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The influence of learning supervision and achievement motivation on effective learning through teachers' professional

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ABSTRACT

This study aimed to analyze the effects of learning supervision and achievement motivation on effective learning through teachers' professional competence at State Junior High Schools in Padang City. The study employed a quantitative approach using the SEM-PLS method, involving 385 teachers selected from a population of 1,916 teachers across 45 State Junior High Schools. The results showed that learning supervision ($\beta = 0.218$; $t = 6.752$; $p < 0.05$), achievement motivation ($\beta = 0.320$; $t = 7.943$; $p < 0.05$), and teachers' professional competence ($\beta = 0.320$; $t = 4.736$; $p < 0.05$) had positive and significant effects on effective learning. Learning supervision and achievement motivation also had positive effects on teachers' professional competence ($\beta = 0.401$), which significantly mediated their effects on effective learning with an indirect effect of 0.128 ($p < 0.05$). These findings indicate that improving learning supervision, achievement motivation, and teachers' professional competence can enhance effective learning.



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Introduction

Education plays a fundamental role in national development by preparing high-quality human resources with the knowledge, skills, character, and social competencies required to respond to contemporary challenges. Within this process, teachers are central actors because the quality of educational outcomes is closely related to their ability to plan, implement, and evaluate meaningful learning experiences (Gistituati, 2017; Santoso, 2021). At the junior high school level, effective learning is particularly important because this stage bridges students' academic and social development and prepares them for higher education and future life challenges (Ministry of National Education, 2008). Therefore, educational quality should not be viewed solely through academic achievement but also through students' critical thinking, creativity, problem-solving abilities, and character development (Darling-Hammond et al., 2017; Hattie, 2009).

Effective learning refers to a learning process that enables educational objectives to be achieved through meaningful student engagement, appropriate instructional strategies, and a supportive learning environment. However, achieving effective learning remains challenging because its quality is influenced by both internal teacher-related factors and external factors associated with school management and professional support (Ghorbani et al., 2023; Vu et al., 2020). Teachers' ability to manage these demands depends not only on their individual capabilities but also on the professional environment that supports continuous improvement. Consequently, instructional supervision, achievement motivation, and professional competence represent

important factors that should be examined simultaneously in explaining variations in learning effectiveness (Hidayat, 2018; Mulyasa, 2013).

Instructional supervision provides a systematic mechanism for improving teachers' instructional practices through professional guidance, monitoring, evaluation, and constructive feedback. Effective supervision should be collaborative, continuous, and oriented toward solving instructional problems rather than merely fulfilling administrative requirements (Glickman et al., 2018; Sergiovanni, 2009). Through appropriate supervision, teachers can identify weaknesses in their instructional practices, improve their mastery of teaching strategies, and continuously develop their professional capabilities. Nevertheless, supervision in schools may remain administratively oriented and therefore may not optimally contribute to professional development and learning effectiveness (Ghorbani et al., 2023). This condition suggests that the contribution of instructional supervision should be examined not only through its direct relationship with effective learning but also through its potential contribution to teachers' professional competence.

Achievement motivation is another important factor because it reflects teachers' internal drive to achieve high professional standards, overcome challenges, and continuously improve their performance (McClelland, 1987; Bandura, 1997). Teachers with strong achievement motivation tend to demonstrate greater persistence, commitment, creativity, and willingness to develop innovative instructional practices, whereas insufficient motivation may limit efforts to improve teaching quality (Vu et al., 2020). Such motivation may also encourage teachers to strengthen their knowledge and professional skills, suggesting that professional competence can develop as an important mechanism connecting achievement motivation with effective learning. In this respect, teachers' professional competence—including mastery of subject matter, pedagogical expertise, and the effective use of learning resources and instructional media—is essential for translating supervision and personal motivation into high-quality instructional practices (Ministry of Education and Culture Regulation, 2017; Slavin, 2015; Darling-Hammond et al., 2017).

Previous studies have demonstrated relationships among instructional supervision, achievement motivation, teacher professionalism, and educational outcomes; however, these factors have frequently been examined separately rather than within an integrated explanatory model (Hidayat, 2018; Ghorbani et al., 2023). Consequently, limited empirical evidence explains how instructional supervision and achievement motivation simultaneously contribute to effective learning through the development of teachers' professional competence. This limitation is important because professional competence may represent the mechanism through which external professional support and internal motivational resources are translated into more effective instructional practices. In public junior high schools in Padang City, variations in instructional supervision, achievement motivation, professional competence, and learning effectiveness further provide an important context for examining these relationships systematically.

Accordingly, this study aims to analyze the direct effects of instructional supervision and achievement motivation on teachers' professional competence and effective learning, as well as the effect of teachers' professional competence on effective learning in public junior high schools in Padang City. More importantly, the study examines the indirect effects of instructional supervision and achievement motivation on effective learning through teachers' professional competence as a mediating variable. By integrating these relationships into a single analytical model, this study is expected to strengthen the empirical understanding of the mechanisms underlying effective learning and contribute to educational administration. The findings may also provide practical implications for policymakers and school leaders in designing integrated strategies that combine effective instructional supervision, strengthened achievement motivation, and continuous professional competence development to improve learning quality.

Method

This study employed a quantitative approach with a descriptive correlational design to examine the direct and indirect relationships among instructional supervision, achievement motivation, teachers' professional competence, and effective learning. The study population consisted of 1,916 civil servant (ASN) teachers from 45 State Junior High Schools in Padang City. A total of 385 teachers were selected using proportionate stratified random sampling to ensure proportional representation of teachers from each school. The sample size was determined based on the characteristics and size of the study population. Data were collected using a five-point Likert-scale questionnaire ranging from 1 (never) to 5 (always). Prior to data collection, the instrument underwent content validity assessment through expert judgment and reliability testing to ensure the appropriateness and consistency of the measurements.

The research instrument measured four constructs: instructional supervision, achievement motivation, teachers' professional competence, and effective learning. Instructional supervision was operationalized through

indicators related to professional mentoring and clinical feedback, while achievement motivation was measured through goal orientation and excellence-driven behavior. Teachers' professional competence was assessed based on teachers' mastery of subject matter and their ability to organize and apply professional knowledge in instructional practices. Effective learning was measured through indicators reflecting the optimization of instructional processes, achievement of learning objectives, student participation, classroom interaction, learning motivation, a conducive learning environment, appropriate teaching methods, and learning evaluation. Each construct was operationalized into measurable indicators and questionnaire items to ensure alignment between the conceptual framework and empirical measurement.

Data analysis consisted of descriptive and inferential analyses. Descriptive statistics were used to summarize the characteristics of each variable through the mean, median, mode, minimum and maximum values, range, standard deviation, variance, frequency distribution, and Respondents' Achievement Level (TCR). Inferential analysis was performed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) to simultaneously examine the relationships among the constructs. The measurement model was evaluated to establish construct validity and reliability, including convergent validity, discriminant validity, and internal consistency reliability. The structural model was subsequently evaluated using path coefficients, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and collinearity assessment based on the Variance Inflation Factor (VIF).

Hypothesis testing was conducted to examine both direct and indirect effects within the structural model. The direct effects included the relationships of instructional supervision and achievement motivation with teachers' professional competence and effective learning, as well as the relationship between teachers' professional competence and effective learning. The indirect effects were examined to determine whether teachers' professional competence mediated the relationships between instructional supervision and effective learning and between achievement motivation and effective learning. The significance of the structural relationships and mediation effects was assessed through the bootstrapping procedure using path coefficients, t-statistics, and p-values. This analytical procedure enabled the study to determine not only whether the proposed relationships were statistically significant but also the explanatory and predictive capacity of the proposed model.

Results and Discussions

The descriptive analysis and frequency distribution of the variables Instructional Supervision (X_1), Achievement Motivation (X_2), Effective Learning (Y), and Teachers' Professional Competence (Z) provide crucial insights into teachers' perceptions in public junior high schools in Padang City, indicating both strengths and opportunities for improvement within the educational ecosystem.

Description of Research Data

The study data consisted of Effective Learning (Y), Learning Supervision (X_1), Achievement Motivation (X_2), and Teachers' Professional Competence (Z), involving 385 respondents. Descriptive statistical analysis was conducted to describe the characteristics of the data. The results are presented in Table 1.

Table 1. Results of Descriptive Statistical Analysis for Variables X_1 , X_2 , Y, and Z

Descriptive Statistics		Learning Supervision (X_1)	Achievement Motivation (X_2)	Effective Learning (Y)	Teachers' Professional Competence (Z)
N	Valid	385	385	385	385
	Missing	0	0	0	0
	Mean	147.88	155.63	165.41	159.62
	Median	147.00	154.00	164.00	158.00
	Std. Deviation	10.891	10.442	11.538	11.526
	Minimum	124	127	131	135
	Maximum	180	190	200	195

Learning Supervision (X_1)

Based on Table 1, the Learning Supervision variable had a mean of 147.88, a median of 147.00, a standard deviation of 10.891, a minimum value of 124, and a maximum value of 180. These results indicate that respondents' assessments of learning supervision were relatively consistent.

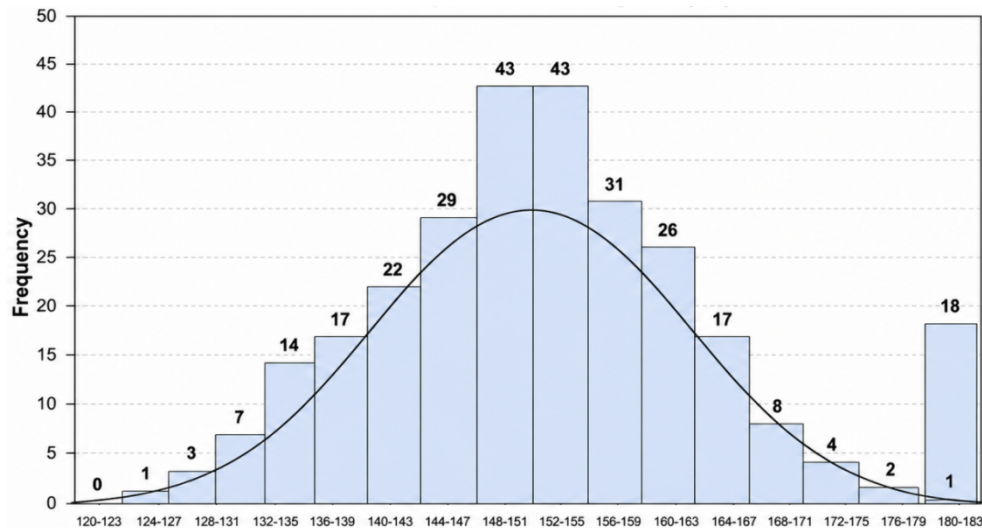


Figure 1. Diagram of the Learning Supervision Variable (X_1)

Based on the data analysis, the Learning Supervision variable had a mean score of 147.88. The maximum possible score was 180, and the Respondents' Achievement Level (TCR) was calculated accordingly.

Table 2. Respondents' Achievement Level (TCR) of Learning Supervision (X_1)

Indicator	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)	Total Responses	Weighted Score	Mean	TCR (%)	Category
a. Supervision Planning (8 items)										
1 (Items 1-2)	19	45	111	268	327	770	3.149	4.09	81.79	Good
2 (Items 3-4)	34	53	118	252	313	770	3.067	3.98	79.66	Fairly Good
3 (Items 5-8)	49	102	197	488	704	1.540	6.316	4.10	82.03	Good
Average	102	200	426	1.008	1.344	3.080	12.532	4.07	81.38	Good
b. Supervision Implementation (8 items)										
1 (Items 9-11)	44	87	153	387	484	1.155	4.645	4.02	80.43	Good
2 (Items 12-15)	38	90	169	516	727	1.540	6.424	4.17	83.43	Good
3 (Items 16-17)	38	69	88	248	327	770	3.067	3.98	79.66	Fairly Good
Average	120	246	410	1.151	1.538	3.465	14.136	4.08	81.59	Good
c. Follow-up (8 items)										
1 (Items 18-21)	57	103	211	495	674	1.540	6.246	4.06	81.12	Good
2 (Items 22-24)	50	63	150	426	466	1.155	4.567	3.95	79.08	Fairly Good
3 (Items 25-27)	25	65	134	414	517	1.155	4.998	4.33	86.55	Good
Average	132	231	495	1.335	1.657	3.850	15.811	4.11	82.14	Good
d. Supervision Evaluation (9 items)										
1 (Items 28-30)	33	66	144	406	506	1.155	4.751	4.11	82.27	Good
2 (Items 31-32)	13	38	87	281	351	770	3.229	4.19	83.87	Good
3 (Items 33-36)	34	75	187	548	696	1.540	6.437	4.18	83.60	Good
Average	80	179	418	1.235	1.553	3.465	14.417	4.16	83.21	Good

Based on Table 2, the Respondents' Achievement Level (TCR) for the Achievement Motivation (X_2) variable indicates that all indicators were in the good category. The highest TCR was found in Self-Improvement and Development Orientation (82.87%), while the lowest was in High Personal Performance Standards (81.15%).

Overall, the results indicate that achievement motivation in State Junior High Schools in Padang City is at a good level.

Achievement Motivation (X_2)

Based on Table 2, the Achievement Motivation variable had a mean of 155.63, a median of 154.00, a standard deviation of 10.442, a minimum value of 127, and a maximum value of 190. These results indicate that respondents' achievement motivation was relatively consistent.

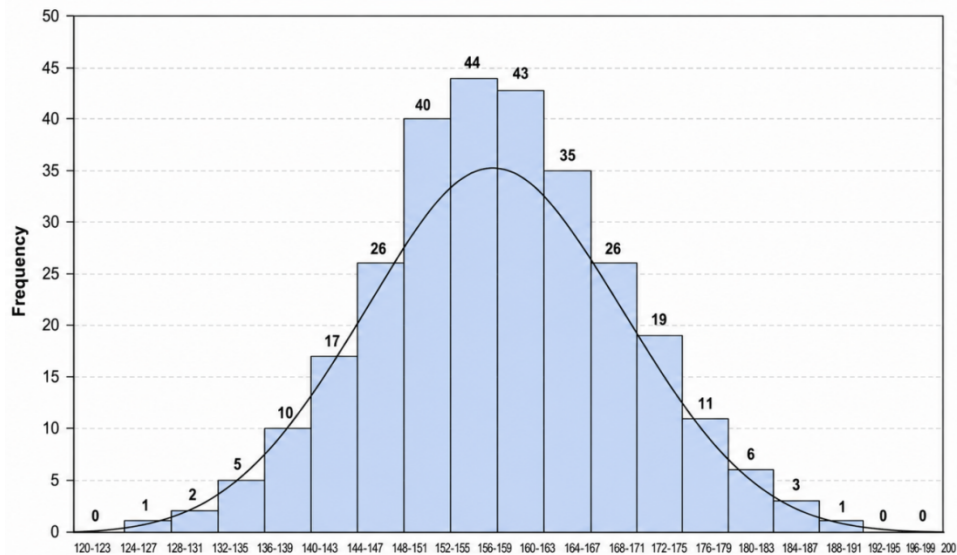


Figure 2. Diagram of the Achievement Motivation Variable (X_2)

Based on the data analysis, the Achievement Motivation (X_2) variable had a mean score of 155.61, obtained from 38 questionnaire items with a maximum score of 5 for each item. The Respondents' Achievement Level (TCR) was 81.90%, indicating a good category. The TCR results for each Achievement Motivation indicator are presented in Table 4.2

Table 3. Respondents' Achievement Level (TCR) for the Achievement Motivation Variable (X_2)

Indicator	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)	Total Responses	Weighted Score	Mean	RAL (%)	Category
a. Persistence in Completing Tasks (8 items)										
1 (Items 1–2)	19	37	87	256	371	770	3,233	4.20	83.97	Good
2 (Items 3–5)	31	74	136	388	526	1,155	4,769	4.13	82.58	Good
3 (Items 6–8)	54	74	147	402	478	1,155	4,641	4.02	80.36	Good
Average	104	185	370	1,046	1,375	3,08	12,643	4.10	82.10	Good
b. High Personal Performance Standards (12 items)										
1 (Items 9–12)	40	81	186	585	648	1,54	6,34	4.12	82.34	Good
2 (Items 13–16)	47	87	200	487	719	1,54	6,364	4.13	82.65	Good
3 (Items 17–20)	109	104	213	484	630	1,54	6,042	3.92	78.47	Fair
Average	196	272	599	1,556	1,997	4,62	18,746	4.06	81.15	Good
c. Resilience in Facing Failure (12 items)										
1 (Items 21–24)	39	84	189	536	692	1,54	6,378	4.14	82.83	Good
2 (Items 25–29)	70	104	271	653	827	1,925	7,838	4.07	81.43	Good
3 (Items 30–32)	31	76	146	379	523	1,155	4,752	4.11	82.29	Good
Average	140	264	606	1,568	2,042	4,62	18,968	4.11	82.11	Good
d. Orientation Toward Self-Improvement and Development (6 items)										
1 (Items 33–34)	20	53	95	271	331	770	3,15	4.09	81.82	Good
2 (Items 35–36)	20	36	83	271	360	770	3,225	4.19	83.77	Good
3 (Items 37–38)	20	37	87	289	337	770	3,196	4.15	83.01	Good
Average	60	126	265	831	1,028	2,31	9,571	4.14	82.87	Good

Based on Table 3, the Respondents' Achievement Level (TCR) for the Achievement Motivation (X_2) variable indicates that all indicators were in the **good** category. The highest TCR was found in Self-Improvement and Development Orientation (82.87%), while the lowest was in High Personal Performance Standards (81.15%). Overall, these findings indicate that teachers' achievement motivation in State Junior High Schools in Padang City is at a good level.

Description of the Effective Learning Variable (Y)

Based on Table 3, the Effective Learning variable (Y) had a mean of 165.41, a median of 164.00, a standard deviation of 11.538, a minimum value of 131, and a maximum value of 200, based on 385 respondents. These results indicate that respondents' perceptions of effective learning were relatively consistent.

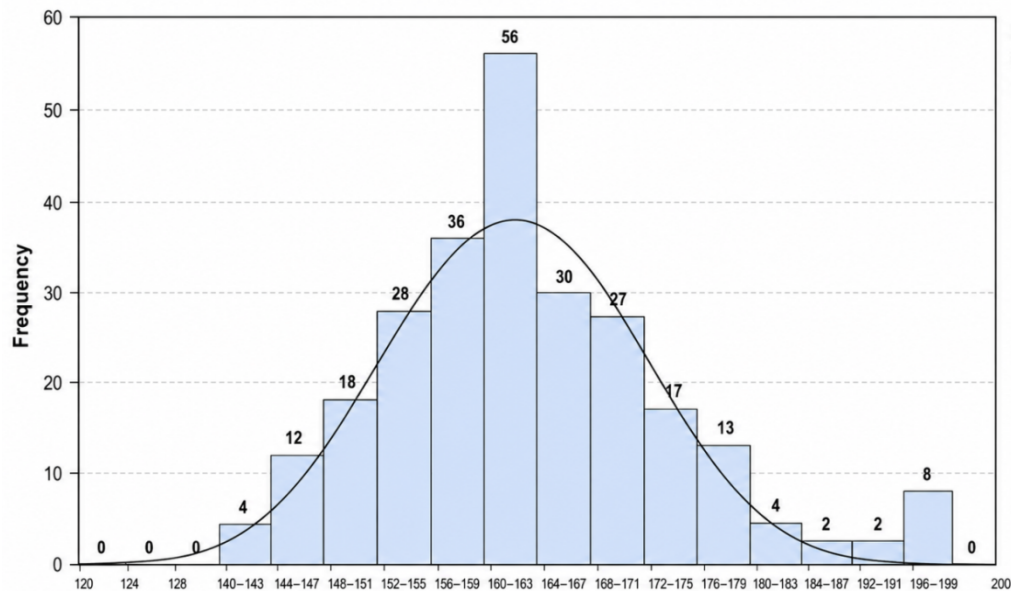


Figure 3. Diagram of the Effective Learning Variable (Y)

Based on the calculation results, the Respondents' Achievement Level (TCR) for the Effective Learning (Y) variable was 82.71%, indicating a good category. The TCR results for each indicator of the Effective Learning variable are presented in Table 4.3.

Table 4. Respondents' Achievement Level (TCR) for the Effective Learning Variable (Y)

Indicator	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)	Total Responses	Weighted Score	Mean	TCR(%)	Category
a. Achievement of Learning Objectives (6 items)										
1 (Items 1–2)	22	37	103	249	359	770	3,196	4.15	83.01	Good
2 (Items 3–5)	61	69	151	366	508	1,155	4,656	4.03	80.62	Good
3 (Item 6)	34	31	39	118	163	385	1,5	3.90	77.92	Fair
Average	117	137	293	733	1,03	2,31	9,352	4.05	81.01	Good
b. Students' Active Participation in Learning (6 items)										
1 (Items 7–9)	30	69	152	387	517	1,155	4,757	4.12	82.37	Good
2 (Items 10–11)	49	48	86	236	351	770	3,102	4.03	80.57	Good
3 (Item 12)	16	21	55	114	179	385	1,574	4.09	81.77	Good
Average	95	138	293	737	1,047	2,31	9,433	4.08	81.71	Good
c. Positive Learning Interaction (6 items)										
1 (Items 13–14)	15	42	100	243	370	770	3,221	4.18	83.66	Good
2 (Items 15–17)	50	68	136	388	513	1,155	4,711	4.08	81.58	Good
3 (Item 18)	41	22	38	124	160	385	1,495	3.88	77.66	Fair
Average	106	132	274	755	1,043	2,31	9,427	4.08	81.62	Good

Indicator	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)	Total Responses	Weighted Score	Mean	TCR(%)	Category
d. High Learning Motivation (7 items)										
1 (Items 19–21)	16	58	157	384	540	1,155	4,839	4.19	83.79	Good
2 (Items 22–23)	21	42	100	255	352	770	3,185	4.14	82.73	Good
3 (Items 24–25)	15	43	95	269	348	770	3,202	4.16	83.17	Good
Average	52	143	352	908	1,24	2,695	11,226	4.17	83.31	Good
e. Conducive and Enjoyable Learning Environment (5 items)										
1 (Item 26)	10	21	45	125	184	385	1,607	4.17	83.48	Good
2 (Items 27–28)	26	56	96	232	360	770	3,154	4.10	81.92	Good
3 (Items 29–30)	20	58	80	232	380	770	3,204	4.16	83.22	Good
Average	56	135	221	589	924	1,925	7,965	4.14	82.75	Good
f. Appropriate Use of Teaching Methods and Media (5 items)										
1 (Item 31)	2	24	39	130	190	385	1,637	4.25	85.04	Good
2 (Items 32–33)	19	48	93	262	348	770	3,182	4.13	82.65	Good
3 (Items 34–35)	19	43	90	250	368	770	3,215	4.18	83.51	Good
Average	40	115	222	642	906	1,925	8,034	4.17	83.47	Good
g. Evaluation and Follow-up Activities (5 items)										
1 (Item 36)	10	22	46	126	181	385	1,601	4.16	83.17	Good
2 (Items 37–38)	22	37	104	251	356	770	3,192	4.15	82.91	Good
3 (Items 39–40)	7	22	54	195	492	770	3,453	4.48	89.69	Good
Average	39	81	204	572	1,029	1,925	8,246	4.28	85.67	Good

Based on Table 4, the Respondents' Achievement Level (TCR) for the Effective Learning (Y) variable indicates that all indicators were in the good category. The highest TCR was found in Learning Evaluation (85.67%), while the lowest was in Achievement of Learning Objectives (81.01%). Overall, these findings indicate that effective learning in State Junior High Schools in Padang City has been implemented well, as reflected in the achievement of learning objectives, student participation, classroom interaction, learning motivation, a conducive learning environment, appropriate teaching methods, and effective learning evaluation.

Description of the Teachers' Professional Competence Variable (Z)

Based on Table 4.1, the Teachers' Professional Competence variable (Z) had a mean of 159.62, a median of 158.00, a standard deviation of 11.526, a minimum value of 135, and a maximum value of 195. These results indicate that respondents' perceptions of teachers' professional competence were relatively consistent.

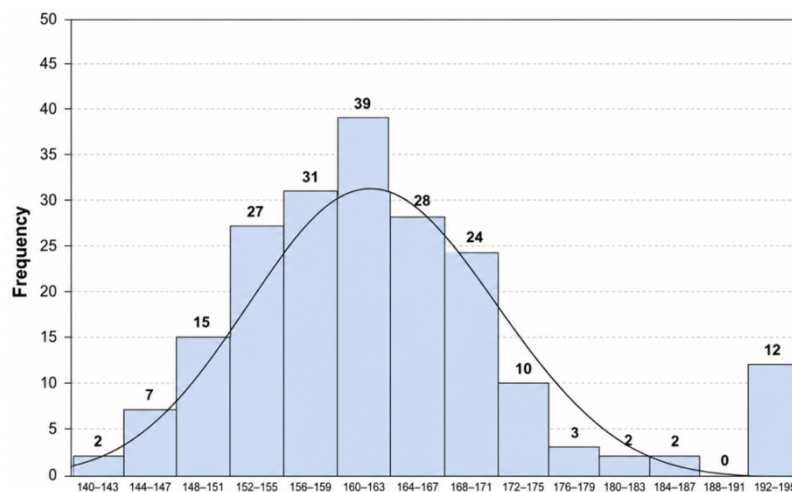


Figure 4. Diagram of the Teachers' Professional Competence Variable (Z)

The Respondents' Achievement Level (TCR) for the Teachers' Professional Competence (Z) variable was 81.86%, indicating a good category. This result shows that teachers' professional competence in State Junior High Schools in Padang City is generally perceived to be at a good level. The TCR results for each indicator are presented in Table 4.4.

Table 5. Respondents' Achievement Level (TCR) for the Teachers' Professional Competence Variable (Z)

Indicator	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)	Total Responses	Weighted Score	Mean	RAL (%)	Category
a. Understanding Various Approaches and Types of Learning (10 items)										
1 (Items 1–3)	34	78	188	368	481	1,155	4,639	4.02	80.33	Good
2 (Items 4–7)	52	81	189	520	681	1,54	6,326	4.11	82.16	Good
3 (Items 8–10)	54	108	161	370	485	1,155	4,77	4.13	82.60	Good
Average	140	267	538	1,258	1,647	3,85	15,735	4.09	81.74	Good
b. Organizing Learning Materials in a Systematic and Logical Sequence (10 items)										
1 (Items 11–13)	31	60	129	374	550	1,155	4,814	4.17	83.36	Good
2 (Items 14–16)	55	88	144	390	478	1,155	4,613	3.99	79.88	Fair
3 (Items 17–20)	41	116	182	501	711	1,54	6,58	4.27	85.45	Good
Average	127	264	455	1,265	1,739	3,85	16,007	4.16	83.15	Good
c. Utilizing Various Relevant Learning Resources (10 items)										
1 (Items 21–24)	62	81	204	557	636	1,54	6,244	4.05	81.09	Good
2 (Items 25–27)	25	65	134	414	517	1,155	4,998	4.33	86.55	Good
3 (Items 28–30)	33	66	144	406	506	1,155	4,751	4.11	82.27	Good
Average	120	212	482	1,377	1,659	3,85	15,993	4.15	83.08	Good
d. Understanding the Philosophical, Psychological, and Sociological Foundations of Education (5 items)										
1 (Items 31–32)	13	38	87	281	351	770	3,229	4.19	83.87	Good
2 (Items 33–34)	17	40	93	274	346	770	3,202	4.16	83.17	Good
3 (Item 35)	10	18	49	134	174	385	1,599	4.15	83.06	Good
Average	40	96	229	689	871	1,925	8,03	4.17	83.43	Good
e. Designing Structured and Measurable Learning Programs (4 items)										
1 (Items 36–37)	15	36	89	277	353	770	3,227	4.19	83.82	Good
2 (Item 38)	9	18	46	136	176	385	1,607	4.17	83.48	Good
3 (Item 39)	11	20	43	135	176	385	1,6	4.16	83.12	Good
Average	35	74	178	548	705	1,54	6,434	4.18	83.56	Good

Based on Table 5, the Respondents' Achievement Level (TCR) for the Teachers' Professional Competence (Z) variable indicates that all indicators were in the good category. The highest TCR was 83.56%, while the lowest was 81.74%. Overall, teachers' professional competence in State Junior High Schools in Padang City is at a good level.

Analysis Prerequisite Tests

Normality Test

The normality test aims to determine whether the research data is distributed approximately normally. In this study, the normality test is used to assess whether the collected data meet the assumption of normal distribution.

Table 6. Normality Test of Variables X1, X2, Y, and Z

Variable	Excess Kurtosis	Skewness	Number of Observations Used
X1	1.823	1.179	385
X2	1.700	1.015	385
Y	1.593	0.991	385
Z	2.049	1.316	385

Based on Table 6, which uses excess kurtosis and skewness values, it is known that all research variables (X1, X2, Y, and Z) were tested for normality. The skewness values obtained for Instructional Supervision (X1) is 1.179, Achievement Motivation (X2) is 1.015, Effective Learning (Y) is 0.991, and Teacher Professional Competence (Z) is 1.316. Meanwhile, the excess kurtosis values for each variable are 1.823 for X1, 1.700 for X2, 1.593 for Y, and 2.049 for Z.

Multicollinearity Test

The multicollinearity test aims to determine whether there is a high correlation among the independent variables in the research model. Multicollinearity can lead to instability in parameter estimation and reduce the model's ability to explain the relationships among variables.

The multicollinearity test is conducted by examining the Variance Inflation Factor (VIF) and Tolerance values. The criteria used in this study are as follows:

VIF value ≤ 5 indicates that there is no multicollinearity.

Tolerance value ≥ 0.10 indicates that there is no multicollinearity.

Table 7. Multicollinearity Test of Variables X1, X2, Y, and Z

Variable	Y	Z
X1	1.654	1.343
X2	1.654	1.343
Z	1.936	—

Based on the multicollinearity test results presented in Table 4.3, the Variance Inflation Factor (VIF) value for Instructional Supervision (X1) toward Effective Learning (Y) is 1.654, and toward Teacher Professional Competence (Z) is 1.343. Similarly, Achievement Motivation (X2) shows a VIF value of 1.654 toward Effective Learning (Y) and 1.343 toward Teacher Professional Competence (Z). Meanwhile, Teacher Professional Competence (Z) has a VIF value of 1.936 toward Effective Learning (Y). Overall, all VIF values are below 5, indicating that there is no multicollinearity problem among the variables in the research model.

Hypothesis Testing

This study employed a model with an intervening variable. Therefore, hypothesis testing was conducted using Structural Equation Modeling (SEM) based on Partial Least Squares (PLS). The analysis was carried out through the following steps:

Path Coefficient Interpretation

The path coefficient results indicate that all relationships in the model are positive.

Tabel 8. Koefisien Jalur (Path Coefficient) variabel X1, X2, Y dan Z

Variable	Effective Learning (Y)	Teachers' Professional Competence (Z)
Learning Supervision (X ₁)	0.218	0.401
Achievement Motivation (X ₂)	0.320	0.401
Effective Learning (Y)		
Teachers' Professional Competence (Z)	0.320	

X1 has a relatively weak effect on Y, while X2 shows a stronger influence. The strongest relationship is observed between the exogenous variables (X1 and X2) and the mediating variable Z ($\beta = 0.401$). This confirms that teacher competence plays an important role as a mediating construct that strengthens the effect of both predictors on learning outcomes.

R-Square Interpretation**Tabel 9.** Uji R-Square (R^2) / koefisien determinasi

Variable	R-Square	Adjusted R-Square
Effective Learning (Y)	0.529	0.526
Teachers' Professional Competence (Z)	0.483	0.481

The R^2 value of 0.529 for Y indicates that the model explains a moderate proportion of variance in Effective Learning. Meanwhile, the R^2 value of 0.483 for Z shows that nearly half of teacher competence is explained by X1 and X2. Although not very high, these values are acceptable in social science research and indicate a meaningful explanatory model.

Effect Size (F-Square) Interpretation

The F^2 values show that most relationships have small to moderate effects.

Tabel 10. Uji F Square (F^2) / pengaruh total

Variable	X ₁	X ₂	Effective Learning (Y)	Teachers' Professional Competence (Z)
Learning Supervision (X ₁)			0.061	0.231
Achievement Motivation (X ₂)			0.131	0.231
Effective Learning (Y)				
Teachers' Professional Competence (Z)			0.112	

The strongest contribution is observed from X1 and X2 toward Z (0.231), indicating that both supervision and motivation play an important role in improving teacher competence. In contrast, their direct effects on Y are smaller, suggesting that mediation through Z is important in the model.

Predictive Relevance (Q-Square)

The Q^2 values for both Z (0.475) and Y (0.468) are above zero, confirming that the model has good predictive relevance. This means the model is not only explanatory but also capable of predicting future observations effectively.

Total Effect Interpretation

The total effect analysis reveals that Achievement Motivation (X2) has the strongest overall influence on Effective Learning (Y), followed by Instructional Supervision (X1). This suggests that motivation is the most dominant factor in improving learning effectiveness when both direct and indirect effects are considered.

Indirect Effect (Mediation)

The mediation test confirms that Teacher Professional Competence (Z) significantly mediates the relationship between X1, X2, and Y. Since all indirect effects are significant, Z functions as a full or partial mediator that strengthens the structural relationships in the model.

The findings show that instructional supervision contributes positively to teachers' professional competence ($\beta = 0.401$) and effective learning ($\beta = 0.218$). The stronger coefficient toward professional competence indicates that supervision primarily supports learning effectiveness by strengthening teachers' professional capacity through guidance, evaluation, feedback, and follow-up. This is consistent with the view that instructional supervision should function as a developmental process rather than merely as administrative control (Chandra et al., 2020; Jacobsen et al., 2024; Rankine et al., 2025; Szilágyi, 2025). The descriptive results also showed that supervision evaluation achieved the highest TCR (83.21%), while supervision planning had the lowest TCR (81.38%), indicating that the planning aspect still requires greater attention.

Achievement motivation also positively contributes to teachers' professional competence ($\beta = 0.401$) and effective learning ($\beta = 0.320$). Its direct contribution to effective learning is stronger than that of instructional supervision ($\beta = 0.218$), indicating the importance of teachers' internal motivation in supporting effective instructional practices. Teachers with strong achievement motivation tend to demonstrate persistence, commitment, and willingness to improve their professional performance and instructional quality (Azzouzi et al., 2024; Bretan et al., 2019; Spezialetti et al., 2019; Tajbakhsh et al., 2019).

Teachers' professional competence has a positive effect on effective learning ($\beta = 0.320$; $F^2 = 0.112$), confirming its important role in supporting instructional effectiveness. Descriptively, professional competence was categorized as good, with TCR values ranging from 81.74% to 83.56%. These findings suggest that mastery of professional knowledge and the ability to apply it appropriately enable teachers to organize more effective

learning, although continuous professional development remains necessary to respond to changing instructional demands (Chakravorty et al., 2024; Rudland et al., 2010; Shklarski & Abrams, 2021; Zhang et al., 2023).

The structural model explained 52.9% of the variance in effective learning ($R^2 = 0.529$) and 48.3% of the variance in teachers' professional competence ($R^2 = 0.483$). The effect sizes also varied, with instructional supervision and achievement motivation each showing $f^2 = 0.231$ toward professional competence, while their effects on effective learning were $f^2 = 0.061$ and 0.131 , respectively. In addition, Q^2 values of 0.475 for professional competence and 0.468 for effective learning indicate that the model has predictive relevance for both endogenous constructs (Hains-Wesson et al., 2026).

Overall, teachers' professional competence provides an important mechanism through which instructional supervision and achievement motivation contribute to effective learning. This finding strengthens previous research by integrating external support through supervision, internal encouragement through achievement motivation, and professional competence within a single model of learning effectiveness. Therefore, improving effective learning requires an integrated strategy that strengthens instructional supervision, maintains teachers' achievement motivation, and continuously develops their professional competence (Shila et al., 2024; Shin et al., 2022).

Conclusions

This study concludes that instructional supervision and achievement motivation contribute positively to effective learning in State Junior High Schools in Padang City, both directly and indirectly through teachers' professional competence. Instructional supervision and achievement motivation positively influence teachers' professional competence, while professional competence also contributes positively to effective learning. The findings further demonstrate that teachers' professional competence serves as an important mediating mechanism through which supervision and achievement motivation support learning effectiveness. Therefore, strengthening effective learning requires an integrated approach that combines systematic instructional supervision, sustained teacher achievement motivation, and continuous development of professional competence.

References

- Ahmad, A., & Hadi, B. (2023). Peningkatan kualitas pembelajaran melalui metode kooperatif. Jakarta: Penerbit Pendidikan Indonesia.
- Alshammari, A., Pasay-An, E., & Hao, Y. (2022). The role of individualized consideration in enhancing employee engagement in higher education institutions. *Journal of Workplace Learning*, 34(3), 245–260.
- Arikunto, S. (2006). *Prosedur penelitian: Suatu pendekatan praktik*. Jakarta: Rineka Cipta.
- Azzouzi, M. El, Coatrieux, G., Bellafqira, R., Delamarre, D., Riou, C., Oubenali, N., Cabon, S., Cuggia, M., & Bouzillé, G. (2024). Automatic de-identification of French electronic health records: a cost-effective approach exploiting distant supervision and deep learning models. *BMC Medical Informatics and Decision Making*, 24(1). <https://doi.org/10.1186/s12911-024-02422-5>
- Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. W.H. Freeman and Company.
- Bretan, M., Sanan, S., & Heck, L. (2019). Learning an effective control policy for a robotic drumstick via self-supervision: Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems, AAMAS, 4, 2339–2341. <https://www.scopus.com/pages/publications/85077079076?origin=resultslist>
- Chakravorty, A., Reddy, J. S. A., & Chakraborty, S. (2024). Integration of semi-supervision and active learning for effective semantic segmentation of remote sensing images with sparse training set. 2024 IEEE India Geoscience and Remote Sensing Symposium, InGARSS 2024. <https://doi.org/10.1109/InGARSS61818.2024.10984093>
- Chandra, A. L., Desai, S. V., Balasubramanian, V. N., Ninomiya, S., & Guo, W. (2020). Active learning with point supervision for cost-effective panicle detection in cereal crops. *Plant Methods*, 16(1). <https://doi.org/10.1186/s13007-020-00575-8>
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute.
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective Teacher Professional Development*. Learning Policy Institute.
- Daryanto. (2015). *Administrasi pendidikan*. Yogyakarta: Gava Media.
- Ghorbani, S., Jafari, P., & Sharififar, F. (2023). Managing Effective Learning Environments: A Systemic Approach to Teacher Supervision. *Journal of Educational Administration*, 61(2), 145-160.
- Glickman, C. D., Gordon, S. P., & Ross-Gordon, J. M. (2018). *Supervision and Instructional Leadership: A*

- Developmental Approach (10th ed.). Pearson.
- Hains-Wesson, R., Fannon, A.-M., Hauglid, B. B., Graham, J., & Ademuyiwa, I. (2026). Student and Supervisor Perceptions of Effective Placement Supervision in Work-Integrated Learning Programs: A Systematic Literature Review. *Teaching and Learning Inquiry*, 14. <https://doi.org/10.20343/teachlearninqu.14.15>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed.). Sage Publications.
- Hattie, J. (2009). *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*. Routledge.
- Hidayat, R. (2018). The Effect of Teacher Professionalism and Motivation on the Quality of Learning. *International Journal of Education & Curriculum*, 4(1), 12-25.
- Hoy, A. W., & Hoy, W. K. (2019). *Instructional Leadership: A Research-Based Guide to Learning in Schools* (5th ed.). Pearson.
- Jacobsen, M., Friesen, S., & Becker, S. (2024). Learning Doctoral Supervision In Education: A Case Study Of On-The-Job Development Of Effective Mentoring Practices. *International Journal of Doctoral Studies*, 19. <https://doi.org/10.28945/5375>
- Kementerian Pendidikan dan Kebudayaan. (2017). Peraturan Menteri Pendidikan dan Kebudayaan Republik Indonesia Nomor 15 Tahun 2017 tentang Beban Kerja Guru, Kepala Sekolah, dan Pengawas Sekolah.
- Lunenburg, F. C., & Ornstein, A. C. (2021). *Educational Administration: Concepts and Practices* (7th ed.). Wadsworth Cengage Learning.
- McClelland, D. C. (1987). *Human Motivation*. Cambridge University Press.
- Mulyasa, E. (2013). *Standar Kompetensi dan Sertifikasi Guru*. Remaja Rosdakarya.
- Nolan, J., & Hoover, L. A. (2011). *Teacher Supervision and Evaluation*. John Wiley & Sons.
- Pang, N. S. K., & Wang, T. (2020). Professional Learning Communities and Teacher Professional Development. *International Journal of Educational Management*, 34(3), 567-580.
- Rankine, M., Weld, N., & Browne, L. (2025). Learning and relationships matter: an exploration of effective professional supervision in an allied health service. *Journal of Health Organization and Management*, 39(8), 1772–1790. <https://doi.org/10.1108/JHOM-12-2024-0516>
- Ringle, C. M., Wende, S., & Becker, J. M. (2015). *SmartPLS 3*. SmartPLS GmbH.
- Robbins, S. P., & Judge, T. A. (2019). *Organizational Behavior* (18th ed.). Pearson.
- Rudland, J., Bagg, W., Child, S., De Beer, W., Hazell, W., Poole, P., Sheehan, D., & Wilkinson, T. J. (2010). Maximising learning through effective supervision. *New Zealand Medical Journal*, 123(1309), 117–126. <https://www.scopus.com/pages/publications/77149142955?origin=resultslist>
- Sergiovanni, T. J. (2009). *The Principalship: A Reflective Practice Perspective*. Allyn & Bacon.
- Shila, M. R., Mphuthi, G. T., & Ngoveni, M. A. (2024). Enhancing Mathematics Teaching in Open Distance and e-Learning: Effective External Supervision Strategies. *International Journal of Learning, Teaching and Educational Research*, 23(12), 216–236. <https://doi.org/10.26803/ijlter.23.12.12>
- Shin, U., Lee, K., Lee, B.-U., & Kweon, I. S. (2022). Maximizing Self-Supervision From Thermal Image for Effective Self-Supervised Learning of Depth and Ego-Motion. *IEEE Robotics and Automation Letters*, 7(3), 7771–7778. <https://doi.org/10.1109/LRA.2022.3185382>
- Shklarski, L., & Abrams, A. (2021). Effective supervision during the Covid-19 pandemic: The transition to remote learning. In *A Contemporary Approach to Clinical Supervision: The Supervisee Perspective*. <https://www.scopus.com/pages/publications/85116228490?origin=resultslist>
- Slavin, R. E. (2015). *Educational Psychology: Theory and Practice* (11th ed.). Pearson.
- Spezialetti, R., Salti, S., & Stefano, L. D. I. (2019). Learning an effective equivariant 3D descriptor without supervision. *Proceedings of the IEEE International Conference on Computer Vision*, 6400–6409. <https://doi.org/10.1109/ICCV.2019.00650>
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Szilágyi, S. (2025). Effective Supervision of Students' Activity During Classroom Learning and Testing. *Acta Cybernetica*, 27, 43–51. <https://doi.org/10.14232/actacyb.307809>
- Tajbakhsh, N., Hu, Y., Cao, J., Yan, X., Xiao, Y., Lu, Y., Liang, J., Terzopoulos, D., & Ding, X. (2019). Surrogate supervision for medical image analysis: Effective deep learning from limited quantities of labeled data. *Proceedings - International Symposium on Biomedical Imaging*, 2019-April, 1251–1255. <https://doi.org/10.1109/ISBI.2019.8759553>
- Vu, T. K., et al. (2020). Factors Influencing Teacher Effectiveness in Developing Countries: A Meta-Analysis. *Educational Research Review*, 29, 100-115.
- Zhang, J., Li, Z., Das, K., & Kumar, S. (2023). Interactive Multi-fidelity Learning for Cost-effective Adaptation of Language Model with Sparse Human Supervision. *Advances in Neural Information Processing Systems*, 36. <https://www.scopus.com/pages/publications/85191162739?origin=resultslist>