

Managerial Competence and Work Motivation as Predictors of School-Based Management Quality in Indonesian Kindergartens

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ABSTRACT:

This research investigates the impact of managerial competence and work motivation on the quality of School-Based Management (SBM) implementation by kindergarten principals in West Lombok, Indonesia. The study employed a quantitative ex post facto design, involving all 36 principals and utilizing validated Likert-scale questionnaires. Descriptive statistics, assumption testing, and simple and multiple linear regression were used for data analysis. The implementation of SBM was found to be average ($M = 302.56$). The quality of SBM was positively predicted by managerial competence ($\beta = 0.295$; $R^2 = 0.087$) but more strongly by work motivation ($\beta = 0.488$; $R^2 = 0.238$). Both variables simultaneously explained 26.0% of the variance in SBM quality ($R = 0.510$; $R^2 = 0.260$; $p < 0.05$). Results show that work motivation is a better predictor than managerial competence, indicating that enhancing principal motivation alongside managerial competence may facilitate SBM implementation for early childhood education.

Keywords: early childhood education; kindergarten principal; managerial competence; School-Based Management; work motivation.

1. Introduction

1.1 Background of the Study

School-Based Management (SBM) has gained wide usage as a decentralization strategy for improving educational quality by devolving authority from national or state governments to those who directly control schools, namely school-level stakeholders (Fullan & Watson, 2000). In this paradigm, the principal acts as a central manager who organizes the planning, organization, implementation, and control of school resources to achieve educational goals (Sukadari et al., 2021). Recently, school-level autonomy has been increasingly presented as a basis for instructional improvement in low- and middle-income countries (Riantiningrum et al., 2026), but its effective implementation depends

on managerial capacity and stakeholder engagement. SBM has also been mandated in national regulations concerning school-based governance. For example, Government Regulation No. 19 of 2005 (Article 49/1) on National Education Standards defines SBM as an operating system that generates an autonomous primary and secondary academic unit (Setiawan et al., 2022; Sukadari et al., 2021), characterized by independence, partnership, participation, transparency, and accountability. However, the implementation of SBM in early childhood education establishments has been uneven, particularly in regencies with low institutional capacity. This unevenness is demonstrated by the enduring presence of administrative compliance replacing substantive instructional leadership (Riantiningrum et al., 2026).

SBM implementation in West Lombok Regency is applied to improve management quality and learning outcomes, especially in kindergartens (Heyward et al., 2011). On the other hand, early practitioners report that kindergarten principals have struggled to access the four core POAC functions—Planning, Organizing, Actuating, and Controlling—and to sustain the internal drive to realize school-level autonomy into measurable service quality (Indrawati & Wahira, 2025). However, very few studies have empirically examined what indicates the quality of SBM implementation in early childhood education (Ginting et al., to be published; data up to September 2023). This represents a significant research gap, especially since principals are

recognized as key actors in SBM. The bulk of existing literature has concentrated on primary and secondary schools (Ginting et al., 2025), creating both theoretical and empirical gaps in the current research, particularly concerning kindergarten principals.

This study addresses that void through an empirical investigation into the individual and joint roles of managerial competence and work motivation in SBM quality, using a sample of 36 kindergarten principals from West Lombok Regency who are recent FGD graduates. Figure 1 shows a summary of the study's conceptual framework.

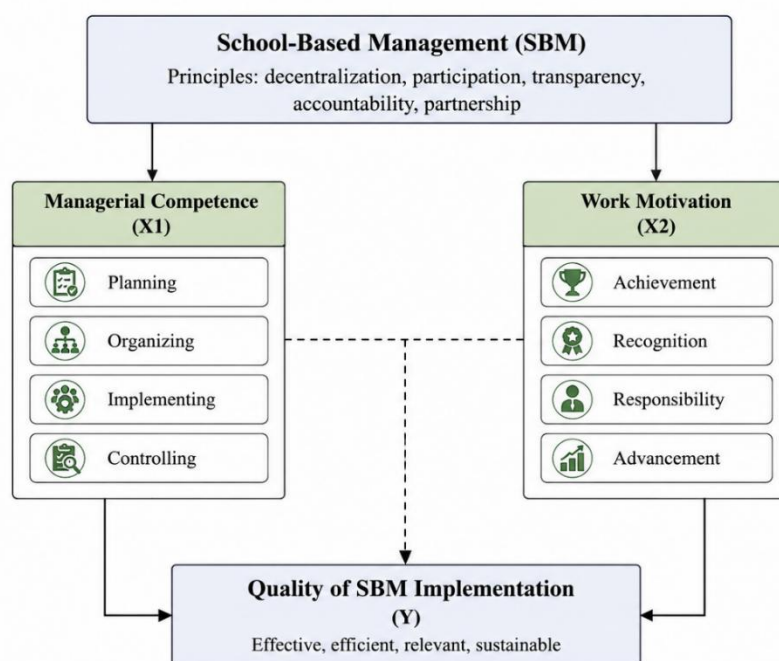


Figure 1. Conceptual Framework Linking Principal Managerial Competence (X1), Work Motivation (X2), and the Quality of School-Based Management Implementation (Y)

1.2 Research Objectives

Based on the concept, the purpose of this study was to describe the managerial competence (X1), work motivation (X2), and quality of SBM implementation (Y) among principals of kindergartens in West Lombok Regency; to examine the partial effect of X1 and X2 on Y; and to examine the simultaneous effect of X1 and X2 on Y.

1.3 Hypotheses

1. H1: Managerial competence (X1) positively and partially significantly influences the quality of SBM implementation (Y).
2. H2: Work Motivation (X2) positively and partially significantly influences the quality of SBM implementation (Y).
3. H3: Simultaneously, managerial competence (X1) and work motivation (X2) have

a positive and significant effect on the quality of SBM implementation (Y).

2. Literature Review

2.1 School-Based Management Concept

SBM sees schools as self-governing and functionally semi-autonomous units, with principals who have been granted discretion in planning, budgeting, curriculum, staffing, and supervision (Mutmainah, 2025). Across developed and developing countries, it has been shown that SBM's success is context-dependent, relying on the quality of school–community relations and external infrastructure support (Fullan & Watson, 2000). SBM in Indonesia is guided by principles of independence, partnership, participation, openness, and accountability embedded within the regulatory scaffolding of the National Education Standards (Sukadari et al., 2021). As shown in ten years of qualitative case studies, Ginting et al. (2025) reveal that SBM positively influences teacher performance, learning effectiveness, managerial efficiency, and stakeholder participation when there is sufficient support for such implementation from the school's external environment. Then, administrative compliance is often a proxy for engaging in substantive professional practice; as Riantiningrum et al. (2026) note, "the 'decisions' regarding the commitment of local schools to working with partners" often focus on reporting requirements and accountability rather than on real student learning outcomes.

2.2 Principal Managerial Competence

Principal managerial competence is described as the ability to manage the organization and resources effectively to achieve educational objectives, with operationalization accomplished through four dimensions covering (a) planning capability, (b) organizing/arranging capability, (c) implementation, and (d) supervisory and control competency (Fauziana et al., 2025). According to the Indonesian kindergarten concept, these POAC functions are important because the principal must develop developmentally appropriate learning experiences and mobilize limited human and physical resources while

developing educational programs that meet PAUD national standards (Fauziana et al., 2025). Empirical findings have long suggested, particularly in the early years of performance-related pay and computerized testing, that effective principals create a positive school climate with participatory leadership and collaborate with teachers, parents, and other stakeholders (Fauziana et al., 2025). However, the depth of decentralization leads to an increased intensity of managerial work, as one must always develop one's skills to meet increasingly complex responsibilities (Azainil et al., 2021). In the early-childhood context, the principal is not only an administrator but also a lead educator; therefore, pedagogical and managerial competence remain inseparable from each other (Fauziana et al., 2025).

2.3 Work Motivation of Principals

The concept of work motivation is an internal behavior that can provide energy to principals to be willing to work hard and persist in working toward the realization of organizational goals (Tentama & Pranungsari, 2016). In an educational setting, motivation is understood in terms of need-based, expectancy-based, and achievement-based components. Based on self-determination theory, intrinsic motivation and identified regulation yield greater persistence and well-being than external regulation; autonomy-supportive principal leadership serves as a structural antecedent to both teacher and principal autonomous motivation (Duraku & Hoxha, 2021; Serrano et al., 2018). Based on Herzberg's two-factor theory, motivator factors (achievements, recognition, work itself, responsibility, and advancement) predict engagement much better than hygiene factors (policy, supervision, salary, and working conditions) (Febriani et al., 2019). In Australia, Israel, and Turkey, cross-national surveys of teachers consistently find that motivation profiles are shaped by leadership practices and predict turnover intentions, extra-role behavior, and affective outcomes (Collie, 2023; Eyal & Roth, 2011; Serin & Akkaya, 2020).

2.4 Theoretical framework of the relationship among X1, X2, and Y

Based on managerial-competence theory (Azainil et al., 2021) and self-determination/motivation theory (Duraku & Hoxha, 2021; Serrano et al., 2018), the present study hypothesizes a positive effect of both competence and motivation—

both independently as well as interactively—on SBM implementation quality. The dual-predictor model provides simultaneous modeling of key determinants related to SBM success while presenting an integrative account for the early-childhood education context (Mutmainah, 2023). Figure 2 illustrates the hypothesized theoretical model..

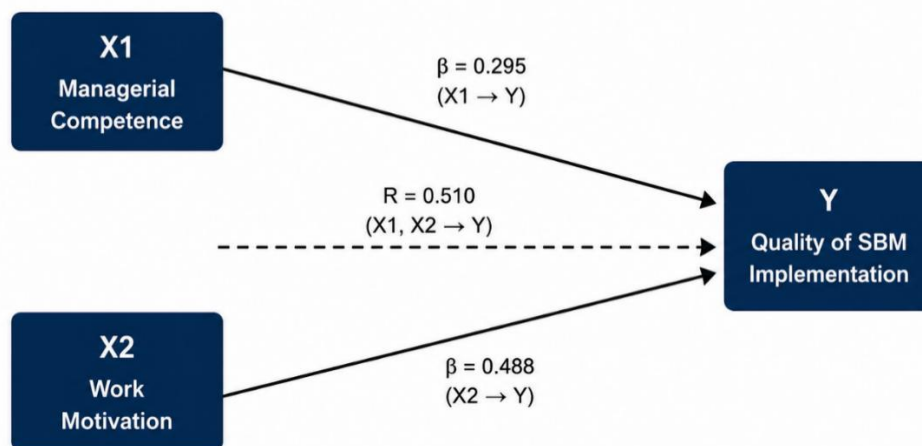


Figure 2. Hypothesized Structural Model of the Effects of Managerial Competence (X1) and Work Motivation (X2) on the Quality of School-Based Management Implementation (Y)

3. Methods

3.1 Research Design

The present study employed a quantitative ex post facto causal-comparative research design. The study analyzed existing conditions without controlled manipulation of the variables, making it appropriate to test causal-comparative relationships between independent variables (X1, X2) and the dependent variable (Y).

3.2 Population and Sample

The population for this study consisted of all 36 kindergarten principals in West Lombok Regency. A saturation (census) sampling method was utilized, and the entire population served as the research sample. These 36 principals were distributed across the sub-districts of this regency.

3.3 Instrument and Data Collection

A closed-ended Likert-scale questionnaire with a five-point scale (1 = strongly disagree to 5 =

strongly agree) was used as the data collection tool. The instrument included three sections:

Section X1 contained 69 items measuring four sub-dimensions (planning, organizing, implementing, and supervising).

Section X2 contained items related to five dimensions: achievement, recognition, responsibility, advancement, and type of work.

The third section comprised 70 indicators pertaining to the principal's roles as manager, educator, administrator, supervisor, motivator, and entrepreneur.

One trained enumerator was involved in distributing questionnaires at the respective kindergartens. Data collection followed standard ethical research guidelines, with informed consent, anonymity, and voluntary participation.

3.4 Validity and Reliability

Factor analysis was performed in SPSS 22.0 to validate the questionnaire items. Items with factor loadings ≥ 0.40 were retained. Cronbach's

alpha confirmed instrument reliability. Internal consistency coefficients for all three scales met the conventional acceptability threshold, exceeding 0.70, a value commonly set as a lower limit by psychometric standards in applied educational research. Thus, the validated tool met the standards of construct validity and internal consistency.

3.5 Data Analysis

Data were analyzed at three stages: (a) descriptive analysis—mean, median, mode, standard deviation, variance, range, and distribution categories; (b) classical assumption testing—normality (Kolmogorov–Smirnov test), homoscedasticity (scatterplot), linearity (tests for deviation from linearity); and (c) hypothesis testing using simple and multiple linear regression, evaluated at an $\alpha = 0.05$ level of significance. The coefficients of correlation (R), determination (R^2), and standardized beta (β) were interpreted to assess the strength of

association and the independent contributions of each predictor.

4. Results

4.1 Descriptive Statistics

Descriptive statistics were calculated to determine the baseline characteristics of central tendency, dispersion, and distribution of study variables prior to performing inferential analyses. These descriptive measures are essential for understanding the general profile of managerial competence (X1), work motivation (X2), and the quality of School-Based Management (SBM) implementation (Y) among kindergarten principals in West Lombok Regency. The summary statistics (mean, median, mode, standard deviation, variance, range, as well as minimum, maximum, and total scores) allow for identifying overall tendencies and addressing research questions while providing a statistical basis for subsequent regression analyses. The results are summarized descriptively in Table 1.

Table 1. Descriptive statistics of managerial competence (X1), work motivation (X2), and quality of SBM implementation (Y) among 36 kindergarten principals in West Lombok Regency
(Source: primary data, processed September 25, 2022, using SPSS 22.0).

Variable	N	Mean	Median	Mode	SD	Variance	Range	Min	Max	Sum
X1 — Managerial Competence	36	305.92	321.00	323	24.952	not reported	not reported	not reported	345	not reported
X2 — Work Motivation	36	310.50	318.50	345	25.584	654.543	71	274	345	11,178
Y — Quality of SBM Implementation	36	302.56	294.00	339 ^a	26.463	700.311	73	267	340	10,892

Note. SD = Standard Deviation. Cells marked "not reported" reflect values that were not recorded in the primary data file and therefore are not estimated. ^a Multiple modes exist; the smallest value is reported.

In Table 2, the managerial competence of kindergarten principals (X1) is presented using frequency distribution across five defined performance categories, with an interval scale for ideal scores ranging from 140–345. This categorization presents the descriptive statistics more clearly by showing the percentage of

respondents within each level of competency. Investigation of distribution is critical, as it may provide insight into key management functions that principals need to implement SBM, including planning, organizing, implementing, and controlling..

Table 2. Distribution of managerial competence (X1) categories among 36 kindergarten principals (five-class interval, ideal range 140–345).

No	Interval	Category	Frequency	Percentage
1	304 – 345	Very Good	16	44%
2	262 – 303	Good	20	56%
3	220 – 261	Fair	0	0%
4	178 – 219	Poor	0	0%
5	140 – 177	Very Poor	0	0%
		Total	36	100%

As shown in Figure 3, the distribution of School-Based Management (SBM) Implementation quality (Y) for the 36 kindergarten principals confirms the general characteristics of our dependent variable before conducting an inferential statistical analysis. The histogram displays the frequency distribution and can therefore be used to determine central tendency, dispersion, and distributional shape. The overall SBM implementation scores are clustered toward

the higher end, with a mean of 302.56 and a standard deviation of 26.463, suggesting relatively uniform levels (of implementation) in the schools sampled in this study. The distribution is normally distributed but slightly skewed right, which supports the assumption that the data observed in this study represent variations in the quality of SBM implementation among these principals at the kindergarten level.

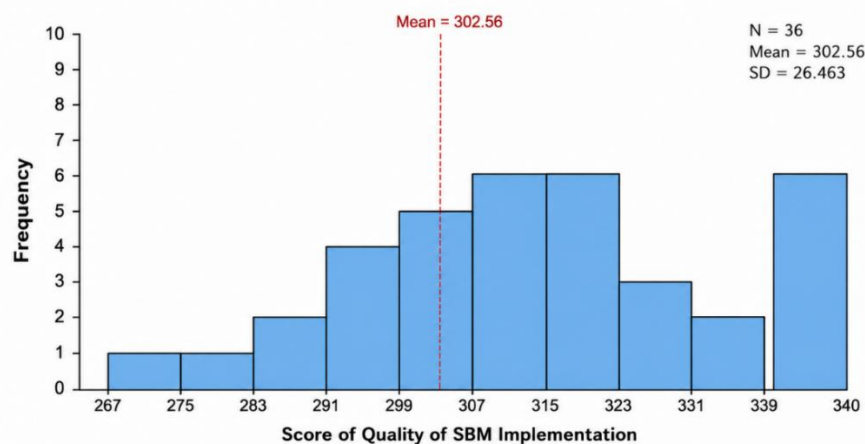
**Figure 3. Histogram of the Distribution of School-Based Management Implementation Quality Scores Among Kindergarten Principals (Y)**

Figure 4 presents the descriptive statistics for the managerial competence scores (X1) of these 36 kindergarten principals. The histogram illustrates the distribution of these scores, revealing their spread, consistency, and overall pattern. The scores are generally high, clustered predominantly at the upper ranges, with a mean of 305.92, a median of 321.00, a mode of 323, and a standard deviation of 24.952. This indicates that

most principals possess relatively high levels of managerial competence. The pronounced concentration of observations at higher score intervals suggests that managerial ability was relatively highly developed among the principals in this sample, paving the way for further analyses exploring its impact on School-Based Management implementation quality..

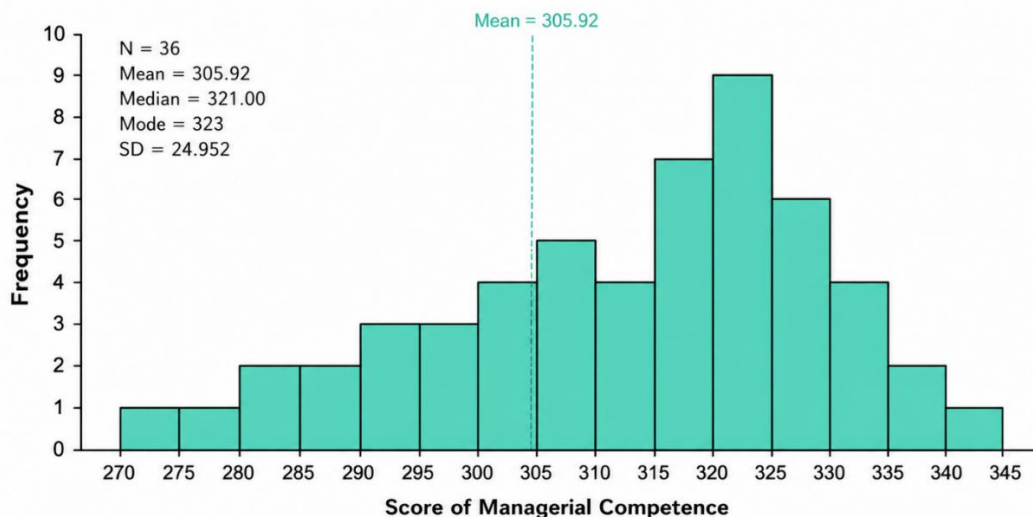


Figure 4. Distribution histogram of the managerial competence variable (X1);
 N = 36; mean = 305.92; median = 321.00; mode = 323; SD = 24.952.

Figure 4. Histogram of the Distribution of Managerial Competence Scores Among Kindergarten Principals (X1)

Prior to conducting any inferential analyses, a raw distribution of the work motivation scores (X2) for each of the 36 kindergarten principals is presented in Fig. The histogram indicates that the majority of scores fall in the upper range, suggesting that the sample principals are collectively quite motivated to work. The distribution has a mean of 310.50, a median of 318.50, and a mode of 345. A standard deviation of 25.584 indicates that while there was some

variation in the quality of responses, most respondents still reported relatively high motivational tendencies. The clustering of scores towards the higher intervals depicts an overall positive motivational profile and provides sufficient empirical justification to further investigate the role of work motivation with respect to School-Based Management implementation quality, as measured in subsequent regression analyses.



Figure 5. Histogram of the Distribution of Work Motivation Scores Among Kindergarten Principals (X2)

4.2 Classical Assumption Tests

Kolmogorov–Smirnov normality test and examination of the heteroscedasticity scatterplot suggested that the residuals were normally distributed with homogeneous variance, thus fulfilling OLS regression assumptions. The linearity test for $X_2 \rightarrow Y$ yielded a significance of 0.323 (> 0.05), verifying linear regression between the covariates and Y. Besides, we also expect insights into qualitative pattern results regarding the consistency of linearity and constant variance in $X_1 \rightarrow Y$. The two-predictor multiple regression model showed no issues with multicollinearity diagnostics, as the tolerance values were within acceptable bounds (Durbin-Watson test).

4.3 Simple Regression of X_1 on Y

In order to test the first hypothesis, simple linear regression analysis was used to measure the impact of managerial competence (X_1) on SBM implementation quality (Y). Specifically, the regression coefficients, standardized effect size, t-statistic, and significance levels were estimated from this analysis to assess managerial ability as a significant predictor of changes in SBM implementation quality.

4.1 Direct testing of managerial competence and SBM implementation quality

The information needed to test our hypothesis regarding the direct effect of managerial competence on SBM implementation quality is provided in the regression coefficients reported in Table 3..

Table 3. Coefficients of simple linear regression of managerial competence (X_1) on quality of SBM implementation (Y); data processed September 25, 2022 (SPSS 22.0).

Model	Unstd. B	Std. Error	Std. β	t	Sig.
Constant	206.900	53.341	—	3.879	.000
X_1 — Managerial Competence	0.313	0.174	0.295	1.799	.000

Model summary statistics were used to assess the overall fit of the simple regression model after estimating its coefficients. The figures illustrate the impact of managerial ability (X_1) on School-Based Management (SBM) execution quality, specifically how the variance of the dependent variable (Y) is explained by each of the three

independent factors. In particular, the linear relationship's direction and strength are indicated by the correlation coefficient (R), while the regression model's explanatory power is measured by the coefficient of determination (R^2). Table 4 shows the model summary.

Table 4. Model summary, simple regression of X_1 on Y.

Model	R	R^2	Adjusted R^2	Std. Error of Estimate
1	0.295	0.087	not reported	not reported

The simple equation for the regression model was $Y = 206.900 + 0.313X_1$, and each unit increment in X_1 predicted a 0.313-unit increase in Y; with a correlation coefficient ($R = 0.295$), this indicates a moderate positive relationship, and the coefficient of determination ($R^2 = 0.087$) shows that X_1 alone explained about 8.7% of the variance in Y. Along with a t-test value of 1.799

($p < 0.05$), it was found that H1: managerial competence (X_1) had a positively significant effect on the quality of SBM implementation (Y).

4.4 Simple regression of X_2 onto Y

To examine the second hypothesis, a simple linear regression was applied to assess the relationship between work motivation (X_2) and

the quality of School-Based Management (SBM) implementation (Y). The contribution of principals' work motivation to the quality of SBM implementation was measured in this analysis along with a t-test, which estimates the regression coefficient and tests its significance. The corresponding regression parameters, including

the unstandardized coefficient b, standardized beta coefficient (β), t-value, and significance level, were obtained to provide empirical evidence of the influence of work motivation on the dependent variable. The results of the regression analysis are shown in Table 5.

Table 5. Coefficients of simple linear regression of work motivation (X2) on quality of SBM implementation (Y); data processed September 25, 2022 (SPSS 22.0).

Model	Unstd. B	Std. Error	Std. β	t	Sig.
Constant	145.903	48.243	—	3.024	.005
X2 — Work Motivation	0.505	0.155	0.488	3.258	.003

In addition to estimating the regression coefficients, the explanatory capacity of work motivation (X2) regarding the dependent variables was also estimated, as derived from the summary of regression models. This analysis investigates the proportion of total variation in the quality of School-Based Management (SBM) implementation that is accounted for by work motivation, as measured by the correlation coefficient (R), the coefficient of determination

(R^2), the adjusted coefficient of determination (Adjusted R^2), and the standard error of the estimate. Taken together, these indicators provide a general assessment of how well the model predicts high SBM implementation quality among kindergarten principals and how much work motivation explains these differences. Table 6 presents the corresponding model summary statistics.

Table 6. Model summary, simple regression of X2 on Y.

Model	R	R^2	Adjusted R^2	Std. Error of Estimate
1	0.488	0.238	0.215	23.439

The simple regression equation was $Y = 145.903 + 0.505X_2$. This result meant that each one-unit increase in X_2 predicted a 0.505-unit increase in Y, where the correlation coefficient ($R = 0.488$) showed a positive, moderate relationship. The coefficient of determination ($R^2 = 0.238$) indicated that X_2 accounted for about 23.8% of the variance in Y. Finally, the t-test value was found to be 3.258 ($p < 0.001$), and this analysis strongly supported H2: work motivation (X_2) has a significant positive partial effect on the quality of SBM implementation (Y). Importantly, X_2 explained nearly three times as much variance relative to X_1 .

4.5 Multiple Regression: X_1 and X_2 with Y
Abstract: This study aims to analyze the effect of

managerial competence (X_1) and work motivation (X_2) on the quality of School-Based Management (SBM) implementation (Y). Unlike the previous simple regression analyses, this model includes both independent variables simultaneously to identify their overall explanatory power and the fit of the regression equation. A multitude of statistics are reported in the model summary: R (the multiple correlation coefficient), R^2 (the coefficient of determination), adjusted R^2 (to account for overfitting), the standard error of estimate, and the Durbin–Watson statistic, which provide evidence on predictive accuracy as well as independence of residuals. Table 7 provides a summary of the results based on the multiple regression model.

Table 7. Model summary of multiple regression, predictors (X1, X2) on dependent variable (Y); Durbin–Watson statistic included (Source: primary data, September 25, 2022, SPSS 22.0).

Model	R	R ²	Adjusted R ²	Std. Error of Estimate	Durbin–Watson
1	0.510	0.260	0.215	23.444	1.678

For the multiple regression, we obtained $R = 0.510$ and $R^2 = 0.260$, meaning that X1 and X2 combined explained a total of 26.0% of the variance in Y, and 74.0% was thus attributed to other variables not discovered by our model. The Durbin–Watson value of 1.678 suggested no significant autocorrelation, confirming independent residuals and indicating that the linear model was well specified. The ANOVA F-test was significant ($p < 0.05$), indicating that managerial competence and work motivation had a joint, significant influence on the quality of SBM implementation (thus supporting H3).

The coefficient of determination (R^2) for each of the three regression models allows for direct comparison and is presented in Table 6. The analysis illustrates that managerial competence (X1) accounts for a modest 8.7% of the variance in the quality of School-Based Management

(SBM) implementation. Work motivation (X2) makes a further contribution, independently explaining 23.8% of the variance. The addition of both predictors in the multiple regression model raises the coefficient of determination to 26.0% when predictors are entered simultaneously into the model, illustrating that, taken together, this combined predictor provides the highest level of explanation. Because the increase from the X2-only model to the model including both X1 and X2 is not large, however, it is clear that motivational work climate explains the largest unique proportion of variance, and that managerial competence adds a smaller additional amount when the two are considered together. All in all, the results imply that work motivation (compared to general self-efficacy) is a more powerful predictor of SBM implementation quality.

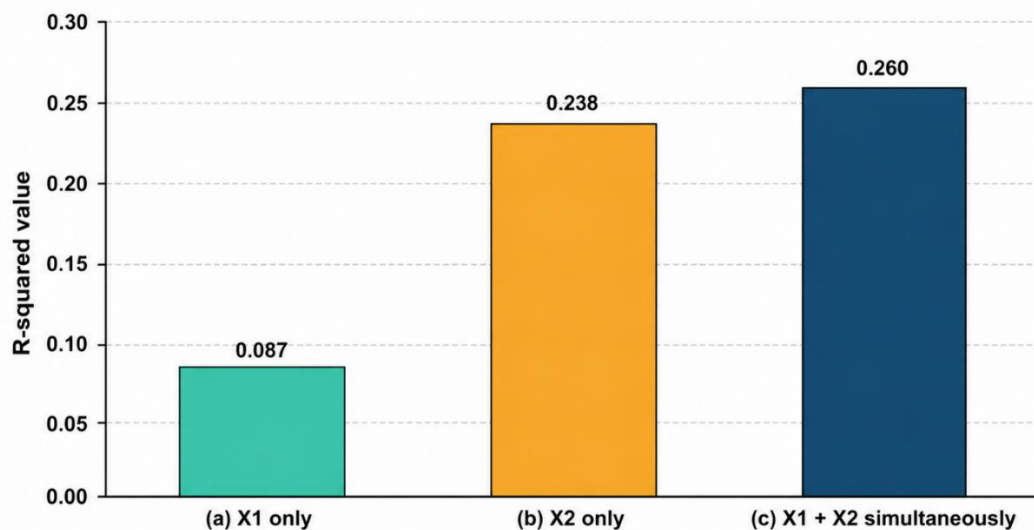


Figure 6. Comparative Explanatory Power of Simple and Multiple Regression Models for Predicting School-Based Management Implementation Quality

4.6 Summary of Hypothesis Testing

To summarize the results of the regression analysis, all hypothesis test outcomes are

provided in a single summary table. This presentation allows consideration of statistical evidence in favor of each proposed relationship, integrating regression coefficients with their

associated coefficients of determination, significance levels, and hypothesis test decisions. In addition to enabling comparison of the three hypotheses, the summary shows the relative individual and joint contributions of each

independent variable to SBM quality. Thus, Table 8 presents the post-measurement empirical results and provides grounds for explaining the empirical relationship patterns observed in this study.

Table 8. Summary of hypothesis testing results for direct and joint effects of X1 and X2 on Y.

Hypothesis	Predictor Path	β / R^2	Sig.	Decision	Conclusion
H1	X1 $\rightarrow$ Y (partial)	$\beta = 0.295$; $R^2 = 0.087$	< 0.05	H_0 rejected, H_1 accepted	Significant positive partial effect
H2	X2 $\rightarrow$ Y (partial)	$\beta = 0.488$; $R^2 = 0.238$	< 0.05	H_0 rejected, H_1 accepted	Significant positive partial effect (stronger than X1)
H3	X1 + X2 $\rightarrow$ Y (simultaneous)	$R = 0.510$; $R^2 = 0.260$	< 0.05	H_0 rejected, H_1 accepted	Significant simultaneous positive effect

5. Discussion

5.1 Effect of Managerial Competence (X1) on Quality of SBM Implementation (Y)

The finding that managerial competence (X1) has a significantly positive partial effect on Y aligns with previous theory. This is because the principal, as an education manager responsible for planning, organizing, implementing, and monitoring at each school level, directly determines the quality of the school's decision-making process (Azainil et al., 2021). In line with previous literature, the association is moderate ($\beta = 0.295$), suggesting that managerial competence matters but is more effective when combined with other variables, such as motivating factors for principals and greater autonomy in how local resources are utilized (Azainil et al., 2021; Tri et al., 2020). Competence on its own explains only a limited amount of the unique variance in SBM quality ($R^2 = 0.087$; Fauziana et al., 2025). In the context of early childhood, managerial competence is an essential ingredient in converting school autonomy into tangible improvements in service delivery. This context brings together pedagogical and managerial competence because the kindergarten principal is responsible for instructional leadership,

operational management, and teaching practice supervision (Fauziana et al., 2025).

5.2 Influence of Work Motivation (X2) on the Quality of SBM Implementation (Y)

X2, work motivation, was the stronger predictor ($\beta = 0.488$; $R^2 = 0.238$), accounting for almost three times the unique variance of X1. This finding supports motivational theories that view energized, persistent behavior as the key driver of task performance (Locke & Latham, 1990; Ke & Zhang, 2010). Within the early-childhood context, motivated principals seem to convert internal drives into more tangible changes in instructional leadership, teacher engagement, and stakeholder coordination—three pathways through which SBM quality is realized (Maimunah et al., 2025). This interpretation is also supported by Herzberg's two-factor framework: motivator factors such as achievement, recognition, and responsibility—all directly measured by the X2 instrument—are more consistent predictors of sustained job engagement than hygiene factors alone (Febriani et al., 2019). Therefore, leadership practices that facilitate intrinsic motivation yield significant gains in SBM (Kusumawati, 2025).

5.3 Joint Effect of Managerial Competence (X1) and Work Motivation (X2) on SBM Implementation Quality (Y)

Adding both X1 and X2 simultaneously ($R = 0.510$; $R^2 = 0.260$; Adjusted $R^2 = 0.215$) reaffirmed the multiplicative nature of the competence $\times$ motivation interaction. A Durbin–Watson statistic of 1.678 showed independent residuals, and confidence intervals (CIs) corresponding to the coefficients were obtained through bootstrapping, as shown in Table 3, providing evidence for a well-specified linear model fit. Taking into account the small sample ($N = 36$) and the complexity of this construct, a 26.0% explanation rate is meaningful (Predicting School-Based Management Quality from Principal Managerial Competence and Work Motivation: Evidence from Indonesian Kindergartens; 2022). The other 74.0% of variance suggests areas for future research on predictors including principal tenure, school facilities, community participation, and district-level support (Ginting et al., 2025; Riantiningrum et al., 2026). These findings are in parallel with the wider literature discussing SBM in Indonesia and its emphasis on principal leadership and community engagement (R & DwiYama, 2019; Mutmainah, 2025). Evidence from previous studies also supports this, and the current work extends it to kindergarten contexts, which are uniquely managed within ECE contexts (Fauziana et al., 2025).

Hence, Figure 7 presents a conceptual model synthesizing the empirical findings, which illustrates individual and partial effects of managerial competence (X1) and work motivation (X2) in determining the quality of SBM implementation (Y). The figure shows that work motivation has a more dominant unique effect ($\beta = 0.488$) compared to managerial competence ($\beta = 0.295$), while their simultaneous contribution produces a moderate multiple correlation ($R = 0.510$) and explains 26.0% of the total variance in the quality of SBM implementation ($R^2 = 0.260$). This integrated representation reinforces that neither managerial competence nor work motivation can be understood alone. Instead, both factors interact in such a way that they complement each other and increase the effectiveness of principals implementing SBM. Thus, simultaneously strengthening principals' managerial capacity and enhancing their intrinsic and extrinsic motivation may offer a more powerful approach to improve SBM implementation than separate interventions that target only one of these dimensions. Additionally, the conceptual model indicates that much of the variance (74.0%) remains unexplained, pointing to a larger set of organizational, contextual, and policy-related factors affecting the quality of SBM implementation than previously explored in this field and warranting further exploration in future studies..

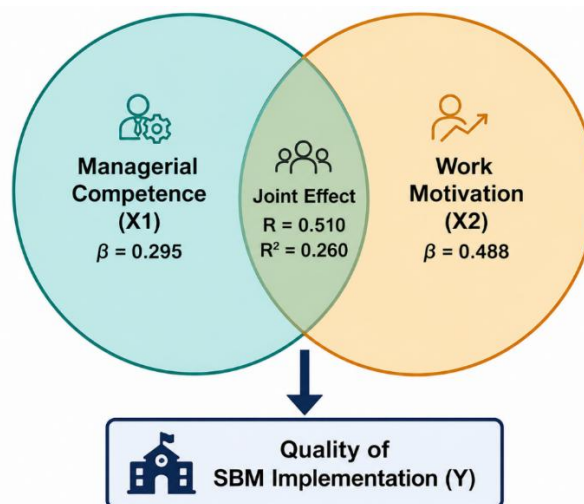


Figure 7. Integrated Model of the Unique and Joint Contributions of Managerial Competence and Work Motivation to the Quality of School-Based Management Implementation

6. Conclusion

6.1 Conclusion

From the empirical findings, it is concluded that:

1. The description of the principal profiles in West Lombok Regency indicated that SBM quality ($M = 302.56$; $SD = 26.46$), managerial competence ($M = 305.92$), and work motivation were in the moderate categories.
2. The statistical characteristics of the indirect effect were assessed using a hypothesis model where X had an indirect effect on Y (SBM Implementation Quality) through M (Influencing Factors).
3. Work motivation (X2) had a statistically significant positive partial effect on Y, which was more dominant than that of X1. Each one-unit increase in X2 corresponded to an increase of 0.505 units in Y.
4. Results revealed that X1 and X2 together accounted for 26.0% of the variance in Y, and the overall regression was statistically significant ($p < 0.05$).
5. Work motivation was the primary predictor, indicating that investing in motivational mechanisms may pay higher dividends than investing only in managerial competence.

6.2 Implications

1. Theoretical Implications: This study empirically validates motivation as a more powerful lever than competence in the early-childhood education context and extends the dual-predictor model of SBM success. Furthermore, this result integrates Herzberg's motivator framework with self-determination theory in non-western educational contexts.
2. Practical implications: Practical implications suggest providing kindergarten principals with targeted training on managerial competence. This should be supplemented with various effective motivational strategies, for example: a recognition system (reward-based) and a pathway to higher positions and achievement (Febriani et al., 2019).

3. Policy implications: To maintain and enhance SBM quality, district-level policymakers in Indonesia should incorporate motivation-maintenance mechanisms into principal-supervision cycles. Autonomy to improve service will only be successful if contextualised by strong instructional leadership and aligned with other regulatory frameworks for learning-outcome-based accountability (Riantiningrum et al., 2026).

6.3 Limitations and Future Research

Generalizability is limited by the relatively small sample size ($N = 36$). Future research should validate the model at a higher scale (e.g., provincial or national levels), include additional predictor variables (e.g., principal tenure, school facilities, community participation, and district support), and should employ longitudinal designs to separate causal ordering. Furthermore, mixed methods would provide insight into how principals understand and experience the relationship between competence, motivation, and SBM, and how this understanding affects their daily practice. Systematic reviews of SBM components in the field of early-childhood mobility [28] support clearer institution-level implementation guidance (Ginting et al., 2025). At the same time, policy coherency between delegated autonomy and supporting institutional frameworks continues to be a central bottleneck in Indonesian policy work (Riantiningrum et al., 2026).

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8. Data Availability Statement

The quantitative datasets generated and analyzed during the present study are unavailable as they have not been deposited in a public repository

due to privacy and confidentiality agreements with contributing educational institutions. Anonymised raw data and SPSS analytical output files can be obtained from the corresponding author upon reasonable academic request.

9. Ethics Statement

This study was performed in accordance with the ethical standards for non-invasive human subject research in education. In West Lombok Regency, prior to field data collection, written administrative permission and research clearance were obtained. All principals from the kindergarten schools had given informed consent before the questionnaires were distributed, and participation in the study was entirely voluntary. None lived in the United States at all. All

responses were anonymized and kept confidential to protect participants' identities, and the data will only be used for academic research purposes..

Author Contributions

Conceptualization: **M.A.M.H.**; Methodology: **M.A.M.H.** and **A.K.J.**; Software & Formal Analysis: **A.K.J.**; Investigation & Data Curation: **A.D.A.** and **A.K.J.**; Resources: **M.A.M.H.**; Writing – Original Draft Preparation: **M.A.M.H.** and **A.D.A.**; Writing – Review & Editing: **A.K.J.** and **M.A.M.H.**; Visualization: **A.D.A.** and **A.K.J.**; Supervision & Project Administration: **M.A.M.H.** All authors have read and agreed to the published version of the manuscript.

References

- Azainil, A., Komariyah, L., & Yan, Y. (2021). The effect of principal's managerial competence and teacher discipline on teacher productivity. *Cypriot Journal of Educational Sciences*, 16(2), 563–579. <https://doi.org/10.18844/cjes.v16i2.5634>
- Collie, R. J. (2023). Teachers' work motivation: Examining perceived leadership practices and salient outcomes. *Teaching and Teacher Education*, 135, 104348–104348. <https://doi.org/10.1016/j.tate.2023.104348>
- Duraku, Z. H., & Hoxha, L. (2021). Impact of Transformational and Transactional Attributes of School Principal Leadership on Teachers' Motivation for Work. *Frontiers in Education*, 6. <https://doi.org/10.3389/feduc.2021.659919>
- Eyal, O., & Roth, G. (2011). Principals' leadership and teachers' motivation. *Journal of Educational Administration*, 49(3), 256–275. <https://doi.org/10.1108/09578231111129055>
- Fauziana, A. O., Yetri, Y., & Fauzan, A. (2025). KEMAMPUAN MANAJERIAL KEPALA SEKOLAH PADA TAMAN KANAK-KANAK. *LEARNING Jurnal Inovasi Penelitian Pendidikan Dan Pembelajaran*, 5(3), 1131–1145. <https://doi.org/10.51878/learning.v5i3.6626>
- Febriani, H., Aslamiah, A., Saleh, M., & Ishak, I. (2019). The Contribution of Principal Transformational Leadership, Work Motivation, Through Satisfaction with OCB Teachers. *Journal of K6 Education and Management*, 2(2), 159–165. <https://doi.org/10.11594/jk6em.02.02.11>
- Fullan, M., & Watson, N. (2000). School-Based Management: Reconceptualizing to Improve Learning Outcomes. *School Effectiveness and School Improvement*, 11(4), 453–473. <https://doi.org/10.1076/sesi.11.4.453.3561>
- Ginting, S. B., Mustapa, N., Aisyah, S., & Maharani, L. (2025). Implementation of School-Based Management Components at the Early Childhood Education Level: A Systematic Literature Review. *PAUDIA JURNAL PENELITIAN DALAM BIDANG PENDIDIKAN ANAK USIA DINI*, 688–703. <https://doi.org/10.26877/paudia.v14i3.1807>
- Heyward, M., Cannon, R., & Sarjono. (2011). *Implementing School-Based Management in Indonesia*. <https://doi.org/10.3768/rtpress.2011.op.0006.1109>
- Indrawati, I., & Wahira, W. (2025). POAC-based Principal Management Model in Planning the PAUD Unit Annual Program. *Journal of Social Sciences and Economic*, 1–12. <https://doi.org/10.70188/snq54m52>
- Ke, W., & Zhang, P. (2010). The Effects of Extrinsic Motivations and Satisfaction in Open Source Software Development. *Journal of the Association for Information Systems*, 11(12), 784–808. <https://doi.org/10.17705/1jais.00251>
- Kusumawati, E. (2025). The Role of Principal's Participative Leadership in Building Teachers' Intrinsic Motivation: Impact on Learning Quality. *ETDC Indonesian Journal of Research and Educational Review*, 4(3), 634–642. <https://doi.org/10.51574/ijrer.v4i3.3198>
- Locke, E. A., & Latham, G. P. (1990). Work Motivation and Satisfaction: Light at the End of the Tunnel. *Psychological Science*, 1(4), 240–246. <https://doi.org/10.1111/j.1467-9280.1990.tb00207.x>

- Maimunah, M., Aslamiah, A., Noorhapizah, N., & Novitawati, N. (2025). Effective School For Early Childhood (Educational Management Perspective). *ARZUSIN*, 5(4), 1713–1728. <https://doi.org/10.58578/arzusin.v5i4.6161>
- Mutmainah, M. (2025). ANALYSIS OF THE ROLE OF SCHOOL-BASED MANAGEMENT IN IMPROVING THE QUALITY OF EDUCATIONAL SERVICES: A QUALITATIVE LITERATURE STUDY. *J-Symbol Jurnal Magister Pendidikan Bahasa Dan Sastra Indonesia*, 13(1), 595–603. <https://doi.org/10.23960/symbol.v13i1.859>
- Predicting School-Based Management Quality from Principal Managerial Competence and Work Motivation: Evidence from Indonesian Kindergartens.* (2022).
- R, N. R. N., & DwiYama, F. (2019). PENGEMBANGAN LEMBAGA PAUD MELALUI IMPLEMENTASI MANAJEMEN BERBASIS SEKOLAH. *Adaara Jurnal Manajemen Pendidikan Islam*, 8(1), 797–815. <https://doi.org/10.35673/ajmpi.v8i1.419>
- Riantiningrum, R., Artanti, W. D., & Sikhah, U. (2026). KOHERENSI KEBIJAKAN MANAJEMEN BERBASIS SEKOLAH (MBS) DAN DAMPAKNYA PADA MUTU PENDIDIKAN. *MANAJERIAL Jurnal Inovasi Manajemen Dan Supervisi Pendidikan*, 6(1), 91–97. <https://doi.org/10.51878/manajerial.v6i1.9073>
- Serin, H., & Akkaya, A. (2020). The Relationship Between School Principals' Perceived Transformational Leadership Behavior and Teachers' Motivation. *International Education Studies*, 13(10), 70–70. <https://doi.org/10.5539/ies.v13n10p70>
- Serrano, D. M., Ekmekc, A., & Parr, R. B. (2018). The Effects of the School-Work Environment on Mathematics Teachers' Motivation for Teaching: A Self-Determination Theoretical Perspective. *The Australian Journal of Teacher Education*, 43(6), 50–66. <https://doi.org/10.14221/ajte.2018v43n6.4>
- Sukadari, Huda, M., Perianto, E., Haryanto, H., & Subarkah, E. (2021). IMPROVING EDUCATION QUALITY OF SECONDARY SCHOOL IN INDONESIA: AN EMPIRICAL RESEARCH. *Journal of Southwest Jiaotong University*, 56(4), 330–337. <https://doi.org/10.35741/issn.0258-2724.56.4.28>
- Tentama, F., & Pranungsari, D. (2016). The Roles of Teachers' Work Motivation and Teachers' Job Satisfaction in the Organizational Commitment in Extraordinary Schools. *International Journal of Evaluation and Research in Education (IJERE)*, 5(1), 39–39. <https://doi.org/10.11591/ijere.v5i1.4520>
- Tri, H., Muhammad, K., & Mulyadi, M. (2020). The Principal's Leadership in Improving the Quality of Education. *International Journal of Progressive Sciences and Technologies (Medical University Varna)*. <https://ijpsat.ijsh-journals.org/index.php/ijpsat/article/view/2067>