



The Effect of Transformational Leadership of School Principals and the Role of Management Information Systems on Organizational Commitment and Its Implications for the Development of Teacher Professionalism at SMPN Dayun District

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ABSTRACT

This study analyzes the influence of transformational leadership, Management Information Systems (MIS), and organizational commitment on the professional development of teachers at SMPN Dayun Subdistrict. The research uses a quantitative correlational approach, involving all teachers through a saturated sampling technique. Data were collected using questionnaires and analyzed through path analysis with SmartPLS. The findings show that transformational leadership has a significant positive effect on teacher professional development ($\beta = 0.464$; $T = 4.962$; $p = 0.000$). MIS also demonstrates a significant positive effect ($\beta = 0.384$; $T = 3.151$; $p = 0.000$), as does organizational commitment ($\beta = 0.498$; $T = 6.187$; $p = 0.000$). Organizational commitment acts as a strong predictor mediating the influence of transformational leadership ($\beta = 0.788$) and MIS ($\beta = 0.808$) on professional development. The structural model indicates that transformational leadership and MIS jointly explain 56.5% of the variation in teacher professionalism ($R^2 = 0.565$), confirming their dominant role in enhancing teacher professional competence.

1. Introduction

Education today faces increasingly complex dynamics driven by rapid technological advancement, shifting social structures, and intensifying global demands. At the same time, persistent problems such as unequal access, uneven learning quality, and ongoing challenges in improving teacher competence remain unresolved. These conditions require education systems to continuously adapt so they remain relevant to contemporary needs. This urgency aligns with Law of the Republic of Indonesia Number 20 of 2003, which mandates education to develop

learners' potential so they become faithful, pious, morally grounded, healthy, knowledgeable, capable, creative, independent, democratic, and responsible citizens. Achieving these national goals presupposes learning processes supported by professional teachers who can manage classrooms effectively, apply appropriate strategies, and respond to diverse student needs. Therefore, teacher professionalism development is not optional but an urgent necessity that must be planned, implemented, and evaluated systematically and continuously. The urgency is further reinforced by Law No. 14 of 2005 on Teachers and Lecturers and Government Regulation No. 19 of 2017 on Teachers, which explicitly require continuous professional development to improve learning quality and educational outcomes.

Teacher professionalism development depends strongly on pedagogical and professional competence. Teachers are expected to deliver subject matter clearly, master innovative teaching methods, adapt instruction to student characteristics, and continually refine practice through reflection and evaluation. Glatthorn et al. (1995) define teacher professional development as professional growth achieved through increased experience and systematic evaluation of teaching, emphasizing that competence improves through accumulated classroom practice combined with structured reflection. Empirical studies (Prayoga et al., 2024; Kinanthi et al., 2024) suggest that professional teachers demonstrate strong content mastery, classroom management, social competence, and the ability to build a conducive learning environment. In 21st-century contexts, teachers are also expected to integrate technology and foster critical thinking, creativity, collaboration, and other higher-order skills in students.

Within this broader context, this study focuses on public junior high schools in Dayun District, an area with specific characteristics and challenges related to educational quality improvement in non-urban public school settings. Public junior high schools were selected because their organizational structure is relatively uniform across Indonesia, allowing findings to be compared and cautiously extended to similar institutions. At the same time, differences between public and private schools, as well as across educational levels, make it important to examine one education level in depth to produce a nuanced understanding of teacher professionalism development.

A preliminary survey of 15 teachers in Dayun District public junior high schools indicates a clear gap between awareness and participation. While 73% of teachers acknowledge the importance of self-development and 60% report being motivated to improve professionalism, regular training participation remains limited, with only 47% reporting strong interest. Furthermore, 80% identify administrative burdens and time constraints as major barriers. This gap is consistent with Irgatoglu (2021), who found that positive attitudes and motivation do not always translate into active participation in professional development. Other evidence (Mahyudin et al., 2024) also indicates that high motivation must be supported by continuous training and meaningful teaching experience to generate significant professional growth.

Against this background, the study examines three key factors expected to influence teacher professionalism development: principals' transformational leadership, the role of Management Information Systems (MIS), and teachers' organizational commitment. Transformational leadership, as described by Bass and Riggio (2006), refers to a leader's capacity to inspire teachers to exceed performance expectations through vision, supportive relationships, empowerment, and encouragement of innovation, aligning with Minister of Education and Culture Regulation No. 6 of 2018 regarding educator development.

Preliminary observations in Dayun indicate that principals have established vision and communication channels, yet motivational support, job satisfaction, and teacher empowerment in decision-making are not fully optimized, which may contribute to uneven engagement in professional development. This pattern is consistent with studies by Ulfah (2023) and Suryati (2023), which report that transformational leadership can positively influence teacher performance and motivation but may vary in effectiveness across contexts.

In parallel, MIS functions as an integrated system supporting managerial decision-making and professional development planning through accurate, timely, and relevant data, involving people, procedures, databases, and technology. Prior research (Istikayani, 2024; Ma'arif et al., 2023; Baiden et al., 2023; Hakim et al., 2022; Qatrunnada et al., 2020) consistently shows that MIS can increase efficiency, transparency, access to training, and structured documentation of development activities, though implementation is often constrained by infrastructure limitations and unequal digital skills. In Dayun, teachers have begun using MIS and recognize its benefits for training access and administrative support, but internet constraints and limited capacity building still reduce its potential.

This study also positions organizational commitment as a key mechanism that strengthens the influence of leadership and MIS on teacher professionalism. Robbins & Coulter (2018) define organizational commitment as a psychological state in which individuals support organizational goals and desire to remain within the organization. In practice, leadership and systems will not yield optimal outcomes if teachers' commitment to the institution is weak. Initial observations in Dayun show variation: some teachers actively engage in training and MIS use, while others remain less involved, indicating that commitment may amplify or weaken how leadership and MIS translate into professional development. Therefore, this study aims to examine how principals' transformational leadership and MIS role influence teachers' organizational commitment, and how this commitment affects teacher professionalism development in Dayun District public junior high schools, as reflected in the study titled "The Influence of Transformational Leadership of School Principals and the Role of Management Information Systems on Organizational Commitment and Its Impact on Teacher Professionalism at Dayun District Public Junior High School."

2. Methodology

This study employs a quantitative approach with a correlational design and path analysis modeling using Structural Equation Modeling (SEM). The quantitative approach, as explained by Sugiyono (2015), is grounded in a positivistic paradigm, examines populations or samples using standardized instruments, and analyzes data statistically to test hypotheses. This study involved teachers as the primary respondents and was conducted at public junior high schools in the Dayun Subdistrict. The site selection was based on the relevance of the research context to the educational environment being examined, particularly in analyzing the relationships between principals' transformational leadership, the role of management information systems, organizational commitment, and teacher professional development. The study was carried out during the 2025/2026 academic year, in the first semester, from August to October 2025.

The research population consisted of all teachers teaching at public junior high schools in Dayun Subdistrict. This study used a saturated sampling technique, in which all members of the population were included in the sample. This technique was chosen because the population size was small and all teachers were considered relevant as respondents. Thus, this study was a survey using a census approach. The research variables consist of: (1) The principal's transformational leadership (X1), adapted from the concept of Bass & Riggio (2006), with the dimensions of ideal influence, inspirational motivation, intellectual stimulation, and individual attention; (2) The role of Management Information Systems (X2) based on the aspects of MIS according to McLeod & Schell (2008), including data input, data processing, data storage, information provision, information security, decision-making support, and efficiency and effectiveness; (3) Organizational commitment (Z) referring to affective, continuance, and normative commitment (Robbins & Coulter, 2018); and (4) Teacher professionalism development (Y) developed from the concept of profession and teacher professional development according to Glatthorn et al., (1995) and the latest studies on professionalism development.

The research instrument was a questionnaire compiled based on the indicators for each variable. The grid for the variables of transformational leadership, SIM, organizational commitment, and teacher professionalism development was developed through a synthesis of relevant theories and research, then validated through expert judgment, which resulted in several improvements to invalid items, and only valid items were used in data collection. The validation results showed that the constructs and indicators reflected the theoretical dimensions, with a suggestion to simplify the number of items to maintain the efficiency of filling out the questionnaire. Instrument quality testing was conducted through instrument testing activities. At this stage, the instrument was distributed via Google Forms to a number of respondents outside the sample. The data obtained at this stage was tested for validity and reliability using SmartPLS software on its outer model, followed by the elimination of a number of invalid and unreliable instruments. Valid and reliable instruments were then used for research activities.

Quantitative data analysis was performed using the Structural Equation Modeling (SEM) technique with a Partial Least Squares (PLS) approach, which allows testing complex relationships between variables. This study aims to understand the influence of transformational leadership of school principals and the role of SIM on the development of teacher professionalism, both directly and through organizational commitment as a mediating variable. The analysis was conducted in two main stages: (1) evaluation of the measurement model (outer model) to test the validity and reliability of the indicators; and (2) evaluation of the structural model (inner model) to test the path coefficient values, R^2 , effect size (f^2), predictive relevance (Q^2), Goodness of Fit (GoF), and the significance of direct and mediated effects to test the hypotheses.

The following presents the criteria for testing the inner model through Smart PLS:

Table 1. Testing The Inner Model

Criteria	General Description
R-Squares	<ul style="list-style-type: none"> • 0.67 = strong model • 0.33 = moderate model • 0.19 = weak model (Chin, 1988)
Effect Size (f^2)	<ul style="list-style-type: none"> • 0.02 = small effect • 0.15 = moderate • 0.35 = large (Cohen, 1988)
Predictive Relevance (Q^2 and q^2)	<ul style="list-style-type: none"> • $Q^2 > 0$ = the model has <i>Predictive Relevance</i> • $Q^2 < 0$ = does not have <i>Predictive Relevance</i> Ghozali & Latan, 2015)
Goodness of Fit (GoF)	<ul style="list-style-type: none"> • 0.10 = low • 0.25 = moderate • 0.36 = large (Ghozali & Latan, 2015)
Model Fit (SRMR)	<ul style="list-style-type: none"> • $SRMR \leq 0.08$ = very good fit (Henseler et al., 2014)
Significance (two-tailed)	<ul style="list-style-type: none"> • 1.96 (<i>significance</i> 5%)

With this approach, the study is expected to provide an in-depth understanding of the influence of transformational leadership and the role of management information systems on the development of teacher professionalism, as well as the role of organizational commitment as a mediating variable.

3. Results and Discussion

Overview of Data Collection and Analytical Procedure

This study employed a quantitative correlational design and tested the proposed model using SEM-PLS (SmartPLS). Data were obtained through a structured questionnaire administered to 100 teacher respondents from public junior high schools in Dayun District. The SEM-PLS analysis was implemented in two sequential stages. First, the measurement model (outer model) was evaluated to

confirm that all constructs met validity and reliability requirements. Second, the structural model (inner model) was assessed to estimate the magnitude and significance of relationships through path coefficients, while also examining explanatory power (R^2), effect size (f^2), predictive relevance (Q^2_{predict}), and overall model fit indices (GoF and SRMR). Finally, mediation analysis was performed to determine whether organizational commitment functions as a mechanism linking transformational leadership and MIS role to teacher professionalism development. This procedure ensures that conclusions are based on both sound measurement quality and robust structural estimation.

Interview Guiding Questions for Explanatory Clarification

To support interpretation and provide contextual clarification of the quantitative findings, a set of guiding questions was prepared for brief explanatory interviews with key informants. These questions were designed to explore leadership behaviors associated with transformational dimensions, teachers' perceptions of commitment, and practical experiences in utilizing MIS to support professional growth. The interview guide also aimed to capture concrete examples of professional development activities and to identify obstacles that may influence teachers' engagement with improvement programs. By focusing on vision communication, individualized support, fairness perceptions, and system accessibility, the guide complements the SEM results by clarifying how leadership and systems are experienced in daily school practice. This approach is intended to strengthen the explanatory quality of the discussion, particularly when interpreting causal mechanisms behind significant paths and mediation effects. The guiding questions are presented in Table 2.

Table 2. Interview Guiding Questions

No	Focus Area	Informant	Interview Question
1	Inspirational motivation	Principal	How do you communicate the school vision so that teachers feel motivated to improve professionally?
2	Meaning of work	Teacher	What makes your work meaningful and motivates you to engage in professional development?
3	Individualized consideration	Principal	What forms of personal support or mentoring do you provide to teachers?
4	Perceived fairness	Teacher	Do you feel that the school leadership treats teachers fairly in terms of opportunities and support?
5	Intellectual stimulation	Principal	How do you encourage teachers to innovate and experiment with new teaching approaches?
6	Learning innovation	Teacher	What recent teaching innovations have you implemented, and what encouraged you to do so?
7	MIS-based decision making	Principal	What types of data from MIS are most frequently used for planning teacher development?
8	MIS accessibility	Teacher	How does MIS help you access training, learning resources, or performance feedback?
9	MIS challenges	Teacher	What obstacles do you experience when using MIS in your work?

No	Focus Area	Informant	Interview Question
10	Affective commitment	Teacher	What makes you feel emotionally attached to your school?
11	Normative commitment	Teacher	What sense of responsibility motivates you to contribute beyond formal duties?
12	Continuance commitment	Teacher	Are there career or professional considerations that encourage you to stay and develop in this school?
13	Commitment as a mediator	Principal	Why do some teachers develop faster than others despite similar facilities and information?
14	Professional growth	Teacher	What aspects of your professional competence have improved most noticeably?
15	Practical evidence	Teacher	Can you describe a professional development activity that significantly changed your teaching practice?

Respondent Description

This study involved 100 teacher respondents and examined four key constructs: principals' transformational leadership, the role of management information systems (MIS), organizational commitment, and teacher professionalism development. The demographic profile indicates that the sample largely represents relatively young teachers with a predominantly female composition and generally high academic qualifications. This respondent structure is relevant because age distribution and educational background may influence teachers' readiness to adopt innovations, participate in professional development programs, and engage with digital systems. Presenting respondent characteristics also strengthens transparency and helps readers interpret the results within an appropriate population context. The following sections summarize respondent distribution by age, gender, and educational attainment in a clear and systematic manner. These descriptions do not function as causal evidence, but they provide essential context for understanding the dataset used in the SEM-PLS analysis.

a. Characteristics Based on Age

The age distribution shows that the respondent group is dominated by younger teachers. The largest proportion of respondents (43%) falls within the 20–25 years category, indicating that early-career teachers represent a substantial share of the sample. Teachers aged 26–30 years account for 18%, while those aged 31–35 years represent 13%, and the 36–40 years group also accounts for 18%. Only 7% of respondents are aged 41–50 years and above 51 years, demonstrating that older age groups are comparatively underrepresented. This pattern suggests that the sample reflects a workforce with potentially higher exposure to contemporary instructional trends and greater familiarity with technology-based systems, which may be relevant when interpreting MIS utilization and professional development engagement. However, age is presented here descriptively and is not treated as a structural variable in the SEM model. Overall, the age profile indicates that study findings primarily reflect the perceptions and experiences of teachers from younger generations in Dayun District.

b. Characteristics Based on Gender

The respondent distribution by gender indicates a strong dominance of female teachers in the sample. Among the 100 respondents, 73% are female and 27% are male, which reflects a substantial gender imbalance in the dataset. This composition may mirror the staffing profile in the local school context, where female teachers commonly represent a majority in many educational settings. Reporting gender distribution is important because it provides clarity regarding the representativeness of the sample and helps readers understand the demographic structure that informs the SEM-PLS estimates. The gender proportions are not interpreted as explanatory variables in the structural model, and no comparative statistical inference is made based on gender in this study. Instead, the data are presented solely to ensure transparency and descriptive completeness. In summary, the dataset reflects predominantly female teacher perspectives regarding leadership, commitment, MIS role, and professionalism development.

c. Characteristics Based on Latest Education

Respondents' educational attainment shows that the sample is dominated by teachers with higher education qualifications. A total of 90% of respondents hold a bachelor's degree, indicating that most participants have completed undergraduate-level professional preparation. Meanwhile, 6% of respondents possess a master's degree, showing that a smaller proportion has pursued advanced graduate education. Only 4% reported DIII or senior high school/vocational education (SMK/SMA), which is a minimal share compared to degree holders. This profile suggests that the respondents generally have academic backgrounds that may support engagement with structured professional development programs and the use of formal systems such as MIS. Nevertheless, educational level is treated descriptively and is not modeled as a predictor in the SEM framework. The education distribution mainly serves to contextualize the respondent population and strengthen the credibility of the sample description. Overall, the respondent profile reflects a teacher group with predominantly undergraduate qualifications and some advanced degree representation.

SEM-PLS Results: Measurement Model (Outer Model)

The SEM-PLS analysis began with evaluating the measurement model to ensure that the instrument accurately captured each construct before examining relationships among constructs. This stage assessed convergent validity, discriminant validity, and reliability as core prerequisites for structural estimation. Convergent validity was examined through indicator loadings and AVE, with loading ≥ 0.70 considered strong, 0.50–0.69 acceptable, and lower values requiring elimination. The convergent validity assessment was conducted in two stages, and six indicators were removed during the first stage because they did not meet the recommended criteria. After refinement, the second-stage results confirmed that the remaining indicators were adequate and suitable for structural testing. The AVE values further supported convergent validity for all constructs: Professionalism Development (Y) = 0.518, Transformational Leadership (X1) = 0.521, MIS Role

(X2) = 0.643, and Organizational Commitment (Z) = 0.650. These values indicate that each construct explains more than half of the variance in its indicators, meeting the minimum validity threshold.

Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT), where values below 0.90 indicate that constructs are empirically distinct and do not excessively overlap. The results show that all construct pairs meet the HTMT criterion, confirming adequate discriminant validity across the measurement model. Reliability was assessed using Cronbach's Alpha and Composite Reliability, with values above 0.70 indicating strong internal consistency. All constructs met these reliability standards, with Professionalism Development (Y) = 0.915 and 0.956, Transformational Leadership (X1) = 0.871 and 0.805, MIS Role (X2) = 0.969 and 0.975, and Organizational Commitment (Z) = 0.953 and 0.915. These findings indicate that the constructs were measured consistently and that the refined instrument was reliable for estimating the structural model. With measurement quality established, the analysis proceeded to inner model evaluation to test the proposed hypotheses and mediation.

SEM-PLS Results: Structural Model (Inner Model) and Hypothesis Testing

After confirming measurement validity and reliability, the structural model was evaluated to examine explanatory power, predictive relevance, model fit, and hypothesis testing through direct and indirect effects. The coefficient of determination indicates that the model explains a meaningful proportion of variance in the endogenous variables. Organizational Commitment (Z) achieved $R^2 = 0.623$, suggesting that 62.3% of the variance in commitment is explained jointly by Transformational Leadership (X1) and MIS Role (X2). Professionalism Development (Y) achieved $R^2 = 0.565$, indicating that 56.5% of its variance is explained by predictors in the model, while the remainder is attributable to factors outside the framework. Effect size results clarify the contribution magnitude of each predictor. Transformational Leadership (X1) has a large effect on Organizational Commitment (Z) ($f^2 = 0.608$) and a small effect on Professionalism Development (Y) ($f^2 = 0.079$). MIS Role (X2) has a large effect on Organizational Commitment (Z) ($f^2 = 0.466$) and a small effect on Professionalism Development (Y) ($f^2 = 0.026$). Organizational Commitment (Z) shows a large effect on Professionalism Development (Y) ($f^2 = 0.600$), emphasizing the central role of commitment in driving professionalism outcomes.

Predictive relevance was examined using Q^2_{predict} to evaluate how well the model predicts endogenous constructs beyond sample explanation. The results show positive predictive relevance for both endogenous variables, with $Q^2_{\text{predict}}(Z) = 0.354$ indicating good predictive ability and $Q^2_{\text{predict}}(Y) = 0.217$ indicating moderate predictive ability. As complementary global evaluation indices, the Goodness of Fit (GoF) value of 0.588 exceeds the high criterion (> 0.36), suggesting strong overall model performance across measurement and structural components. The SRMR value of 0.003 is far below the recommended maximum of 0.08, indicating an excellent model fit and minimal discrepancy between observed and model-implied correlations. Together, these indices support the

adequacy of the SEM-PLS model for substantive interpretation. After establishing model quality, hypothesis testing was conducted using path coefficients, T-statistics, and p-values, followed by mediation testing to assess indirect effects through organizational commitment.

Direct effects (path coefficients)

The structural paths show significant positive relationships among the study variables. Transformational Leadership (X1) significantly affects Organizational Commitment (Z) (O = 0.548, T = 4.727, p = 0.007), indicating that stronger transformational leadership is associated with higher teacher commitment. Transformational Leadership (X1) also significantly affects Professionalism Development (Y) (O = 0.464, T = 4.962, p = 0.000), demonstrating a direct contribution of leadership to teacher professional development. Organizational Commitment (Z) significantly affects Professionalism Development (Y) (O = 0.513, T = 4.160, p = 0.003), confirming that higher commitment corresponds to stronger professionalism development. MIS Role (X2) significantly affects Organizational Commitment (Z) (O = 0.311, T = 4.080, p = 0.006), and also significantly affects Professionalism Development (Y) (O = 0.498, T = 6.187, p = 0.000). Collectively, these results indicate that leadership and MIS contribute to professionalism both directly and through their influence on organizational commitment. The significant paths provide empirical support for the proposed model structure and justify examining whether organizational commitment serves as a mediating mechanism linking leadership and MIS with teacher professional development.

Indirect Effects and Mediation Testing

Mediation analysis was conducted to determine whether Organizational Commitment (Z) functions as a mediator linking Transformational Leadership (X1) and MIS Role (X2) to Professionalism Development (Y). The results confirm significant indirect effects for both pathways. The indirect effect of Transformational Leadership through Organizational Commitment is significant (X1 → Z → Y: O = 0.324, T = 4.905, p = 0.000), indicating that leadership strengthens professionalism development partly by increasing teachers' commitment. Similarly, the indirect effect of MIS Role through Organizational Commitment is significant (X2 → Z → Y: O = 0.310, T = 4.201, p = 0.000), showing that MIS supports professionalism development more strongly when it also enhances organizational commitment. The indirect effect for leadership (0.324) is slightly larger than the indirect effect for MIS (0.310), suggesting that leadership-driven commitment formation is a particularly influential mechanism in this model. These mediation findings reinforce the importance of organizational commitment as a key pathway that translates leadership practices and system support into sustained professional development outcomes.

Summary of SEM-PLS Findings

Overall, the SEM-PLS results demonstrate that the measurement model satisfies validity and reliability requirements, as indicated by indicator refinement, AVE values above 0.50, HTMT values below 0.90, and reliability coefficients exceeding 0.70. The structural model shows meaningful explanatory power for organizational commitment ($R^2 = 0.623$) and professionalism development ($R^2 = 0.565$), supported by strong effect sizes for key relationships, positive predictive relevance values, and excellent global fit indices (GoF = 0.588; SRMR = 0.003). Hypothesis testing confirms that transformational leadership and MIS role have significant direct effects on both organizational commitment and professionalism development, and organizational commitment significantly predicts professionalism development. Mediation analysis further confirms that organizational commitment transmits part of the influence of leadership and MIS to professionalism development through significant indirect effects. In substantive terms, the model indicates that teacher professionalism development is shaped by both direct contributions from leadership and MIS and by indirect pathways operating through strengthened organizational commitment.

Discussion and Findings

The findings confirm that principals' transformational leadership contributes to teacher professionalism development and strengthens teachers' organizational commitment, which then amplifies professionalism outcomes through mediation. This pattern is consistent with the grand theory of transformational leadership by Bass and Avolio (1994), which emphasizes that leaders can elevate followers' motivation and align individual efforts with collective organizational goals. In the Dayun public junior high school context, transformational leadership appears to function as a developmental leadership approach that not only directs teachers toward higher performance but also nurtures the psychological conditions required for sustained professional growth. In practical terms, leadership effects are not only expressed through formal instructions or administrative control but also through the principal's ability to build a shared vision, maintain motivation, and create opportunities for teachers to develop. Therefore, the leadership–professionalism relationship ($\beta = 0.464$) should be interpreted as a behavioral and organizational process that supports teacher learning, collaboration, and improvement, rather than merely a statistical association (Bass & Avolio, 1994).

In addition to the significance of individual paths, the overall adequacy of the SEM-PLS model is supported by global indicators that help justify the credibility of the proposed causal structure. The Goodness of Fit (GoF) value of 0.588 indicates a high level of overall model performance, suggesting that the model achieves a strong balance between the quality of the measurement model and the explanatory power of the structural relationships (Ghozali & Latan, 2015). Although GoF is widely treated as a complementary index in PLS-SEM, it provides additional reassurance that the model is not only statistically estimable but also substantively meaningful as a representation of the phenomenon under study (Ghozali & Latan, 2015). Similarly, the SRMR value of 0.003, which is far below the recommended threshold (≤ 0.08), indicates an excellent level of model fit, implying that the discrepancy between the observed and model-implied correlations is minimal.

Taken together, these fit indices strengthen confidence that the estimated causal pathways, including the mediating role of organizational commitment, are supported by a model that performs well at the global level and is therefore suitable as a basis for substantive interpretation in the discussion (Ghozali & Latan, 2015).

A stronger causal explanation for why transformational leadership increases organizational commitment ($O = 0.548$; $p = 0.007$) can be anchored in two core transformational dimensions: inspirational motivation and individualized consideration (Bass & Avolio, 1994). First, inspirational motivation increases commitment by building shared meaning and direction, because teachers are more likely to internalize organizational objectives when the principal communicates a compelling vision and links daily teaching activities to long-term school goals. This meaning-making mechanism strengthens affective commitment, as teachers develop emotional attachment to a school that provides purpose, identity, and professional pride (Meyer & Allen, 1991). Second, individualized consideration increases commitment through perceived organizational support and fairness. When principals mentor teachers, listen to professional challenges, and provide opportunities tailored to teachers' needs, teachers interpret these actions as organizational investment in their growth, which fosters reciprocity and strengthens normative commitment, namely a moral obligation to contribute back to the organization (Meyer & Allen, 1991). At the same time, individualized support can stabilize continuance commitment (also termed sustained commitment) because teachers recognize long-term career benefits from remaining engaged and developing within the school. This explanation aligns with evidence that consistent transformational leadership can increase both teachers' professional commitment and organizational commitment (Syafira et al., 2024; Sitompul, 2019).

Although transformational leadership significantly predicts professionalism development ($\beta = 0.464$), the effect size is small ($f^2 = 0.079$), suggesting that leadership's direct contribution is present but not dominant when separated from other mechanisms (Cohen, 1988). However, the indirect pathway through organizational commitment is significant ($O = 0.324$; $p = 0.000$), which strengthens the total influence of transformational leadership on professionalism development (total $\beta = 0.788$). This pattern supports the argument that organizational commitment is not merely an accompanying outcome but a powerful mediating mechanism that converts leadership behaviors into sustained professional growth. Empirical studies similarly report that organizational commitment can strengthen the influence of school leadership on teacher professionalism and teaching effectiveness by bridging leadership inputs with teachers' persistent professional learning behaviors (Wu & Dapat, 2024).

The mediating role of organizational commitment can be explained using the three-component model of commitment: affective, continuance (sustained), and normative commitment (Meyer & Allen, 1991). Affective commitment strengthens professionalism development because emotionally attached teachers tend to exhibit higher discretionary effort, stronger initiative, and greater persistence in improving their competence. Teachers who feel a strong bond with the school are more likely to innovate, engage in professional learning communities, and practice reflective

improvement because they perceive school improvement as personally meaningful (Meyer & Allen, 1991). Normative commitment strengthens professionalism development because teachers interpret professional learning as a moral and professional responsibility to students, colleagues, and the organization, encouraging them to participate in training and improvement initiatives even when incentives are limited (Sitompul, 2019). These components jointly explain why the relationship between leadership and professionalism becomes stronger once commitment is activated as a mediating mechanism (Wu & Dapat, 2024).

Beyond leadership, the study also confirms that the role of management information systems (MIS/SIM) significantly influences professionalism development ($\beta = 0.498$) and organizational commitment ($O = 0.311$; $p = 0.006$). This indicates that SIM does not function only as an administrative system but can serve as an enabling platform that provides access to training opportunities, professional development materials, policy information, and curriculum resources needed for teacher growth. Similar findings show that teachers' teaching abilities and competencies can improve when SIM is utilized effectively to support learning and professional activities (Hakim et al., 2022; Syafira et al., 2024). However, the direct effect size of SIM on professionalism is small ($f^2 = 0.026$), indicating that systems alone do not automatically create professional development unless teachers actively engage with them (Cohen, 1988). This is why the mediation pathway is critical: organizational commitment significantly mediates the SIM–professionalism link ($O = 0.310$; $p = 0.000$), producing a stronger total effect (total $\beta = 0.808$). The mechanism is straightforward: committed teachers interpret SIM as a developmental opportunity rather than merely a compliance requirement, thereby maximizing SIM's role in professional learning and performance improvement (Sumarlin et al., 2025).

The commitment-based mechanism can be interpreted through the same three commitment dimensions (Meyer & Allen, 1991). Teachers with strong affective commitment are more likely to use SIM platforms proactively for reflection and self-development because they feel emotionally involved in school improvement. Teachers with strong continuance (sustained) commitment are more likely to view SIM-supported professional development as part of a long-term career responsibility and therefore engage consistently with SIM features for competence development. Teachers with strong normative commitment tend to treat SIM usage as part of professional ethics and moral responsibility, using SIM for improving teaching quality and contributing to organizational goals. Prior studies support this logic: SIM effectiveness depends on teacher involvement and commitment, and SIM implementation tends to be maximized when the school's work culture reflects strong teacher commitment (Hakim et al., 2022; Sumarlin et al., 2025). Evidence from SIM PKB contexts also suggests that teacher participation and moral responsibility are key to ensuring the success of SIM-based professional development programs (Elmanisar, 2024).

The findings also imply practical directions for optimizing digital systems, including the Merdeka Mengajar Platform (PMM), Ruang GTK, and SIM PKB, as strategic tools for strengthening teacher professionalism development. When

aligned with transformational leadership practices, these platforms can support reflective practice, transparency, accountability, and structured development planning. Teachers with high commitment are more likely to use PMM for reflection and self-development, while transparent performance information can reinforce responsibility and fairness perceptions that strengthen normative commitment (Meyer & Allen, 1991). SIM PKB can further support Individual Development Plans (IDPs) and enable principals to monitor progress and provide individualized coaching, which aligns with the individualized consideration component of transformational leadership (Bass & Avolio, 1994). In this sense, the integration of leadership, commitment, and digital systems can form a sustainable improvement cycle that supports continuous teacher professionalism development (Hakim et al., 2022; Elmanisar, 2024).

In summary, the study demonstrates that transformational leadership and the role of SIM influence teacher professionalism development both directly and indirectly through organizational commitment. The mediation results indicate that commitment is the key mechanism that amplifies the influence of leadership and SIM by converting institutional support into sustained teacher learning behaviors (Wu & Dapat, 2024). Therefore, schools should prioritize leadership strategies that build shared meaning and individualized support, while also strengthening teachers' commitment so that digital systems are used as tools for growth rather than mere administrative compliance. When leadership, commitment, and SIM implementation are managed as an integrated ecosystem, the development of teacher professionalism becomes more consistent, sustainable, and aligned with school improvement goals (Bass & Avolio, 1994; Meyer & Allen, 1991; Syafira et al., 2024).

4. Conclusion

This study analyzes the influence of transformational leadership, the role of Management Information Systems (MIS), and organizational commitment on the development of teacher professionalism at SMPN Dayun District. The results show that the transformational leadership of school principals who are vision- and motivation-oriented has a positive influence on the development of teacher professionalism. Principals who apply this leadership style are able to create an environment that supports the improvement of teacher competence, innovation in learning, and active involvement in professional development. In addition, the role of MIS has also been proven to have a positive effect in improving the quality of teacher performance, expanding access to learning resources, and supporting better self-reflection and learning documentation. Organizational commitment also plays an important role, where teachers with high commitment tend to be more active in participating in activities that support the improvement of learning quality and self-development.

This study also found that organizational commitment acts as a mediator that strengthens the influence of transformational leadership on the development of teacher professionalism, as well as SIM that strengthens organizational

commitment, which ultimately contributes to the improvement of teacher professionalism. Structural model analysis shows that both variables (transformational leadership and SIM) simultaneously explain 56.5% of the variation in teacher professionalism development, confirming that these two variables have a very strong influence on the improvement of teacher professionalism, while the remaining 43.5% is influenced by other factors outside this model.

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