

THE INFLUENCE OF ACADEMIC SUPERVISION BY THE PRINCIPAL IN IMPLEMENTING DEEP LEARNING FOR TEACHERS AT MTS AZ-ZAHROH SENDANG REJO

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Abstract

This study investigates the influence of principal-led academic supervision on the implementation of deep learning-based instruction among teachers at MTs Az-Zahroh Sendang Rejo. Using a quantitative correlational method, data were collected through a structured questionnaire comprising 30 items distributed to all teachers as respondents. The academic supervision variable included indicators such as planning, implementation, feedback, and evaluation-follow-up, while deep learning was measured using Michael Fullan's 6Cs: character, citizenship, collaboration, communication, creativity, and critical thinking. Descriptive analysis revealed that academic supervision was generally perceived positively, particularly in feedback and planning aspects. However, the evaluation and follow-up components scored lower. In contrast, deep learning implementation showed moderate results across most indicators, with creativity and critical thinking receiving the lowest percentages. Regression analysis using SPSS showed a strong positive correlation ($R = 0.962$) between academic supervision and deep learning, with 92.5% of the variance in deep learning practices explained by supervision. The findings indicate that effective academic supervision significantly enhances teachers' ability to implement deep learning. The study recommends strengthening the principal's role as an instructional leader to promote deep learning competencies more holistically and sustainably.

Keywords: *academic supervision, deep learning, instructional leadership, 21st-century skills, teacher competence.*

INTRODUCTION

Education serves as the fundamental cornerstone for developing high-quality human resources that are adaptive to the demands of a rapidly evolving global landscape (Hayati et al., 2024). In the midst of globalization and the challenges posed by the Fourth Industrial Revolution, educational systems are increasingly expected to produce individuals who are not only academically capable but also proficient in critical thinking, creativity, communication, and collaboration skills that define 21st-century competencies. Achieving this ideal student profile requires an innovative learning process that emphasizes both character development and higher-order thinking skills. Improving the quality of education is a central focus in developing competitive human capital in the digital era. Educational institutions must adapt to technological advancements by promoting learning models that go beyond rote memorization and instead foster problem-solving, critical thinking, and creativity. In this context, the deep learning approach becomes highly relevant. Teachers play a pivotal role in shaping this transformation—not merely as conveyors of knowledge, but as facilitators, motivators, and mentors guiding students toward comprehensive skill development (Lorensius, 2024). Therefore, improving teacher competence is a critical and ongoing process that must be addressed through systematic and sustainable strategies.

The implementation of deep learning is a key indicator of educational transformation in the 21st century. This pedagogical approach focuses not just on mastering content but also on developing students' higher-order thinking abilities, such as analysis, synthesis, evaluation, and real-world application. Teachers adopting this approach are expected to create meaningful and engaging learning experiences. Academic supervision thus plays a crucial role in guiding teachers to effectively plan and implement deep learning strategies—from instructional design to assessment methods (Tasnim et al., 2021). However, in many primary and Islamic elementary schools, teachers still lack a deep understanding of this concept due to limited training, insufficient practical models, and inadequate

supervision and evaluation by school principals. As key figures in school leadership, principals play a vital role in managing and improving the quality of education (Baedowi, 2015; Sutisna et al., 2023). They are responsible not only for administrative functions but also for ensuring the effectiveness of the teaching and learning process through academic supervision. Effective academic supervision involves providing professional guidance to teachers based on performance observations, reflections, and targeted feedback. Nevertheless, the implementation of supervision at many schools, particularly at the elementary level in rural areas, continues to face challenges in terms of time allocation, methodology, and follow-up actions. In accordance with Government Regulation No. 25 of 2024, academic supervision is one of the principal's core responsibilities. When carried out in a structured and continuous manner, it can significantly enhance teacher competence, particularly in planning, implementing, and evaluating deep learning practices. However, many principals still rely on conventional, administrative-oriented approaches, without addressing the pedagogical and professional needs of teachers (Muhammad, 2022). In reality, effective supervision requires not only administrative oversight but also visionary leadership, technological literacy, and a deep understanding of instructional innovation (Rahmi et al., 2023).

Supervision, when conducted systematically and reflectively, has been shown to improve collaborative teaching practices and student engagement (Susanto et al., 2021). This highlights the urgent need to strengthen principals' roles as instructional leaders who can guide and mentor teachers in the implementation of deep learning. In the context of MTs Az-Zahroh Sendang Rejo, preliminary interviews revealed that academic supervision remains largely administrative and does not significantly influence classroom strategies. As a result, deep learning has not been consistently applied, and students remain focused primarily on academic achievement rather than developing high-level thinking skills. Based on the above background, it is important to investigate the influence of principal-led academic supervision on teachers' implementation of deep learning at MTs Az-Zahroh Sendang Rejo. This study aims to provide empirical insights into the relationship between supervision effectiveness and the successful application of deep learning. The findings are expected to inform strategic recommendations for enhancing instructional quality through the optimized role of school principals as academic supervisors.

LITERATURE REVIEW

A. Academic Supervision

Academic supervision is a professional development process carried out by school principals to improve the quality of teaching and learning. According to Glickman (1981), academic supervision consists of a series of activities designed to help teachers develop their instructional skills through observation, assessment, and constructive feedback. Supervision is not merely a performance evaluation, but a collaborative process that encourages teachers to reflect on their teaching practices and provides opportunities for continuous improvement. Glickman introduced a framework called *Developmental Supervision*, which aligns supervisory strategies with the professional maturity of teachers. He proposed three styles of supervision: directive, where the supervisor gives direct instructions and makes decisions, suitable for novice teachers; collaborative, where both the supervisor and teacher jointly discuss and make decisions, appropriate for experienced and open-minded teachers; and nondirective, where the teacher makes the decisions while the supervisor acts as a facilitator, fitting for highly professional teachers. Supervision is a crucial element of educational administration that focuses on the professional growth of teachers to enhance classroom instruction. Eye and Netzer (1965) emphasized that supervision should go beyond monitoring and include guidance, coaching, and comprehensive teacher development.

B. Deep Learning-Based Instruction

Definition of Deep Learning in Education

Deep learning in the educational context emphasizes meaningful learning, where students connect new knowledge with prior understanding, build conceptual linkages, and apply them in real-life contexts (Davis, 2019). Paul Ramsden (1992), in *Learning to Teach in Higher Education*, explains that deep learning enables students not just to memorize facts but to understand and apply them across different scenarios. It requires active student engagement in critical thinking, problem-solving, and integrating theory with practice.

Michael Fullan (2018), a leading Canadian education expert, defines deep learning as an approach that focuses on building students' global competencies to meet the demands of the 21st century. "Deep Learning is the process of acquiring the six global competencies needed to flourish in a complex world" (Fullan, Quinn & McEachen, 2018). These six global competencies are:

- **Character** – fostering integrity, resilience, empathy, and moral responsibility
- **Citizenship** – being globally aware and socially responsible

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- **Collaboration** – working effectively and constructively with others
- **Communication** – expressing ideas clearly and creatively across different media
- **Creativity** – thinking innovatively, flexibly, and solution-oriented
- **Critical Thinking** – analyzing, evaluating evidence, and making informed decisions

According to Fullan, the key characteristics of deep learning include meaningful and contextual learning, active student engagement, effective integration of digital technology, personalized learning and reflection, and a focus on character development and global awareness.

Academic supervision plays a strategic role in supporting teachers to implement deep learning by assisting them in designing meaningful lessons, offering feedback based on classroom observation, encouraging instructional innovation and reflection, and providing training and evaluation throughout the process.

C. Relevant Studies

Several prior studies have contributed to the understanding of academic supervision and deep learning:

1. Moh. Soleh et al. conducted a study titled *"Supervision Development Model in the Perspective of Carl D. Glickman."* This qualitative research aimed to investigate the implementation and impact of Glickman's developmental supervision model on teacher professional development. The study used classroom observations, in-depth interviews, and document analysis, concluding that this model significantly enhances instructional quality.
 - a) Similarity: Both studies are based on Glickman's theory of supervision.
 - b) Difference: The prior study uses a qualitative literature review approach, while the current research employs a quantitative method and incorporates multiple relevant variables.
2. Adang Danial et al. explored digital-based academic supervision in their article titled *"Digital-Based Academic Supervision Model by Principals to Improve Teacher Professionalism in Early Childhood Education."* This qualitative descriptive study used participatory observation, in-depth interviews, and documentation. The findings emphasized that academic supervision in the digital era is vital for aligning with the demands of Industry 4.0.
 - a) Similarity: Both studies focus on principal-led academic supervision.
 - b) Difference: The previous study focused on PAUD (early childhood) teachers using a qualitative method, while the present research centers on deep learning implementation among MTs Az-Zahroh teachers using a quantitative approach.
3. Ribka Ginting (2020) in her thesis *"Educational Supervision,"* outlined the primary functions of instructional supervision: (a) reviewing instructional documents and aligning with planning; (b) coordinating teaching staff to stay on track with plans; (c) overseeing efforts to help students develop holistically. Additional functions include encouraging teacher innovation and creativity, being role models, and enforcing work discipline.
 - a) Similarity: Both studies examine academic supervision.
 - b) Difference: The earlier research uses qualitative methods and lacks a clearly defined subject, whereas the current research uses a quantitative approach focusing on deep learning implementation in MTs Az-Zahroh.
 - c)

D. Conceptual Framework

The principal, as an academic supervisor, holds responsibility for guiding and enhancing teacher performance, particularly in implementing deep learning strategies. By conducting planned, collaborative, and reflective supervision, school leaders can help teachers improve pedagogical competencies and deliver meaningful, deep learning experiences that lead to enhanced student outcomes.

Conceptual relationship:

Academic Supervision → Teacher Performance Improvement → Implementation of Deep Learning

E. Research Hypothesis

Based on the theoretical foundation and relevant studies, the hypothesis of this research is:

There is a significant influence of academic supervision by school principals on the implementation of deep learning-based instruction by teachers at MTs Az-Zahroh Sendang Rejo.

RESEARCH METHODS

This study employed a quantitative approach with a correlational research design to examine the influence of principal-led academic supervision on teachers' implementation of deep learning-based instruction. The correlational method was chosen for its ability to objectively measure the relationship and significance between the independent variable (academic supervision) and the dependent variable (deep learning implementation) using standardized instruments. The research was conducted at MTs Az-Zahroh Sendang Rejo, a relatively new educational institution located in Binjai District, Langkat Regency, which recently graduated its first cohort. The study was carried out in May 2025 and involved total sampling, where all teachers at the school were included as respondents due to the small and accessible population. Data were collected using a Likert-scale questionnaire developed based on theoretical indicators, supported by documentation such as supervision schedules and instructional records. The questionnaire measured academic supervision across four indicators: planning, implementation, feedback, and follow-up (Glickman), while deep learning implementation was assessed using Michael Fullan's 6C framework: character, citizenship, collaboration, communication, creativity, and critical thinking. Data were analyzed using descriptive statistics and simple linear regression to identify the influence of supervision on deep learning practices. Instrument validity was tested using Pearson's Product Moment correlation, and reliability was ensured through internal consistency measures using SPSS software.

RESULT & DISCUSSION

A. Results

The research aimed to examine the influence of academic supervision by the principal on the implementation of deep learning in MTs Az Zahroh Sendang Rejo. Data were gathered through a structured questionnaire with 30 items, distributed to all teachers as respondents. The questionnaire covered both independent (academic supervision) and dependent (deep learning implementation) variables. The descriptive analysis indicated that teachers perceived the implementation of academic supervision positively, especially in terms of feedback and planning. Figure 1 shows the percentage scores for each indicator of academic supervision, and Table 1 presents the detailed data.

Figure 1. Percentage Scores of Academic Supervision Indicators

Table 1. Academic Supervision Indicator Scores

Indicator	Percentage (%)	Contribution (%)
Planning	82	26
Implementation	82	26
Feedback	83	26
Evaluation & Follow-up	72	23

Meanwhile, the implementation of deep learning showed moderate results across the six competencies. Figure 2 visualizes the percentage achievement for each competency, while Table 2 provides a detailed breakdown.

Figure 2. Percentage Scores of Deep Learning Indicators

Table 2. Deep Learning Indicator Scores

Indicator	Percentage (%)	Contribution (%)
Character	49	17
Citizenship	51	17
Collaboration	50	17
Communication	51	17
Creativity	46	16
Critical Thinking	46	16

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Statistical Analysis

Regression analysis using SPSS revealed a very strong correlation between academic supervision and deep learning implementation. The correlation coefficient (R) was 0.962, with an R^2 of 0.925, indicating that 92.5% of the variance in deep learning practices could be explained by academic supervision.

Model Summary

R	R^2	Adjusted R^2	Std. Error
0.962	0.925	0.916	2.676

The F-test in the ANOVA table showed that the regression model was statistically significant ($F = 110.257$, $p < 0.001$), confirming that the academic supervision variable significantly affects deep learning implementation.

ANOVA Table

Source	SS	df	MS	F	Sig.
Regression	789.719	1	789.719	110.257	.000
Residual	64.463	9	7.163		
Total	854.182	10			

Further, the t-test result for the regression coefficient indicated a significant impact of supervision on deep learning ($t = 10.500$, $p < 0.001$), with a regression equation of $Y = 3.305 + 1.442X$. This means that every unit increase in academic supervision leads to an increase of 1.442 units in the implementation of deep learning.

Coefficient Table

Predictor	B	Std. Error	t	Sig.
(Constant)	3.305	6.618	0.499	.629
Academic Supervision	1.442	0.137	10.500	.000

B. Discussion

To provide a description of the achievement level for each indicator of the research variables by comparing them to the ideal score percentage, the following interpretation range is used:

- 90% – 100% : Very High
- 61% – 89% : High
- 50% – 60% : Moderate
- 35% – 49% : Low
- Less than 35% : Very Low

Based on the calculations using SPSS, the percentage achievements for the two variables according to their indicators are as follows:

1) Academic Supervision Variable (X)

The academic supervision variable consists of four achievement indicators: Planning, Implementation, Feedback, and Evaluation and Follow-up. The results obtained using Excel are as follows:

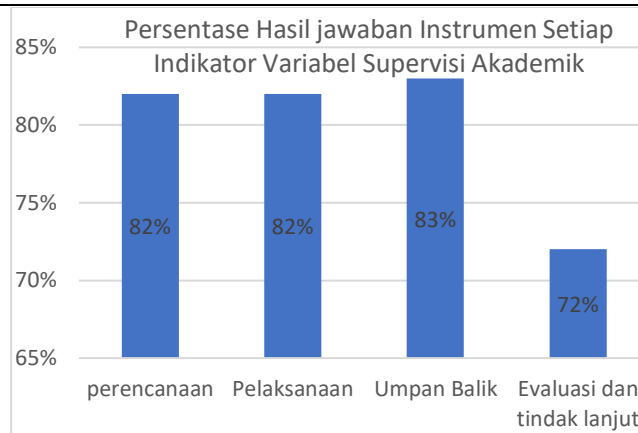


Chart 1 Percentage Bar Chart of Academic Supervision Variable Score Obtained Results Based on Indicators

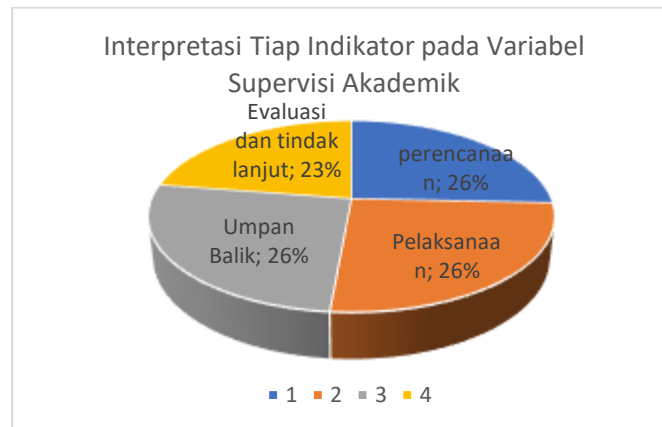


Chart 2 Interpretation of Each Indicator in the Academic Supervision Variable

As seen in chart 1 and chart 2 which show the percentage of each indicator of the Academic Supervision variable for each indicator and its interpretation, it can be concluded:

1. Planning (82% - 26%)

The evaluation results for the planning indicator show an achievement of 82%, with a contribution to the overall total of 26%. This indicates that the planning process in implementing activities or programs is running well. Teachers or implementers are able to prepare plans that are in accordance with learning objectives, use relevant approaches, and pay attention to the needs of students. However, there is still room for improvement, especially in terms of detailing the implementation steps and adjustments to the actual learning context.

2. Implementation (82% - 26%)

In terms of implementation, the same percentage as planning, namely 82%, indicates that the implementation of activities has been quite optimal. Teachers are able to carry out the plans that have been prepared consistently. Learning activities are carried out according to schedule, learning methods and media are used effectively, and student involvement in the learning process is good. However, the sustainability and adaptation of implementation to class dynamics can still be improved.

3. Feedback (83% - 26%)
The feedback indicator obtained the highest score, which was 83%, with a contribution of 26%. This shows that teachers have provided good feedback to students. The feedback helps students understand their strengths and weaknesses, and provides clear direction for improvement. The quality of constructive feedback shows teachers' concern for student learning development, although improvements can continue to be made, especially in terms of consistency and the use of technology to expand the form of feedback.

3. Evaluation and Follow-up (72% - 23%)

The evaluation and follow-up indicator obtained the lowest score compared to other indicators, which was 72% with a contribution of 23%. Although this achievement is still in the fairly good category, it

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shows weaknesses in the implementation of comprehensive evaluation and follow-up of evaluation results. Learning evaluation has not been fully used as a basis for continuous improvement, both in teaching strategies and in providing follow-up services to students in need.

2) Deep Learning Variable (Y)

The Deep Learning variable as variable Y has six indicators, namely; Character, Citizenship, Collaboration, Communication, Creativity, and Critical Thinking. The calculation results can be seen in the diagram below

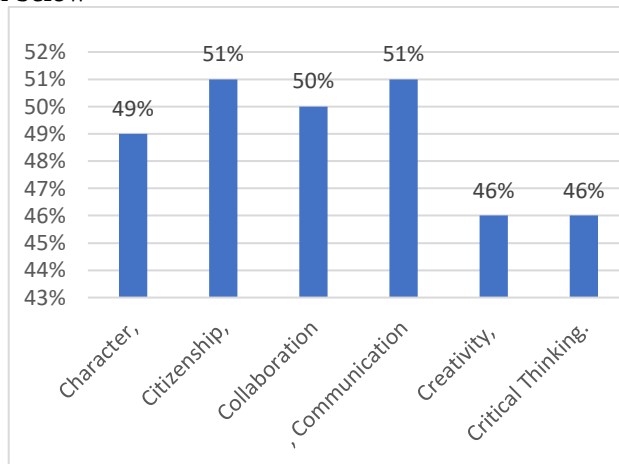
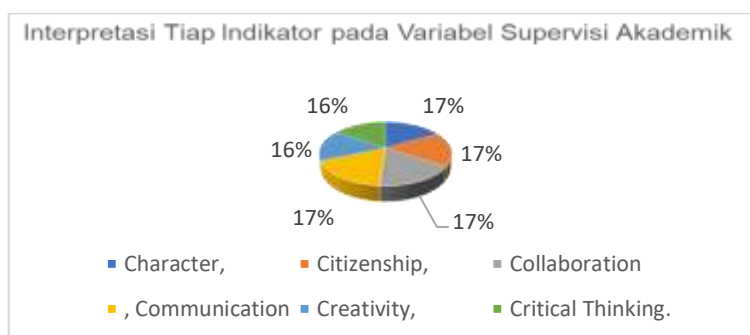


Chart 3 Percentage Bar Chart of Deep Learning Variable Score Obtained Results Based on Indicators



3) Interpretation of Each Indicator in the Academic Supervision variable

As seen in chart 4.3 and chart 4.4 which show the percentage of each indicator of the Academic Supervision variable for each indicator and its Interpretation, it can be concluded:

1. Character (49% - 17%)

The score of 49% in the character indicator shows that strengthening students' character values—such as responsibility, honesty, integrity, and empathy—is still in the sufficient category. This indicates the need for improvement in the formation of students' attitudes and moral values, both through teacher role models and the integration of character values in daily learning activities.

2. Citizenship (51% - 17%)

The score of 51% in the citizenship indicator shows that students' understanding and application of citizenship values is at a fairly good level. Students begin to show awareness of their rights and obligations as citizens, as well as respect differences and diversity. However, active participation in social activities or community-based projects can still be improved.

3. Collaboration (50% - 17%)

The collaboration indicator scored 50%, which means that students' ability to work together in groups still needs to be improved. Students may have been accustomed to working together, but are not yet optimal in terms of role division, responsibilities, and the ability to resolve conflicts within the team. Increasing project-based learning activities can be a solution to develop this ability.

4. Communication (51% - 17%)

A score of 51% on the communication indicator shows that students' communication skills are quite good. Students are starting to be able to convey ideas and opinions verbally and in writing, and listen to others with attention. However, the ability to convey opinions in a structured manner, as well as cross-cultural communication skills still need strengthening.

5. Creativity (46% - 16%)

The creativity indicator scored 46%, which indicates that students' creative thinking skills are still in the low-moderate category. More space is still needed for students to express new ideas, solve problems in unconventional ways, and produce original work. Teachers need to encourage exploration and activities that stimulate students' creativity.

6. Critical Thinking (46% - 16%)

The critical thinking indicator also scored 46%, indicating that students' critical thinking skills—such as analyzing information, constructing logical arguments, and making decisions based on data—are still weak. A learning approach is needed that trains high-level thinking skills (HOTS), such as problem-based discussions, debates, and case studies.

CONCLUSION

Academic Supervision has been running quite effectively, especially in the aspects of planning, implementation, and providing feedback. However, the evaluation and follow-up indicators require more attention so that the supervision cycle is complete and has maximum impact. Meanwhile, the implementation of deep learning is still relatively low-moderate. This shows that the learning approach that encourages 21st century character has not been fully internalized in the learning process. Especially in the indicators of creativity and critical thinking, achievements still need to be significantly improved.

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