, SMK graduates accounted for an unemployment rate of 8.62%, exceeding that of general senior high school graduates and higher education graduates (Badan Pusat Statistika, 2019). This phenomenon suggests a misalignment between vocational education processes and industry requirements, which previous empirical studies associate with weaknesses in teacher performance, organizational climate, and leadership effectiveness (Hidayat et al., 2024).

These challenges are particularly evident in Banten Province, which serves as the empirical locus of this study. According to the 2023 Education Report Card released by the Ministry of Education, Culture, Research, and Technology, Banten recorded a Minimum Service Standards (*Standar Pelayanan Minimal / SPM*) index of 53.23, categorizing the province as “not yet achieved” (Hadhienata & Sunaryo, 2017). Several districts within the province similarly fall below national benchmarks, indicating systemic weaknesses in educational service delivery. Root cause analysis from the report highlights issues related to graduate absorption, employer satisfaction with graduates’ work culture, limited effectiveness of school leadership in strengthening industry partnerships, and uneven teacher competencies aligned with workplace standards. These findings reinforce the argument that improving teacher performance is essential to addressing structural problems in vocational education.

From an organizational and behavioral perspective, teacher performance is shaped by a complex interaction of internal and external factors. Internal factors include motivation, competence, religiosity, commitment, and self-efficacy, while external factors encompass leadership style, empowerment, organizational culture, work environment, compensation, and technological infrastructure (Hermien & Wiyatini, 2018). Empirical studies consistently demonstrate that strong teacher performance is closely associated with instructional quality and student outcomes, positioning teacher performance as a strategic lever for improving school effectiveness and educational relevance.

Religiosity has been identified as an important internal factor influencing teacher performance, particularly in contexts where moral and spiritual values are embedded in professional identity. Teachers with high levels of religiosity tend to perceive teaching as a moral responsibility and a form of devotion, fostering discipline, integrity, and commitment in their professional roles (Hani’ah & Fudiyani, 2024; Hutagalung et al., 2021). Such values contribute to stronger work ethics and sustained performance, especially in educational environments that emphasize character development alongside academic achievement.

In addition to religiosity, teacher empowerment plays a critical role in enhancing autonomy, motivation, and instructional effectiveness. Empowerment enables teachers to exercise professional judgment in curriculum implementation, instructional strategies, and classroom management, thereby strengthening self-efficacy and intrinsic motivation. Research indicates that empowered teachers demonstrate higher engagement, resilience, and collaborative behavior, which collectively enhance school performance and learning quality (Setiawan, 2019). Empowerment thus functions as a catalyst for transforming teacher professionalism into tangible performance outcomes.

Knowledge management has also emerged as a significant determinant of performance in educational organizations. Teachers who actively create, share, and apply knowledge are better equipped to innovate pedagogical practices and respond to instructional challenges. Studies suggest that effective knowledge management positively and significantly influences individual and organizational performance by improving efficiency, adaptability, and continuous learning capacity (Sabita, 2023). In vocational education, where curriculum relevance and technological change are rapid, knowledge management becomes particularly crucial.

Beyond managerial and cognitive dimensions, local wisdom has gained increasing scholarly attention as a culturally embedded resource for performance improvement. In the Sundanese cultural context, *Sabilulungan* represents a collective value system emphasizing mutual cooperation, solidarity, and shared responsibility (*silih asah, silih asih, silih asuh*). When institutionalized as a work culture, *Sabilulungan* fosters collaboration and collective performance, particularly in public and educational organizations, by strengthening social capital and shared commitment (Gunawan, 2018). Integrating local wisdom into school management and teacher practice offers a culturally responsive approach to performance enhancement.

Furthermore, the utilization of information technology has become indispensable in contemporary education. Information technology enhances instructional efficiency, expands access to learning resources, and supports innovative pedagogical approaches. Technology infrastructure comprising hardware, software, and telecommunications systems enables teachers to design more interactive, flexible, and responsive learning environments (Laudon & Laudon, 2018). In vocational schools, effective use of information technology is essential to bridging the gap between classroom learning and industry practices.

Despite the relevance of these factors, preliminary surveys conducted in SMK Centers of Excellence in Banten Province revealed persistent deficiencies in teacher performance, including suboptimal work quality, efficiency, effectiveness, productivity, and continuous improvement. These findings corroborate the low SPM index scores and underscore the urgency of identifying dominant and synergistic factors that can be strategically strengthened to improve teacher performance.

A review of national and international studies published between 2019 and 2023 indicates that while teacher performance has been extensively examined, most studies focus on isolated variables or general education contexts. Limited research adopts an integrative modeling approach that simultaneously incorporates leadership, religiosity, empowerment, knowledge management, local wisdom, and information technology within vocational education settings. Moreover, empirical studies employing optimization-oriented methodologies to prioritize improvement indicators remain scarce.

To address these gaps, the present study applies the Modeling and Optimization of Human Resource Strengthening (POP-SDM) approach, integrating sequential exploratory analysis, PLS-SEM, and SITOREM methods to systematically identify dominant factors and optimization priorities influencing teacher performance in SMK Centers of Excellence in Banten Province. By integrating managerial, cultural, and technological dimensions, this study aims to contribute theoretically to performance modeling in education management and practically to evidence-based vocational education policy formulation.

LITERATURE REVIEW

Teacher Performance in Vocational Education

Teacher performance has been widely recognized as a critical determinant of educational quality and institutional effectiveness, particularly in vocational education systems where learning outcomes are closely linked to labor market demands. In organizational theory, performance is commonly defined as the extent to which individuals successfully execute tasks and responsibilities in accordance with predetermined objectives and standards (Mathis & Jackson, 2006; Tabrani, 2013). Applied to education, this definition extends beyond task completion to include instructional quality, professional conduct, and continuous improvement in teaching practice. Bernardin and Joyce (2000) emphasize that performance reflects both qualitative and quantitative outcomes achieved within a specific period, incorporating efficiency, effectiveness, and accountability. This multidimensional perspective is particularly relevant for teachers, whose professional roles involve cognitive, behavioral, and relational dimensions.

Within vocational high schools, teacher performance carries additional strategic importance due to the dual mandate of developing students' technical competencies and soft skills. Gibson et al (2012) argues that performance should be aligned with organizational goals, particularly quality, efficiency, and effectiveness, which in vocational education translate into graduate employability and industry relevance. Nurhayati (2019) conceptualizes teacher performance as the ability to plan, implement, and evaluate learning while maintaining discipline, creativity, and professional integrity. These elements indicate that teacher performance is not static but adaptive, requiring responsiveness to technological change and evolving workplace standards. Consequently, teacher performance

functions as a central mechanism for enhancing the relevance and sustainability of vocational education.

Leadership and Religiosity as Foundational Determinants of Teacher Performance

Leadership has consistently been identified as a fundamental organizational factor influencing employee performance, including in educational institutions. Robbins & Judge (2022) define leadership as the process of influencing individuals or groups toward the achievement of shared goals, emphasizing vision, motivation, and direction. In schools, leadership shapes organizational culture, instructional priorities, and teacher commitment. Colquitt et al (2015) further conceptualize leadership as the use of power and influence to direct followers' activities toward goal achievement, highlighting the relational dynamics between leaders and teachers. Effective educational leadership therefore requires not only managerial competence but also moral authority and contextual sensitivity.

In the Indonesian context, leadership effectiveness is closely intertwined with religious and cultural values. Religiosity has been identified as an internal factor shaping work attitudes, discipline, and ethical behavior, particularly in education and public service sectors. Hani'ah and Fudiyani (2024) and Hutagalung et al (2021) argue that religiosity strengthens moral commitment, integrity, and responsibility, which are essential for sustaining professional performance. Teachers with high levels of religiosity often perceive teaching as a moral calling rather than merely an occupational task, fostering intrinsic motivation and ethical consistency. However, religiosity alone may not directly translate into measurable performance outcomes unless supported by effective leadership and organizational systems, suggesting an interactive rather than isolated influence.

Empowerment and Knowledge Management in Enhancing Teacher Performance

Teacher empowerment refers to the extent to which teachers are granted autonomy, authority, and opportunities to participate in decision-making processes related to instructional and organizational practices. Empowerment enhances self-efficacy, motivation, and professional engagement, enabling teachers to innovate and adapt to changing educational demands (Setiawan, 2019). Empowered teachers are more likely to demonstrate proactive behavior, collaborative engagement, and resilience, which collectively contribute to improved performance outcomes. From an organizational perspective, empowerment aligns individual goals with institutional objectives, strengthening ownership and accountability. Consequently, empowerment serves as a critical mechanism for translating professional competence into sustained performance.

Knowledge management complements empowerment by enabling teachers to create, share, and apply knowledge effectively within educational organizations.

Sabita (2023) argues that effective knowledge management enhances organizational learning, adaptability, and performance by facilitating systematic knowledge exchange and innovation. In vocational education, where curriculum relevance and technological change occur rapidly, knowledge management is particularly crucial for maintaining instructional quality. Teachers who actively engage in knowledge-sharing practices are better equipped to integrate new technologies, update instructional content, and respond to industry developments. Therefore, empowerment and knowledge management operate synergistically to strengthen teacher performance.

Local Wisdom (*Sabilulungan*) and Information Technology Utilization

Local wisdom represents culturally embedded values that guide social interaction and collective behavior within organizations. In the Sundanese and Banten context, *Sabilulungan* embodies principles of mutual cooperation, solidarity, and shared responsibility, commonly articulated through *silih asah, silih asih, silih asuh*. When institutionalized as a work culture within schools, *Sabilulungan* fosters collaboration, trust, and collective accountability, which are essential for sustaining teacher performance. Cultural values such as these provide social cohesion and moral legitimacy, reinforcing organizational commitment beyond formal regulations. As a result, local wisdom functions as a cultural resource that strengthens performance through social integration.

Alongside cultural values, the utilization of information technology has become an indispensable factor in contemporary education. Information technology enhances instructional efficiency, expands access to learning resources, and supports innovative pedagogical approaches (Laudon & Laudon, 2018). Effective technology utilization enables teachers to design interactive, flexible, and industry-relevant learning experiences, particularly in vocational education settings. Technology becomes most impactful when integrated with empowerment, knowledge management, and collaborative culture, allowing teachers to translate values and competencies into improved performance. Despite its importance, empirical studies integrating local wisdom and technology utilization within a unified performance model remain limited, highlighting a significant research gap addressed by this study.

RESEARCH METHODOLOGY

Research Design

This study employed a mixed-methods research design using a sequential exploratory approach to comprehensively examine and optimize factors influencing teacher performance in vocational education. The research design was structured in two interrelated phases, beginning with qualitative exploration to identify relevant constructs and contextual factors, followed by quantitative analysis to test structural relationships and prioritize optimization strategies. This approach was selected to

ensure both contextual depth and empirical rigor, particularly given the complexity of teacher performance determinants involving managerial, cultural, and technological dimensions. The study adopted the Modeling and Optimization of Human Resource Strengthening (POP-SDM) framework, which integrates modeling, validation, and optimization stages to generate actionable policy and managerial recommendations. By combining exploratory and confirmatory phases, the design allowed for theory-informed yet data-driven performance modeling.

The qualitative phase focused on exploring contextual realities within vocational high schools, particularly SMK Centers of Excellence in Banten Province. Insights from this phase were used to refine variables, indicators, and measurement instruments grounded in empirical conditions and existing theoretical frameworks. The subsequent quantitative phase aimed to validate the proposed model and examine causal relationships among variables using structural equation modeling techniques. This design ensured methodological coherence between theory development, empirical testing, and optimization outcomes.

Population, Sample, and Data Collection

The population of this study comprised all civil servant teachers (*Pegawai Negeri Sipil / PNS*) working in Vocational High Schools designated as Centers of Excellence (SMK Pusat Keunggulan) in Banten Province, Indonesia. From this population, a total of 254 teachers were selected as research respondents, representing 28 SMK Centers of Excellence across the province. The sample size met the minimum requirements for structural equation modeling using partial least squares, ensuring adequate statistical power and model stability. Respondents were selected using proportional sampling to reflect institutional diversity and geographical distribution within the province.

Data collection was conducted using a structured questionnaire developed based on theoretical constructs and findings from the qualitative exploration stage. The questionnaire measured key variables including leadership, religiosity, empowerment, knowledge management, local wisdom (*Sabilulungan*), information technology utilization, and teacher performance. Items were measured using a Likert-scale format to capture respondents' perceptions and experiences consistently. Data collection procedures adhered to ethical research standards, including informed consent and confidentiality assurance, to ensure data integrity and respondent trust.

Measurement and Analytical Techniques

Quantitative data analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM), which was selected due to its suitability for complex models with multiple constructs and its robustness under non-normal data distribution. PLS-SEM enabled simultaneous evaluation of measurement models and structural relationships among latent variables, allowing for

comprehensive hypothesis testing. Measurement model assessment included tests of convergent validity, discriminant validity, and composite reliability to ensure construct validity and internal consistency. Structural model evaluation involved examining path coefficients, coefficient of determination (R^2), and significance levels through bootstrapping procedures.

Following structural model validation, the study employed the Scientific Identification Theory for Operational Research in Education Management (SITOREM) method to identify priority indicators for performance optimization. SITOREM integrates statistical results with expert judgment to classify indicators into categories requiring improvement, maintenance, or reinforcement. This method allowed the research to move beyond statistical significance toward practical decision-making by identifying which factors should be prioritized in policy and managerial interventions. The integration of PLS-SEM and SITOREM ensured that the study produced both explanatory and prescriptive insights.

Research Validity and Ethical Considerations

To ensure methodological rigor, multiple strategies were employed to enhance research validity and reliability. Instrument validity was established through expert review and pilot testing prior to large-scale data collection. Reliability was assessed using internal consistency measures within the PLS-SEM framework. The mixed-methods design further strengthened validity through methodological triangulation, allowing qualitative insights to inform quantitative modeling. Ethical considerations were addressed throughout the research process. Participation was voluntary, and respondents were informed about the purpose of the study, data usage, and confidentiality measures. No personal identifiers were disclosed in data reporting, and all findings were presented in aggregate form. These procedures ensured compliance with ethical research standards while maintaining data credibility and trustworthiness.

RESULT AND DISCUSSION

Structural Model Results on Teacher Performance

The present study examined the structural model results on teacher performance among civil servant teachers in Vocational High Schools designated as Centers of Excellence in Banten Province, Indonesia. This context differentiates the present study from earlier research conducted in general or non-vocational school settings and allows a more focused examination of performance determinants in vocational education. The structural model analysis using Partial Least Squares–Structural Equation Modeling (PLS-SEM) revealed differential effects of the proposed determinants on teacher performance in Vocational High Schools designated as Centers of Excellence in Banten Province. The results demonstrate that Information Technology Utilization exerted the strongest direct influence on teacher performance, with a standardized path coefficient of $\beta = 0.378$,

indicating a substantial and statistically meaningful effect. This finding suggests that teachers' ability to collect, evaluate, and apply information through digital tools significantly enhances instructional effectiveness, efficiency, and productivity. This result strengthens and extends previous empirical findings by Juliwardi et al (2024) and Hidayat et al (2024), who reported that organizational outcomes and job performance are increasingly driven by operational and technological enablers rather than leadership variables alone. The dominance of information technology utilization reflects the growing importance of digital competence in vocational education, where instructional relevance and industry alignment depend heavily on technological integration.

The second strongest direct effect on teacher performance was observed for Knowledge Management, with a path coefficient of $\beta = 0.204$. This finding indicates that teachers who actively engage in knowledge creation, sharing, and application are more capable of adapting instructional content to changing curricular and industry demands. Knowledge management enables vocational teachers to continuously update pedagogical practices and technical expertise, thereby strengthening instructional relevance. This finding corroborates the results of Mailizar et al (2024), who demonstrated that teacher improvement is significantly influenced by organizational mechanisms that facilitate learning, competence development, and professional empowerment. This result aligns with Nonaka and Takeuchi's knowledge creation theory, which emphasizes the transformation of tacit and explicit knowledge into organizational capability, as well as empirical evidence demonstrating the positive relationship between knowledge management and employee performance (Sabita, 2023).

The variable Sabilulungan, representing local wisdom rooted in collective cooperation and mutual responsibility, also demonstrated a meaningful direct effect on teacher performance, with a path coefficient of $\beta = 0.199$. This finding indicates that cultural values emphasizing collaboration, harmony, and shared commitment contribute positively to teachers' work quality and collective performance. In educational organizations, such cultural cohesion enhances trust, communication, and collaborative problem-solving, which are essential for sustaining performance improvements. This result complements previous SITOREM-based studies by Juliwardi et al (2024), which emphasize the role of organizational culture as a reinforcing mechanism for performance, although the present study uniquely integrates local wisdom as a culturally specific construct. This result supports arguments that local wisdom can function as social capital, strengthening organizational effectiveness when institutionalized as a shared work culture (Gunawan, 2018).

Empowerment exhibited a positive but relatively modest direct effect on teacher performance, with a path coefficient of $\beta = 0.091$. Although weaker than other predictors, this result suggests that autonomy, participation in decision-making, and professional discretion still contribute to performance enhancement,

albeit indirectly. The relatively smaller coefficient indicates that empowerment alone may not be sufficient to generate substantial performance gains unless supported by enabling structures such as technology and knowledge systems. This pattern is consistent with the findings of Mailizar et al. (2024), who reported that empowerment becomes more impactful when integrated with other organizational resources rather than applied as a standalone intervention.

In contrast, Banten Local Leadership and Religiosity did not demonstrate significant direct effects on teacher performance, with path coefficients of $\beta = 0.026$ and $\beta = 0.074$, respectively. These results indicate that leadership and religiosity function more as contextual or foundational variables rather than direct performance drivers. While both variables remain important for shaping values, ethics, and organizational climate, their influence on performance appears to be indirect and mediated by other mechanisms.

Table 1 Structural Path Coefficients of Determinants on Teacher Performance

No	Structural Relationship	Path Coefficient (β)	t-value	p-value	Decision
1	Banten Local Leadership (X1) → Teacher Performance (Y)	0.026	0.889	> 0.05	Not Significant
2	Religiosity (X2) → Teacher Performance (Y)	0.074	1.847	0.065	Not Significant
3	Empowerment (X3) → Teacher Performance (Y)	0.091	2.274	0.023	Significant
4	Knowledge Management (X4) → Teacher Performance (Y)	0.204	4.865	< 0.001	Significant
5	Sabilulungan (X5) → Teacher Performance (Y)	0.199	3.489	< 0.001	Significant
6	Information Technology Utilization (X6) → Teacher Performance (Y)	0.378	8.413	< 0.001	Significant

Source: Author's Analysis (2025)

Mediation Effects and the Central Role of Information Technology

Mediation analysis revealed that Information Technology Utilization plays a pivotal role in amplifying the effects of other variables on teacher performance. Specifically, information technology utilization significantly mediated the relationship between Empowerment and Teacher Performance, with a mediation coefficient of $\beta = 0.324$. This result indicates that empowered teachers achieve higher performance when autonomy and decision-making authority are supported by effective technology use. Digital tools enable empowered teachers to translate autonomy into concrete instructional innovation and efficiency.

Similarly, information technology utilization strongly mediated the relationship between Knowledge Management and Teacher Performance, with a

mediation coefficient of $\beta = 0.437$. This finding suggests that knowledge creation and sharing become substantially more impactful when supported by digital platforms and information systems. Technology facilitates knowledge storage, dissemination, and application, allowing teachers to integrate new pedagogical and technical knowledge into instructional practice more effectively. This result reinforces prior studies highlighting the synergistic relationship between knowledge management and digital infrastructure in enhancing organizational performance (Nonaka & Takeuchi; Laudon & Laudon) [19][232].

Conversely, mediation tests indicated that Religiosity and Banten Local Leadership did not significantly influence teacher performance through Sabilulungan. The path coefficients from religiosity to Sabilulungan ($\beta = 0.033$) and from local leadership to Sabilulungan ($\beta = 0.026$) were not statistically meaningful. These findings suggest that while religiosity and leadership contribute to value formation and ethical orientation, they do not automatically translate into collaborative culture or performance outcomes without institutional mechanisms and operational support.

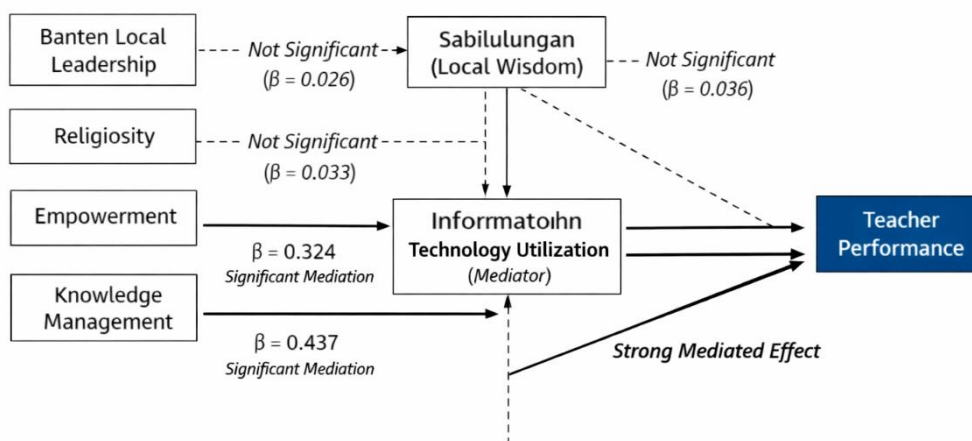


Figure 1 Structural Model of Direct and Mediated Effects on Teacher Performance
Source: Author’s Analysis (2025)

SITOREM Analysis and Priority Indicators for Performance Optimization

To translate statistical findings into actionable strategies, the study employed SITOREM (Scientific Identification Theory for Operational Research in Education Management) analysis. SITOREM integrates empirical results with expert judgment to identify priority indicators requiring strengthening or maintenance. The analysis revealed that indicators related to information literacy, digital tool utilization, and technology-based resource development ranked highest in priority for performance improvement. These indicators represent operational aspects that directly enhance instructional effectiveness and efficiency.

Indicators associated with knowledge sharing, collaborative problem-solving, and collective responsibility, reflecting the core values of Sabilulungan, were also identified as high-priority areas. In contrast, indicators related to moral values and

leadership symbolism were classified as indicators to be maintained rather than intensified, given their already adequate levels. This distinction underscores the importance of focusing policy and managerial interventions on operational capabilities rather than solely normative dimensions.

Table 2 SITOREM Priority Indicators for Strengthening Teacher Performance

Category	Indicators
Indicators to Strengthen (Priority)	Digital literacy, use of instructional technology, access to digital resources, knowledge sharing through digital platforms, technology-based instructional innovation
Indicators to Maintain	Moral integrity, work ethics, leadership values, collegial harmony, religious commitment

Source: Author's Analysis (2025)

The findings of this study provide several important theoretical and practical implications. First, the dominance of information technology utilization underscores a paradigm shift in teacher performance determinants, particularly in vocational education contexts where digital competence is inseparable from instructional relevance. Compared with previous studies (Hidayat et al., 2024; Juliwardi et al., 2024; Mailizar et al., 2024), the present study uniquely positions information technology utilization as both a direct determinant and a strategic mediator of teacher performance.

Second, the mediating role of information technology highlights the importance of integration rather than isolated interventions. Empowerment and knowledge management enhance performance most effectively when embedded within digital systems that enable practical application. Third, the limited direct influence of leadership and religiosity suggests that value-based variables function as enabling contexts rather than immediate performance levers, reinforcing the need for operational mechanisms to translate values into outcomes.

Finally, the incorporation of Sabilulungan demonstrates that local wisdom can meaningfully contribute to performance when aligned with modern organizational practices. By integrating cultural values, managerial mechanisms, and technological infrastructure, this study extends existing SITOREM-based performance models and offers an optimization-oriented framework specifically suited to vocational education.

CONCLUSION

This study concludes that teacher performance in vocational education is shaped by an integrated interaction of technological, managerial, and cultural factors rather than by value-based or leadership attributes alone. Information technology utilization emerges as the most influential determinant, indicating that digital competence is central to enhancing instructional effectiveness and

productivity. Knowledge management, empowerment, and Sabilulungan also contribute positively to performance, although their impacts vary in magnitude, while local leadership and religiosity function primarily as contextual supports rather than direct performance drivers.

The mediation analysis further demonstrates that information technology utilization plays a critical role in translating empowerment and knowledge management into tangible performance outcomes. These findings highlight the importance of aligning digital infrastructure and technology-based instructional practices with human resource development strategies. Practically, vocational education policies should prioritize strengthening teachers' digital literacy and technology-supported knowledge sharing while maintaining cultural values as foundational elements. Such an integrated approach is essential for fostering sustainable teacher performance and enhancing the relevance of vocational education in a rapidly evolving educational and labor market environment.

RECOMMENDATION

Based on the findings of this study, vocational education policymakers and school leaders are strongly advised to prioritize the strengthening of information technology utilization as a central strategy for improving teacher performance. This includes targeted investment in digital infrastructure, continuous professional development programs focused on digital literacy and technology-based instructional practices, and the integration of information technology into curriculum delivery aligned with industry standards. Given the dominant direct and mediating role of information technology utilization identified in this study, digital competence should be positioned as a strategic performance driver rather than a supplementary skill. In parallel, schools should institutionalize knowledge management systems supported by digital platforms to facilitate structured knowledge sharing, collaborative learning, and continuous professional development among teachers.

In addition, school management should implement empowerment strategies that are closely integrated with technological and knowledge-based support mechanisms to ensure that professional autonomy leads to tangible performance outcomes. Local wisdom values such as Sabilulungan should be maintained and institutionalized as a collaborative cultural framework that strengthens teamwork, shared responsibility, and organizational harmony, while religious and leadership values should continue to function as ethical and contextual foundations. Future research is encouraged to extend this model through longitudinal and comparative studies across regions and educational levels to further refine optimization-oriented strategies for sustainable teacher performance improvement in vocational education.

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