



Journal of Educational Sciences

Journal homepage: <https://jes.ejournal.unri.ac.id/index.php/JES>



P-ISSN
2581-1657

E-ISSN
2581-2203

Influence of School-Based Management, Teacher Participation, and Supervision on the Quality of the Learning Process in Elementary Schools

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ARTICLE INFO

Article history:

Received: 10 July 2026

Accepted: 07 Sept 2026

Available Online: 15 Sept 2026

Keywords:

Quality of Learning Process,
School-Based Management,
Teacher Participation,
Supervision

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Article Doi:

<https://doi.org/10.31258/jes.10.9.p.735-749>

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ABSTRACT

The quality of the learning process faces ongoing challenges, particularly due to the suboptimal implementation of school-based management, limited teacher participation in school management, and a lack of continuous supervision oversight. This study aims to analyze the influence of SBM, teacher participation, and supervision oversight on the quality of the learning process. A quantitative approach was employed, involving a population of 253 teachers from 19 schools; a sample of 155 teachers was determined using Slovin's formula (5% margin of error) via proportional random sampling. Data were collected through questionnaires and analyzed using SPSS 26 (descriptive and inferential statistics), including classical assumption tests, t-tests, and F-tests. The results indicate that SBM and teacher participation positively and significantly influence the quality of the learning process, with significance values of 0.000 and $0.002 < 0.05$, respectively. In contrast, supervision oversight did not show a significant effect $0.390 > 0.05$. Simultaneously, the three variables exerted a positive and significant influence, contributing 44.6% to the outcome, while the remaining 55.4% was attributed to factors outside the model. These findings underscore the importance of strengthening school governance and teacher participation, as well as enhancing supervision effectiveness through intensive, contextual, and continuous guidance.

1. Introduction

Educational success depends not only on expanded access to educational services but also on the quality of the learning process in schools (Rahman, 2025). Quality learning plays an important role in developing critical, creative, collaborative, and communicative competencies in participants, which support 21st-century competencies (Novia et al., 2024). Therefore, improving the quality of learning has become a priority to prepare participants to adapt, innovate, and compete in the

global era. PISA 2022 results show that Indonesia ranks 69th out of 80 countries, with literacy scores of 359, mathematics 366, and science 383, all still below average (OECD, 2023). Improving the quality of education remains a work in progress that must be achieved sustainably (Hasibuan, 2024). Indonesia needs to develop effective strategies to overcome educational disparities and improve the quality of education to achieve the Golden Indonesia 2045 vision.

PISA 2022 results show a 13-point decline in mathematics scores compared to PISA 2018, while the global average dropped by 18 points due to the impact of COVID-19 (Kemendikbudristek, 2023; OECD, 2023). The Indonesian government is carrying out various educational reforms through the implementation of Independent Learning and Independent Curriculum to transform the learning process, as well as developing Planning Data Based (PBD) and Education Report as instruments for evidence-based decision-making to strengthen school governance and sustainably improve the quality of education. Implementation of various policies that, in the end, enable the capacity-based unit of education to manage itself independently, adaptively, and accountably. Conditions: this study focuses on elementary schools in Kampa District, Kampar Regency, Riau Province.

Based on the 2025 Education Report data, the quality of the learning process at Kampa District Elementary Schools remains suboptimal. It is known that SDN 018 Pulau Rambai's ability in note-taking, literacy, and numeracy is only 50% each. In comparison, SDN 016 Pulau Rambai shows more critical numeracy achievements, namely only 30%, far below the standard minimum competency of 60% as determined (Kemendikbudristek, 2022). Meanwhile, SDN 001 Sawah Baru showed relatively good numeracy (80%), but the quality of the learning process was only 61%, indicating a gap between academic participants' capacity and the quality of learning management. These conditions indicate that the quality of the learning process at Kampa District Elementary School remains low and requires comprehensive intervention.

The low-quality learning is influenced by internal and external factors outside the school, such as limited learning means, not yet optimally managed schools, low development of professional teachers, as well as a lack of support and involvement of stakeholders' interest in education (Alfaruqi & Nurwahidah, 2025; Sain et al., 2024). One suspected factor influential to the quality of the learning process is MBS. Implementing school-based management helps schools manage resources more efficiently, build a collaborative culture, improve accountability, and push innovation to improve learning quality (Hasrinaldi et al., 2026). Successful implementation of school-based management requires synergy among the head of the school, teachers, staff, education committee members, parents, and the wider community in planning, implementing, evaluating, and following up on school programs (Anif, 2023; Sedubun et al., 2024).

Furthermore, teacher involvement in various school activities fosters ownership of adopted policies, encouraging commitment, motivation, and professional responsibility in the implementation of instruction (Ansel & Bs, 2023; Sarwer et al., 2024). Teachers who are given the chance to participate in the decision-making

process will have a sense of ownership, commitment to the school, motivation to work, and a high sense of responsibility in carrying out professional tasks (Olaifa et al., 2023; Azizah et al., 2026). On the other hand, low teacher involvement in the decision-making process can reduce the effectiveness of school program implementation and hinder the creation of a collaborative school culture.

Another factor believed to influence the quality of the learning process is supervision by school supervisors. Academic supervision is a professional development process that helps teachers enhance their pedagogical, professional, social, and personal competencies through mentoring, reflection, and continuous feedback. Effective supervision can help teachers improve learning strategies, strengthen assessment skills, and develop more innovative, participant centered education (Ahyani & Dhuhani, 2025; Hariyanti, 2025). However, observations in several schools show that implementation supervision remains more fulfilment oriented than coaching, so its impact on improving the quality of the learning process is not optimal.

Although school-based management, teacher participation, and supervision have been widely studied in relation to quality education, many studies still test each variable separately or use dependent variables such as teacher performance, teacher competence, and student learning outcomes. Research integrating these variables as predictors of learning process quality, based on Education Report indicators at the basic level, especially in the Kampa District area, remains relatively limited. This gap highlights the need for research that can explain each variable's contribution to improving the quality of the learning process simultaneously. This study aims to analyze the influence of school-based management, teacher participation, and supervision on the quality of the learning process in elementary schools in Kampa District, both partially and simultaneously.

2. Methodology

This study uses a quantitative approach with an *ex post facto* design, chosen because it aims to measure relationships and influences between variables numerically and to generalize (Creswell & Creswell, 2017). Population in the study: Kampa District State Elementary School, Kampar Regency, Riau, with 253 teachers across 19 schools. The number of samples used in the study, calculated using Slovin's formula, totaled 155 people, with a margin of error of 5%. This study used proportional random sampling. This study consists of independent variables and one dependent variable. The independent variables include: school-based management (X_1), teacher participation (X_2), and supervision (X_3). The dependent variable is the quality of the learning process (Y). Data were collected using Google Forms with a five-point Likert scale. The response options were strongly-agree, agree, less agree, disagree, and strongly disagree, scored from 5 to 1, respectively. Table 1 shows the instrument grid for each variable as follows.

Table 1. Research Instrument Grid

No.	Variables	Indicator	Source of Theory	Number of Items
1	Quality of the Learning Process (Y)	1. Final result education 2. Immediate results of education 3. Educational process 4. Input instruments	(Minarti, 2022)	14
2	School-based Management (X ₁)	1. Effectiveness of learning 2. Leadership of the head of school 3. Competence power educator 4. Learning facilities 5. Extracurricular activities 6. Participation of inhabitants of the school 7. Transparency 8. Responsiveness	(Suprihatin, 2017)	16
3	Participation (X ₂)	1. Involvement in meetings 2. Contribution policy school 3. opinion professional	(Hoy & Miskel, 2018)	15
4	Supervision (X ₃)	1. Preparation of lesson plans 2. Supervision implementation learning	(Satori, 2017)	10
Total				55 items

Table 1 presents the research instrument; prior to use in the study, it was pilot-tested with 30 public elementary school teachers in Kampa District, Kampar Regency, Riau, who shared characteristics similar to the research population. The validity test used Pearson Product-Moment correlation, while the reliability test used Cronbach's alpha with SPSS version 26. The validity test showed that several items did not meet the criteria. They were eliminated, resulting in a final instrument of 14 items for the quality of the learning process variable, 16 items for school-based management, 15 for teacher participation, and 10 for supervision. Furthermore, the reliability test showed Cronbach's Alpha values of 0.913, 0.918, 0.909, and 0.878, respectively; this means all instruments have a very high level of reliability and are suitable for use in research. The research data were analyzed using SPSS (Statistical Package for Social Science) Version 26. The data were analyzed using descriptive and inferential statistics, including classical assumption tests and hypothesis tests. Classical Assumption Tests consist of the Normality Test and the Linearity Test. Hypothesis tests consist of partial hypothesis tests using the t-test, simultaneous hypothesis tests using the F-test, and determinant tests.

The hypothesis to be tested is:

Ho: There is no significant influence between School-Based Management (X₁), Teacher Participation (X₂), and Supervision (X₃) simultaneously on the Quality of the Learning Process (Y) at Kampa District Public Elementary Schools.

H₁: There is a significant influence of School-Based Management (X₁), Teacher Participation (X₂), and Supervision (X₃) simultaneously on the Quality of the Learning Process (Y) at Kampa District Public Elementary Schools.

3. Results and Discussion

Data Description

Based on data collected from 155 elementary school teachers in Kampa District, Kampar Regency, Riau, descriptive statistical analysis indicates that all research variables fall into the high category, with an overall mean score of 3.50 (SD = 0.45). School-based management recorded the highest mean score (M = 3.56; SD = 0.38), followed by teacher participation (M = 3.50; SD = 0.54), supervision (M = 3.49; SD = 0.43), and the quality of the learning process (M = 3.45; SD = 0.46). Findings: These results demonstrate that the implementation of school-based management, teacher participation, and supervision has been effective, and the quality of the learning process is also rated highly. However, the variation in achievement across variables suggests a need to strengthen the implementation of school-based management, enhance teacher participation in decision-making, and optimize supervision by involving professional supervision with a stronger focus on development. Such efforts are expected to sustainably strengthen the quality of the learning process, thereby improving the quality of education at the school level. The results of the descriptive statistical analysis are presented in Table 2 below.

Table 2. Statistics Descriptive Variables Study

Variables	N	Mean	Standard Deviation	Category
Quality of the Learning Process (Y)	155	3.45	0.46	High
School-based Management (X ₁)	155	3.56	0.38	High
Participation (X ₂)	155	3.51	0.54	High
Supervision (X ₃)	155	3.49	0.43	High
Average	155	3.50	0.45	High

Source: Data Processing, 2026

Classical Assumption Test

The normality test yielded an (Asymp. Sig. 2-tailed) value of 0.200, which is greater than 0.05 (0.200 > 0.05). The results indicate that the residuals are normally distributed and there are no significant deviations from the normality assumption. Consequently, the normality assumption for the regression model has been met, allowing for further analysis using parametric statistical tests specifically multiple linear regression to examine the relationships between the research variables. Meeting the normality assumption is a crucial prerequisite for multiple linear regression analysis. The normality test results for the research variables are presented in Table 3 below.

Table 3. Results of normality test

One-Sample Kolmogorov-Smirnov Test			
		Unstandardized Residual	
N		155	
Normal Parameters ^{a,b}		Mean	0.0000000
		Standard Deviation	8.42064629
Most Differences	Extreme	Absolute	0.037
		Positive	0.037
		Negative	-0.036
Test Statistics		0.061	
Asymp Sig. (2-tailed)		0.200 ^{c,d}	
a. Test distribution is Normal.			
b. Calculated from data.			
c. Lilliefors Significance Correction.			
d. This is a lower bound of the true significance.			

Source: Processed Data 2026

Linearity test analysis yielded significant values for the relationships between the quality of the learning process and school-based management, teacher participation, and Supervision, namely 0.435, 0.219, and 0.094, respectively. All of these values are greater than 0.05, so it can be concluded that the relationship between the independent variables and the quality of the learning process is linear. This shows that school-based management, teacher participation, and supervision are meaningfully connected to the quality of the learning process. Thus, an increase in the third aspect is followed by improved learning quality and an impact on the academic performance of educated participants. The results of the variance linearity test for the research variables are presented in Table 4 below.

Table 4. Results of the Linearity of Variances Test of Variables

1) Variable	Sig
Quality of the Learning Process * School-based Management	0.435
Quality of the Learning Process * Teacher Participation	0.219
Quality of the Learning Process * Supervision	0.094

Source: Processed Data 2026

Research Hypothesis Testing

Multiple Regression Test

The results of the multiple linear regression analysis indicate that school-based management (X_1) and teacher participation (X_2) have a positive effect on the quality of the learning process, whereas supervision (X_3) has a negative effect. This is reflected in the regression coefficients: 0.471 for school-based management, 0.335 for teacher participation, and -0.060 for supervision. The positive coefficients for X_1 and X_2 indicate that improvements in school-based management and teacher participation are associated with higher-quality learning. Conversely, the negative coefficient for supervision indicates an opposing trend regarding the quality of the learning process. However, the direction of this influence requires further review based on the significance test results. The results of the multiple linear regression test are presented in Table 5 below.

Table 5. Results of Multiple Linear Regression Analysis

		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	6.612	3.484		1.898	0.059
	School-Based Management	0.471	0.046	0.510	10.268	0.000
	Teacher Participation	0.335	0.049	0.341	6.896	0.002
	Supervision	-0.060	0.070	-0.043	-0.861	0.390

a. Dependent Variable: Quality of the Learning Process

Source: Processed Data 2026

Furthermore, based on the magnitude of the regression coefficients, school-based management makes the largest contribution to improving the quality of the learning process ($\beta=0.510$), followed by teacher participation ($\beta=0.341$). Conversely, supervision makes the smallest contribution, showing a negative relationship ($\beta=-0.043$). Additionally, considering the significance of each variable, namely school-based management (0.000), teacher participation (0.002), and supervision (0.390), the research findings indicate that the more effective the implementation of school-based management and the greater the teacher participation in management, the more the quality of the learning process tends to improve. Meanwhile, supervision does not exert a significant influence, and these variables have not yet collectively made a meaningful contribution to improving the quality of the learning process. Therefore, strengthening school governance through the implementation of school-based management and increasing teacher involvement constitute more effective strategies for enhancing the quality of the learning process.

t-test

Table 5 shows the partial test (t-test) results; school-based management has a significant p-value of $0.000 < 0.05$, indicating that it has a positive and significant influence on the quality of the learning process. Teacher participation also has a p-value of $0.002 < 0.05$, indicating a positive and significant influence on the quality of the learning process. Meanwhile, supervision has a significance value of $0.390 > 0.05$, so it is not significantly influential on the quality of the learning process. Thus, school-based management and teacher participation significantly influence the quality of the learning process, whereas supervision does not show a significant influence.

F test

The F-test yielded a calculated F-value of 30.193, whereas the F-table value at a 5% significance level with degrees of freedom $df_1=3$ and $df_2=151$ is approximately 2.66. These results indicate that the calculated F-value exceeds the F-table value $30.193 > 2.66$. Furthermore, the significance value of 0.000 is less than 0.05; thus, it can be concluded that school-based management, teacher participation, and supervision exert a significant simultaneous influence on the quality of the learning process. Consequently, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_0) is rejected. These findings demonstrate that the three variables

collectively make a significant contribution to explaining the variation in the quality of the learning process. In other words, improvements in the implementation of school-based management, teacher participation, and supervision effectiveness tend to enhance the quality of the learning process. Therefore, improving the quality of the learning process requires an integrated approach: strengthening school governance, increasing teacher involvement in programs and recruitment decisions, and optimizing supervision by supervisors who focus on professional development and continuous improvement. The results of the simultaneous effect test for the research variables are presented in Table 6 below.

Table 6. Results of Multiple Linear Regression Test (F Test)

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.424	3	11.475	30.193	0.000 ^b
	Residual	57.387	151	0.380		
	Total	91.811	154			

a. Dependent Variable: Quality of the Learning Process

b. Predictors: (Constant), Supervision, School-based Management, Participan

Source: Processed Data 2026

Coefficient of Determination (R^2)

The coefficient of determination analysis: an R value of 0.668 indicates a strong relationship between the independent variables and the quality of the learning process. The R Square value of 0.446 indicates that school-based management, teacher participation, and supervision together explain 44.6% of the variation in the quality of the learning process, which falls in the moderate category. Thus, these three variables significantly contribute to the quality of the learning process. However, other variables outside the research model account for 55.4% of the variation in learning process quality. The results of the Influence of Dependent and independent variables are in Table 7 below.

Table 7. Results of the Test of the Influence of Dependent and Independent Variables

Model Summary				
R	R Square	Adjusted R Square	Influence (%)	Interpretation
0.668 ^a	0.446	0.439	44.6%	Currently

a. Predictors: (Constant), Supervision, Teacher Participation School Based Management

b. Dependent Variable: Quality of the Learning Process

Source: Processed Data 2026

Discussion

Research findings indicate that school-based management, teacher participation, and Supervision simultaneously exert a positive and significant influence on the quality of the learning process. This is supported by a significance value of $0.000 < 0.05$ and a calculated F-value of 30.193, which exceeds the F-table value of 2.66, confirming the validity of the regression model. The coefficient of determination 44.6% indicates that school-based management, teacher participation, and

supervision influence the quality of the learning process. The remaining 55.4% is attributed to factors outside the scope of this study, such as work motivation, organizational culture, job satisfaction, school climate, teaching experience, and continuous professional development.

The quality of the learning process is not the result of a single factor but rather a combination of a school ecosystem built synergistically through effective governance, active teacher involvement, and continuous professional guidance from supervision. Sustainable improvement in educational quality can be achieved through the integrated involvement of all stakeholders within a planned and accountable improvement system (Zahro et al., 2025). One approach that supports such adaptability is school-based management, which grants schools the autonomy to manage resources, formulate policies, develop programs, and make decisions tailored to local needs (Lazwardi, 2018). School-based management functions not merely as a managerial approach but also as a strategy to sustainably enhance school effectiveness and the quality of the learning process (Eka W et al., 2025). Descriptive statistical analysis reveals that school-based management, teacher participation, supervision, and the quality of the learning process all fall into the high category. This demonstrates that school management, teacher involvement in educational operations, and the implementation of Supervision are functioning effectively, thereby supporting the delivery of a high-quality learning process. Nevertheless, strengthening these three aspects remains essential to ensure the continuous improvement of the learning process in line with demands for higher educational quality.

Individually, school-based management and teacher participation exert a positive and significant influence. In contrast, the supervision variable does not significantly affect the quality of the learning process. School-based management allows schools to manage resources, formulate programs, make decisions, and foster innovation tailored to their specific needs and characteristics. Implementing school-based management enhances school community participation, the effectiveness of educational management, and the quality of instructional services (Ela et al., 2023). School-based management models that emphasize participatory decision-making, transparency, and collaboration contribute to improved teacher performance and learning quality in primary schools (Pamuji & Lawal, 2026). These findings indicate that improving learning quality requires more than just a focus on teachers' pedagogical aspects; it also necessitates strengthening participatory school governance. School principals must optimize the implementation of school-based management through needs-based program planning, effective resource management, the reinforcement of a collaborative culture, and the use of data to inform decision-making (Ijayani et al., 2023; Sulistyorini et al., 2025). Such strategies foster a learning environment that is more adaptive, accountable, and oriented toward quality improvement.

Teacher participation is a key component of successfully implementing school-based management to enhance educational quality (Ela et al., 2023). Teacher involvement in school program planning, decision-making, curriculum development, and professional development activities enhances the quality of

classroom instruction (Wardhana et al., 2026). Teachers who can participate in school management tend to show higher levels of organizational commitment, work motivation, and a sense of ownership in the school, making them more driven to create innovative, learner centered instruction (Yulianti et al., 2026). Teacher participation also strengthens professional collaboration among educators, fostering the exchange of experiences, reflection on learning, and the continuous improvement of teaching practices (Richit et al., 2024). Therefore, schools need to establish mechanisms for genuine participation such as involving teachers in decision-making meetings, school program development, learning communities, reflection on learning, and program evaluation. Such participation becomes more meaningful when teachers are not involved merely as implementers of decisions, but also as actors who help shape the direction of instructional policy.

In contrast, Supervision did not significantly influence the quality of the instructional process. Partial test results yielded a significance value of $0.390 > 0.05$. This finding is significant because it indicates that, quantitatively, Supervision cannot yet be viewed as a direct predictor of instructional process quality within the context of this study. The results of this study are supported (Aming et al., 2025; Sembiring et al., 2025), indicating that the implementation of supervision does not automatically enhance the quality of instruction; its effectiveness is also influenced by other factors such as teacher competence, follow-up actions, motivation, and the application of supervision outcomes within the instructional process. However, this does not mean supervision is unimportant for improving instructional quality; rather, it suggests that the form, intensity, quality, and implementation mechanisms of the supervision teachers experience have not yet produced a statistically significant relationship with instructional quality.

Supervision impacts instruction when the process goes beyond administrative checks to include specific feedback, reflection on teaching practices, mentoring, and follow-up for improvement. Reflective, continuous academic supervision can enhance teachers' pedagogical competence and instructional quality (Raraswati & Utari, 2025). The supervision plays a vital role in developing instructional quality when it focuses on professional guidance rather than mere administrative evaluation (Khawadits & Prasojo, 2025; Sapwan et al., 2025). These findings imply that implementing supervision alone does not necessarily improve instructional quality. Therefore, supervision needs to be diagnostic, collaborative, reflective, and follow-up oriented. Ideally, supervision activities should yield specific recommendations on teaching practices, followed by mentoring and an evaluation of their implementation. Through such mechanisms, supervision can serve as both a tool for teacher professional development and a component of the system for improving instructional quality.

Overall, the results indicate that school-based management and teacher participation are more consistent factors in explaining instructional quality, whereas Supervision requires strengthening in quality and implementation sustainability. All three variables remain significant within the school ecosystem, as simultaneous test results demonstrate a significant contribution of 44.6%. This implies that improving instructional quality requires a systemic approach that integrates school

governance, teacher empowerment, and professional development. Quality improvement strategies should not treat these three components in isolation but rather link them within a cycle of continuous improvement.

In practical terms, these research findings carry several implications. For school principals, the results underscore the importance of strengthening the implementation of school-based management through needs-based planning, the use of school data, transparent resource management, and teacher involvement in decision-making. For teachers, increased participation should be realized through active engagement in school program planning and evaluation, professional collaboration, instructional reflection, and continuous competency development. For school supervision, the findings indicate a need to shift from inspection-oriented supervision toward an approach that is diagnostic, collaborative, and focused on solving instructional challenges. Supervisions must ensure that supervision yields concrete feedback and actionable follow-up steps for teachers. Thus, supervision ceases to be merely a monitoring mechanism and becomes an instrument for professional development directly linked to improving instructional quality.

This study has several limitations to consider when interpreting the results. First, the research was conducted in elementary schools in Kampa District; consequently, the specific characteristics of the region, schools, and respondents may limit the generalizability of the findings to other regions or educational levels. Second, the researchers collected data using self-report questionnaires, meaning respondents' answers relied heavily on their individual perceptions and subjective assessments. This introduces the possibility of perceptual bias or specific response tendencies. Third, the study used an *ex post facto* design; therefore, the researchers did not manipulate variables and could not definitively establish causal relationships as in experimental research. Accordingly, findings regarding influence should be understood in the context of empirical associations identified in the study's data.

4. Conclusion

This study demonstrates that school-based management and teacher participation have a positive and significant partial effect on the quality of the learning process. In contrast, supervision does not show a significant partial effect. However, when considered together, school-based management, teacher participation, and supervision significantly influence the quality of the learning process. These findings confirm that improving learning quality depends not only on effective school management but also on sound school-based management, active teacher involvement in educational operations, and the use of supervision for professional development. A high-quality learning process can be achieved by implementing school-based management to optimize resource use, foster a collaborative culture, and make decisions that better respond to school needs. Teacher participation in planning, decision-making, and school program development can enhance commitment, innovation, and the quality of instructional delivery. Professional and continuous supervision serves as a developmental tool that helps teachers improve

their pedagogical and professional competencies, making the learning process more effective, innovative, and focused on improving the quality of education.

Acknowledgement

The authors would like to express their sincere gratitude to all parties who provided support, assistance, and valuable contributions throughout this research. Special appreciation is extended to the elementary schools, principals, teachers, and the Education Office in Kampa District, Kampar Regency, Riau Province, for their willingness to participate in this study and for providing the data and information required for the research. The authors also gratefully acknowledge colleagues, academic reviewers, and all individuals and institutions whose moral and professional support contributed to the successful completion of this study.

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How to cite this article:

Yasril., & Cathrin, S. (2026). Influence of School-Based Management, Teacher Participation, and Supervision on the Quality of the Learning Process in Elementary Schools. *Journal of Educational Sciences*, 10(9), 735-749.
