

The Implementation of the Merdeka Curriculum and Academic Supervision on the Quality of Learning in Elementary Schools

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Abstract: Muara Telang District, characterized by its unique water-surrounded geographical features, faces numerous educational challenges such as limited infrastructure, uneven teacher competency development, and suboptimal academic supervision. These issues highlight the need for a comprehensive study examining the influence of Merdeka Curriculum implementation and academic supervision on the quality of learning in elementary schools. The purpose of this study is to comprehensively analyze and describe the influence of the implementation of the Merdeka Curriculum and academic supervision on the quality of learning in Elementary Schools in Muara Telang District. This quantitative survey research involved 84 teachers selected through proportional random sampling. Data were collected using questionnaires and analyzed with SPSS version 26. The statistical tests included validity and reliability assessments, descriptive statistics, simple and multiple regression analyses, t-tests, F-tests, and coefficient of determination. The findings revealed that all three variables, implementation of the Merdeka Curriculum, academic supervision, and learning quality, were categorized as “good,” with mean scores of 120.04, 121.57, and 120.71, respectively. Hypothesis testing demonstrated significant partial and simultaneous effects of both independent variables on learning quality. The coefficient of determination (R^2) of 0.68 indicated that 68% of the variance in learning quality could be explained by the two variables, while the remaining 32% was influenced by other external factors. This study underscores that sustainable improvement in learning quality can only be realized through consistent implementation of the Merdeka Curriculum supported by systematic and well-structured academic supervision focused on enhancing teachers’ professionalism.

Keywords: Academic Supervision, Elementary School, Learning Quality, Merdeka Curriculum Implementation

A. Introduction

The learning environment is a key determinant of the success of education at all levels, including elementary school, from access to implementation and availability (Barragán Moreno et al., 2025). Assessment of learning quality is not only based on the level of achievement of established objectives but also refers to how teachers create

active, meaningful, and interactive learning processes and the extent to which they are able to optimally develop students' competencies and character. As stated by Darling-Hammond (2021), learning quality is closely related to teachers' ability to design, implement, and evaluate the learning process so that students gain a more meaningful learning experience. Therefore, Metekohy et al. (2022) states that quality learning can motivate students to make changes in behavior, knowledge, skills, and attitudes in accordance with predetermined educational goals. One of the most important concerns related to national education development is improving the quality of learning. Several educational evaluation results indicate that many challenges remain in improving the quality of education in Indonesia.

The National Assessment Report from the Ministry of Education, Culture, Research, and Technology indicates that students still need to improve their literacy and numeracy skills in areas where access to education and learning is still limited (Hidayah et al., 2024). This reflects the government's efforts to improve the quality of learning, one of which is through the implementation of the Merdeka Curriculum. The Merdeka Curriculum policy is an educational transformation model that provides flexibility for educational units in formulating learning that aligns with student needs and the characteristics of the learning environment. This curriculum focuses on student-centred learning, differentiation and assessment, character building based on the Pancasila Student Profile, and competency-based assessment. The Ministry of Education, Culture, Research, and Technology stated that the Merdeka Curriculum is designed to make learning more relevant, in-depth, and meaningful, allowing students to develop according to their potential and learning needs.

At the normative level, the implementation of the Independent Learning curriculum is reinforced by Regulation of the Minister of Education, Culture, Research, and Technology Number 12 of 2024 concerning the Curriculum for Early Childhood Education, Elementary Education, and Secondary Education. The implementation of the Merdeka Curriculum requires a paradigm shift from teacher-centred learning to student-centred learning. Teachers are required to understand learning outcomes, develop learning objective flows, develop teaching modules, implement differentiated learning, and implement formative and authentic assessments on an ongoing basis. Ben Gurion & Nasir (2024) explain that the successful implementation of the Merdeka Curriculum is greatly influenced by teachers' readiness to understand learning concepts and practices that align with the curriculum's characteristics.

However, various studies indicate that the implementation of the Merdeka Curriculum still faces several obstacles, such as limited teacher understanding, suboptimal development of teaching modules, and low utilisation of learning technology in the teaching and learning process (Mellyzar et al., 2025; Sucipto et al., 2024). Besides curriculum implementation, another factor that plays a crucial role in improving the quality of learning is academic supervision. Academic supervision is a professional development process carried out by school principals to help teachers

improve their pedagogical, professional, social, and personal competencies in carrying out teaching tasks. Barokah et al. (2025) explains that academic supervision is a systematic effort to help teachers improve the learning process through observation, feedback, and ongoing professional development. Through effective academic supervision, teachers have the opportunity to reflect on their learning practices and find solutions to various problems encountered in the learning process.

Several historical studies have demonstrated that this provision contributes to the achievement of effective scientific supervision, which is directly related to improving the quality of their resources. Academic supervision positively contributes to improving teacher quality and learning success (Sugiar et al., 2024). Academic supervision serves not only as a monitoring tool but also as a means of fostering participation to improve the quality of education. Although the implementation of the Merdeka Curriculum and academic supervision are believed to influence the quality of learning, previous research has yielded mixed results. Some studies have found that the implementation of the Merdeka Curriculum significantly impacts learning quality (Hunaepi & Suharta, 2024), while others indicate that the success of curriculum implementation is strongly influenced by managerial support and teacher professional development (Maslina & Simaremare, 2025).

Similarly, regarding academic supervision, some studies demonstrate a strong influence on improving learning quality, but others suggest that the effectiveness of supervision depends on the intensity of implementation, supervisor competence, and school characteristics. These differing research findings indicate that the relationship between the implementation of the Merdeka Curriculum, academic supervision, and learning quality requires further empirical study in different educational contexts. The research gap is evident in the limited number of studies that simultaneously examine the impact of the implementation of the Merdeka Curriculum and academic supervision on the quality of learning in elementary schools located in water areas or areas with specific geographic characteristics.

Most previous research was conducted in urban areas or areas with relatively adequate access to education, so the results may not necessarily reflect the conditions of schools in areas with limited access and educational facilities. Muara Telang District, Banyuasin Regency, is one of the water areas in South Sumatra Province with unique geographic characteristics. Most community transportation still relies on rivers and waterways, impacting educational mobility, the distribution of learning resources, and the implementation of various educational programs. This situation has the potential to impact the effectiveness of the implementation of the Merdeka Curriculum and the implementation of academic supervision, which ultimately impacts the quality of learning in elementary schools. Based on initial observations at several elementary schools in Muara Telang District, various obstacles remain in the implementation of the Merdeka Curriculum, such as the suboptimal application of differentiated learning, limited development of contextual teaching modules, and

formative assessments that are not fully aligned with the principles of the Merdeka Curriculum.

Furthermore, academic supervision also faces various challenges, including limited time for principals, high administrative burdens, and the geographical location of schools spread across waterways. These conditions indicate that the quality of learning still requires attention and continuous improvement efforts. Based on this description, research is needed to analyze the effect of the implementation of the Merdeka Curriculum and academic supervision on the quality of learning in elementary schools in Muara Telang District. This research is expected to provide theoretical contributions to the development of educational management science, particularly regarding the implementation of curriculum policies and academic supervision. Furthermore, this research is also expected to provide practical contributions for principals, teachers, school supervisors, and education stakeholders in formulating strategies to improve the quality of learning in the Merdeka Curriculum era. The novelty of this research lies in the simultaneous examination of the effect of the implementation of the Merdeka Curriculum and academic supervision on the quality of learning in elementary schools located in the waters of Muara Telang District, Banyuasin Regency, which to date has received relatively limited research from an educational management perspective.

B. Methods

This study uses a quantitative approach with a survey approach. The research instrument was used to collect data, and data analysis was carried out statistically with the aim of testing the established hypothesis. The study was conducted in several public elementary schools in Muara Telang District. The research period lasted for approximately 3 (three) months, starting from the stage of preparing the instrument and distributing the questionnaire to data processing, namely from February 2026 to April 2026. This study aims to determine how the implementation of the Merdeka Curriculum and academic supervision impacts the quality of learning in elementary schools in the Muara Telang District. The survey-based quantitative method was chosen because it is appropriate to evaluate the relationship and influence of the following research variables: Implementation of the Merdeka Curriculum (X1), Academic Supervision (X2), and Quality of Learning (Y).

This study involved teachers at public elementary schools in the Muara Telang District. In this study, all teachers from SDN 6, SDN 7, SDN 8, SDN 9, SDN 13, SDN 16, SDN 17, SDN 20, and SDN 21 Muara Telang were included in the population. The total number of teachers from these schools was used to determine the sample size. The researcher used a sampling technique to determine the sample size. A commonly used technique is Slovin, or proportional random sampling, to ensure that each school is proportionally represented. To determine the minimum number of participants

from the total of 107 teachers, the researcher applied the Slovin equation. This calculation uses a 5% margin of error to ensure that the number of representatives from each elementary school in the area is statistically valid for a certain error (e.g., 5%). Using the Slovin formula, with an error rate (e) = 5% (0.05), which means a 95% confidence level for the data. Using the Slovin formula, the sample size was 84. The technique used in this study was a questionnaire compiled on a Likert scale and documentation.

Before use, the research method was tested to ensure the validity and reliability of the instrument. The instrument trial was conducted in several stages: (a) distributing the questionnaire to respondents, (b) explaining how to complete the questionnaire, (c) having respondents complete the questionnaire, and (d) collecting the completed questionnaires (Amalia & Arthur, 2023). The trial aimed to identify weaknesses and deficiencies in the questionnaire items, both in terms of wording, alternative answers, and the statements and answers provided. Furthermore, to obtain valid and reliable statement items, validity and reliability tests were conducted. In this study, validity was tested in two stages. First, the instrument was consulted with the supervising lecturer to ensure that the statements align with the research indicators. Second, empirical validity was tested by testing the instrument on 30 respondents not included in the research sample. The pilot test was conducted at SDN 5 Muara Telang and SDN 15 Muara Telang, with a total of 16 teachers and 14 teachers from SDN 15 Muara Telang, both within the Muara Telang subdistrict.

The study population outside the sample was distributed through questionnaires, including 1) a 30-item questionnaire on the implementation of the Merdeka Curriculum, 2) a 30-item questionnaire on academic supervision, and 3) a 30-item questionnaire on the quality of learning. The technique used was the Pearson Product Moment correlation, with the decision-making requirement of comparing the calculated r value with the table r value at a significance level of 5% ($\alpha = 0.05$). If $r_{\text{calculated}} > r_{\text{table}}$ (for $N=30$, $r_{\text{table}}=0.361$), then the instrument item is declared valid. Conversely, if $r_{\text{calculated}} < r_{\text{table}}$, then the item is declared invalid and will be removed or revised to ensure the instrument is truly valid and objective. In this study, the reliability test was conducted using the Cronbach's alpha technique. The reliability coefficient value reflects the level of internal consistency between statement items. The instrument reliability test was conducted using the Cronbach's alpha technique through the SPSS program.

According to Sugiyono (2022), an instrument is said to be reliable if the Cronbach's alpha value is ≥ 0.70 . The analysis results showed a Cronbach's alpha value of 0.89 for the Merdeka Curriculum implementation variable (X_1), 0.87 for the principal's academic supervision variable (X_2), and 0.91 for the learning quality variable (Y). Because all Cronbach's alpha values are more than 0.70, the research instrument is declared reliable. Thus, the instrument is suitable for use in further research. The data analysis technique used descriptive statistics and inferential statistics. Statistical

hypothesis testing used the t-test and f-test. This study also used the coefficient of determination (R^2) to identify how much the variables of the implementation of the Merdeka Curriculum (X1) and academic supervision (X2) contributed to explaining variations in the quality of learning (Y). In the interpretation of the goodness of fit model, the R^2 value of 0.68 means that the quality of learning is influenced by the implementation of the Merdeka Curriculum and academic supervision by approximately 68%, while other factors outside the research model explain the remaining 32%.

C. Results and Discussion

The Effect of Merdeka Curriculum Implementation on Learning Quality

Based on the results of a simple linear regression analysis, the implementation of the Merdeka Curriculum was proven to have a positive and significant impact on the quality of learning in elementary schools in Muara Telang District. This is reflected in the unstandardized regression coefficient of 0.985, indicating that every one-unit increase in Merdeka Curriculum implementation is followed by a 0.985-unit increase in learning quality. The calculated t-value of 27.680, with a significance level of 0.000, which is below 0.05, confirms that this effect is statistically significant, thus supporting the hypothesis that the implementation of the Merdeka Curriculum has a significant effect on learning quality. The strength of the relationship between the variables is also evident in the standardized beta coefficient of 0.950, indicating that the implementation of the Merdeka Curriculum is a very strong predictor in explaining variations in learning quality.

Furthermore, the adjusted R-squared value of 0.902 indicates that 90.2% of the variation in learning quality can be explained by the implementation of the Merdeka Curriculum, while the remaining 9.8% is influenced by other factors outside the research model. Descriptively, the level of Merdeka Curriculum implementation among elementary school teachers in Muara Telang District is in the good category, as indicated by a mean score of 120.04 with a standard deviation of 7.578 and a score range of 104 to 143. The data distribution shows that the majority of respondents fall into the medium to high category, particularly in the score range of 116–121, with the mode value of 121 being the most frequently occurring score. The distribution pattern tends to be close to normal, characterized by low positive skewness and relatively small data variation, indicating that the implementation of the Merdeka Curriculum among teachers has been fairly even and consistent.

These findings indicate that the successful implementation of the Merdeka Curriculum depends not only on teachers' understanding of the curriculum documents but also on their ability to translate curriculum principles into daily learning practices. This implementation includes understanding learning outcomes, developing learning objective flows, developing teaching modules relevant to

students' needs and contexts, implementing differentiated learning, and utilizing formative assessments to monitor and improve the learning process. When all these components are implemented optimally, learning becomes more focused, adaptive, and student-centered, thereby significantly improving the quality of the learning process and outcomes. The results of this study confirm that the implementation of the Merdeka Curriculum is a key factor in improving the quality of learning in elementary schools in Muara Telang District. The better the level of implementation by teachers, the higher the quality of learning planning, implementation, and assessment in the classroom.

Therefore, improving teacher competency in understanding and implementing the Merdeka Curriculum needs to be done continuously through training, mentoring, and professional learning communities so that the goal of educational transformation toward flexible, meaningful, and student-centered learning can be optimally achieved (Kusumawati & Umam, 2025). Theoretically, these findings align with the view that the Merdeka Curriculum is designed to improve the quality of learning through a student-centered, contextual approach, supported by continuous formative assessment (Fitrah et al., 2025). Teachers who are able to understand learning outcomes, develop a coherent learning objective flow, develop contextual teaching modules, implement active and collaborative learning, and systematically reflect on learning tend to be more capable of creating interactive, meaningful, and relevant learning processes that meet student needs.

Therefore, the implementation of the Merdeka Curriculum in this study not only impacts administrative aspects but also significantly contributes to improving the quality of learning in elementary schools in Muara Telang District. The findings of this study are consistent with various empirical studies examining the relationship between the implementation of the Merdeka Curriculum and the quality of the learning process. The implementation of the Merdeka Curriculum through project-based learning and real-world contexts has been reported to increase student engagement and the quality of the learning process, with teachers experiencing improvements in lesson planning and implementation while students demonstrated increased learning motivation (Haq & Wakidi, 2024). The implementation of the Pancasila Student Profile dimensions within the Merdeka Curriculum framework has also been found to contribute to strengthening students' critical thinking and collaboration skills, important indicators of the quality of 21st-century learning (Hakim et al., 2024).

Furthermore, the implementation of the Merdeka Curriculum has been reported to play a role in improving literacy and numeracy outcomes in elementary schools, as evidenced by teacher reports of improvements in the quality of learning processes and outcomes after the curriculum was implemented (Iftinawati et al., 2025). The implementation of differentiated learning and authentic assessment within the Merdeka Curriculum framework has also been shown to improve the quality of

learning interactions, although implementation challenges persist. In conjunction with these research findings, findings from elementary schools in Muara Telang District provide empirical evidence in the context of a water area with limited geography and infrastructure. Good implementation of the Merdeka Curriculum, reflected in teachers' understanding of the curriculum structure, ability to design teaching modules and assessments, and consistency in implementing active, collaborative, and reflective learning, has been shown to be directly proportional to improved classroom learning quality. Therefore, strengthening the implementation of the Merdeka Curriculum can be positioned as a key strategy for improving learning quality in elementary schools, particularly in Muara Telang District.

The Effect of Academic Supervision on Learning Quality

The results of a simple linear regression analysis indicate that academic supervision has a positive and significant effect on learning quality in elementary schools in Muara Telang District. This is evident from the positive regression coefficient, the significant t-value at the 0.05 level, and the Sig. < 0.05, thus accepting the hypothesis that academic supervision has an effect on learning quality. Descriptively, academic supervision is in the good category with a mean score of 121.57 and a standard deviation of 7.731, while learning quality is also in the good category with a mean score of 120.71 and a standard deviation of 7.857. This indicates that the more intensive, planned, and high-quality academic supervision conducted by the principal, the higher the quality of learning planning, implementation, and assessment demonstrated by teachers in the classroom.

Theoretically, these results align with the concept of academic supervision as a professional support process focused on teacher development, rather than merely administrative oversight. In this study, academic supervision was operationalized through indicators of supervision planning, classroom observation, monitoring of learning materials, reflective discussions, providing constructive feedback, and coaching follow-up. High supervision scores on these indicators indicate that principals in Muara Telang District have carried out their supervisory functions relatively systematically and consistently. This finding aligns with the modern supervisory framework, which emphasizes collaboration, reflection, and continuous teacher professional development. Academic supervision serves as a managerial and pedagogical instrument for improving the quality of the learning process (Mekarsari et al., 2025).

The findings of this study are consistent with previous research showing that effective academic supervision has a significant impact on improving the quality of learning. This research confirms that the implementation of planned academic supervision, accompanied by regular classroom observations and the provision of specific and constructive feedback, encourages teachers to refine their teaching strategies, manage their classes better, and increase student active engagement in the learning process

(Lalupanda, 2019). The same pattern is seen in the context of Muara Telang District, where high academic supervision scores are directly proportional to the increasing quality of educational interactions and more meaningful learning assessments.

The results of this study also align with findings showing that systematically implemented academic supervision, based on clear instruments and followed by measurable follow-up coaching, can improve teachers' pedagogical competence and the quality of classroom learning interactions (Chindytia et al., 2026). Supervision does not stop at the observation stage; it needs to be followed by reflective discussions, the formulation of improvement plans, and monitoring of follow-up actions. In this study, the indicators for reflective discussions and follow-up coaching showed good scores, thus strengthening the argument that academic supervision oriented towards professional coaching directly contributes to improving the quality of learning.

Similar findings were also presented in another study analyzing the role of academic supervision in encouraging learning innovations in the Merdeka Curriculum in elementary schools. This research showed that structured supervision, encompassing planning, implementation, and follow-up, plays a significant role in triggering learning innovations based on the Merdeka Curriculum, such as the use of project-based learning models, authentic assessments, and the utilization of local contexts as learning resources. Teachers who receive intensive supervision are more willing to undertake pedagogical experiments and are more consistent in developing teaching materials based on learning outcomes and learning objectives. The results of this study confirm this trend, as good academic supervision correlates with good learning quality. Therefore, strong supervision strengthens the implementation of the Merdeka Curriculum and improves the quality of the teaching and learning process.

Other research shows that regular, coaching-oriented academic supervision by school principals has a significant impact on improving the quality of learning in elementary schools (Nasution et al., 2026). Teachers who receive intensive supervision reportedly experienced improvements in their ability to formulate learning objectives, select relevant methods, and manage classes effectively. This pattern aligns with research findings in Muara Telang District, where indicators of strong academic supervision, particularly in the aspects of supervision planning and classroom observation, were associated with increased clarity of learning objectives, variety of learning strategies, and effective classroom management as key dimensions of learning quality. Thus, these findings strengthen empirical evidence that academic supervision is a determining factor in ensuring the consistency and quality of the Merdeka Curriculum implementation at the classroom level.

Another study on academic supervision, focused on strengthening the implementation of the Merdeka Curriculum, also demonstrated a positive impact on the quality of learning interactions in elementary schools (Sari et al., 2025). Principals who focused supervision on mentoring the development of teaching modules,

observing the implementation of differentiated learning, and conducting authentic assessments resulted in teachers who were more skilled at designing contextual learning and actively engaging students. In this study, high academic supervision scores on the indicators of monitoring teaching materials and follow-up coaching correlated with good learning quality, particularly in the aspects of contextual media utilization and active student engagement. This demonstrates consistency between the findings of the Muara Telang District study and various previous studies, indicating that academic supervision is a crucial catalyst for the success of the Merdeka Curriculum and improving learning quality.

Furthermore, studies on the implementation of the Merdeka Curriculum and learning quality indicate that the success of curriculum implementation is highly dependent on the support of systematic academic supervision (Amin et al., 2025). Teachers who receive intensive supervision are reported to be more consistent in developing teaching modules, implementing active learning, and implementing formative assessments on an ongoing basis, significantly improving the quality of the learning process. This finding aligns with research in Muara Telang District, where good academic supervision was shown to significantly contribute to learning quality, both through improving the quality of lesson planning and classroom implementation. Other studies also highlight the crucial role of supervision by educational unit principals in the successful implementation of the Merdeka Curriculum and improving the quality of the learning process (Mastur, 2023). Intensive and ongoing supervision has been shown to help teachers develop more systematic teaching modules, manage classes more effectively, and implement authentic assessments in accordance with the requirements of the Merdeka Curriculum.

In the context of Muara Telang District, the good academic supervision rating and its significant impact on Learning Quality demonstrate that principals have acted as facilitators and quality controllers of the Merdeka Curriculum implementation in elementary schools. These findings expand the empirical evidence that strong supervision and professional development are prerequisites for the success of the Merdeka Curriculum in various geographic contexts, including water areas with limited infrastructure. From an educational management perspective, the results of this study reinforce the view that learning quality is the result of the interaction between curriculum and supervision factors. The Merdeka Curriculum provides a normative and pedagogical framework that demands active, contextual learning and is oriented toward the Pancasila student profile (Alwanda & Saputra, 2025). Academic supervision ensures that these demands are translated into daily learning practices through coaching, monitoring, and evaluation mechanisms.

The empirical model obtained in this study, in which academic supervision has a positive and significant effect on learning quality, both partially and simultaneously with the implementation of the Merdeka Curriculum, indicates that improving learning quality at elementary schools in Muara Telang District is inextricably linked

to the effectiveness of the principal's academic supervision. Therefore, it can be concluded that academic supervision at elementary schools in Muara Telang District serves not only as an administrative control instrument but also as a professional development process that significantly contributes to improving learning quality. Planned, structured, and continuous supervision encourages teachers to improve lesson planning, enrich learning strategies, and strengthen formative and authentic assessments. The consistency of this study's findings with previous research reinforces the academic legitimacy that strengthening academic supervision is a key strategy for improving learning quality in the Merdeka Curriculum era, particularly in areas with geographical and infrastructure challenges such as Muara Telang District.

The Effect of Merdeka Curriculum Implementation and Academic Supervision on Learning Quality

Based on the results of multiple linear regression testing, the implementation of the Merdeka Curriculum (X1) and Academic Supervision (X2) were simultaneously proven to have a positive and significant effect on Learning Quality (Y) in elementary schools in Muara Telang District. The calculated F-value met the model acceptance criteria, with a Sig. < 0.05, thus confirming the statistical feasibility of the regression model. The coefficient of determination (R^2) of 0.68 indicates that 68% of the variation in learning quality can be explained by the combination of Merdeka Curriculum implementation and academic supervision, while the remaining 32% is influenced by other variables outside the model. Therefore, the hypothesis stating a significant effect of the simultaneous implementation of the Merdeka Curriculum and academic supervision on learning quality is accepted.

Substantively, these results indicate that improving the quality of learning in elementary schools in Muara Telang District is not only determined by the successful implementation of the Merdeka Curriculum but also depends heavily on the effectiveness of the principal's academic supervision. These two variables complement each other and form a synergistic relationship in realizing a quality learning process. The implementation of the Merdeka Curriculum is reflected in teachers' ability to understand and develop learning outcomes, systematically develop learning objectives, design teaching modules appropriate to student characteristics and the local context, implement differentiated learning, and carry out continuous formative assessment as a basis for learning improvement. Furthermore, academic supervision serves as a professional development instrument that ensures the principles and policies of the Merdeka Curriculum are truly implemented in classroom learning practices through targeted supervision planning, systematic classroom observations, providing constructive feedback, and consistent coaching follow-up.

These findings indicate that improving the quality of learning cannot be achieved solely by introducing innovative curriculum policies but must be supported by a robust coaching system through academic supervision. The Merdeka Curriculum provides the conceptual foundation and direction for developing student-centred learning, while academic supervision ensures that this concept is optimally implemented in daily learning activities. Several literature reviews indicate that principal supervision within the context of the Merdeka Curriculum plays a significant role in improving teachers' understanding of the curriculum, supporting the implementation of project-based learning, and building a culture of collaboration in schools (Agustin et al., 2023). The better the implementation of the Merdeka Curriculum, supported by adaptive and continuous academic supervision, the higher the quality of learning achieved in educational units.

These research findings align with findings showing that intensive mentoring in understanding learning outcomes and developing learning objectives significantly improves the quality of learning planning and implementation (Wang et al., 2023). A thorough understanding of the structure of the Merdeka Curriculum is seen as a prerequisite for creating effective learning; in this study, the implementation of the Merdeka Curriculum, which was categorised as good, was proved to contribute to improving the quality of learning, especially in the planning dimension, which includes clarity of objectives, completeness of teaching modules, and integration of the Pancasila Student Profile. Conversely, obstacles to the implementation of the Merdeka Curriculum related to differentiated learning, the development of contextual teaching modules, and authentic assessment were reported to reduce the quality of learning if not addressed through adequate mentoring and supervision.

The score for the implementation of the Merdeka Curriculum, which was categorised as 'good' in this study, indicates that teachers in Muara Telang District were relatively successful in overcoming some of these obstacles, despite facing geographical and infrastructural limitations. The findings of this study are also consistent with studies showing that systematically implemented academic supervision, based on clear instruments, and accompanied by measurable follow-up coaching, can improve teachers' pedagogical competence and the quality of learning interactions (Najwa et al., 2025). Supervision is seen as a bridge between curriculum policy and classroom learning practices; without effective academic supervision, teachers tend to have difficulty internalizing and implementing the demands of the Merdeka Curriculum. Studies on the management of academic supervision in the Merdeka Curriculum show that structured and collaborative supervision between principals and teachers improves pedagogical competence, creates an effective learning environment, and supports the implementation of adaptive learning methods, ultimately contributing to improved learning quality.

Other research has found that structured academic supervision, encompassing planning, implementation, and follow-up, plays a crucial role in fostering learning

innovation in the Merdeka Curriculum, including the implementation of project-based learning, authentic assessment, and the use of local context as a learning resource (Khoiruddin et al., 2024). Teachers who are intensively supervised are reported to be more consistent in developing teaching materials based on learning outcomes and learning objectives and are more willing to implement contextual and collaborative learning strategies. Similar findings indicate that the principal's role as supervisor in the implementation of the Merdeka Curriculum, through pre-observation, socialization, mentoring, and monitoring, can optimize curriculum implementation and impact learning quality. This pattern aligns with research findings in Muara Telang, where a combination of high scores on Merdeka Curriculum implementation and academic supervision correlated with good learning quality.

Other research also reveals that focused supervision on mentoring the development of teaching modules, observing differentiated learning, and conducting authentic assessments improves the quality of learning interactions and student learning outcomes (Badawy et al., 2024). In the Muara Telang context, the combination of sound implementation of the Merdeka Curriculum and effective academic supervision is reflected in the improved quality of learning planning and implementation, despite the school being located in a coastal area with limited access to transportation and digital infrastructure. Furthermore, other studies confirm that the successful implementation of the Merdeka Curriculum is highly dependent on the support of systematic academic supervision; teachers who receive intensive supervision are more consistent in developing teaching modules, implementing active learning, and implementing formative assessments on an ongoing basis, resulting in significant improvements in learning quality.

From an educational management perspective, the results of this study confirm that learning quality cannot be improved solely through curriculum changes without strengthening academic supervision. The Merdeka Curriculum provides flexibility, contextualisation, and differentiation of learning, but its implementation in the classroom is highly dependent on teacher capacity and the principal's support through academic supervision. The empirical model showing the simultaneous influence of the implementation of the Merdeka Curriculum and academic supervision on learning quality emphasises the importance of a systemic approach, where curriculum policies, teacher capacity, and supervision mechanisms must work in harmony to produce quality learning. Thus, in elementary schools in Muara Telang District, improving learning quality can be understood as the result of a synergistic interaction between good implementation of the Merdeka Curriculum and effective academic supervision, where the Merdeka Curriculum provides direction and orientation for learning, while academic supervision ensures that this direction is realised through continuous coaching, monitoring, and evaluation.

D. Conclusion

Based on data processing and hypothesis testing conducted on 84 elementary school teachers in Muara Telang District, this study conclusively establishes that both the implementation of the Merdeka Curriculum and academic supervision exert positive and significant influences on learning quality, both partially and simultaneously. Partially, the Merdeka Curriculum, with an average implementation score of 120.04 (good category), demonstrates a positive impact, confirming that improved learning quality aligns with teachers' growing understanding and application of curriculum components—including Learning Outcomes (CP), Learning Objective Flows (ATP), contextual learning modules, differentiated instruction, and meaningful formative assessments. Similarly, academic supervision, with an average score of 121.57 (good category), shows a significant positive effect, indicating that planned, continuous supervisory activities encompassing systematic planning, targeted classroom observations, constructive feedback, and measurable follow-up coaching substantially enhance learning planning, implementation, and evaluation. Crucially, their simultaneous influence, confirmed by an F-test significance of 0.000, yields a coefficient of determination (R^2) of 0.68, meaning that 68% of the variation in learning quality is explained by both variables together, with the remaining 32% attributable to other factors. This finding underscores that the success of Merdeka Curriculum implementation fundamentally depends on effective, targeted, and sustainable academic supervision, a condition particularly vital in geographically challenging water-based areas like Muara Telang District. Practically, these findings mandate that school principals and education authorities adopt an integrated approach where curriculum implementation and academic supervision are treated as mutually reinforcing systems. Principals must provide structured, ongoing supervision that directly supports teachers' curriculum understanding and classroom application, while education offices should offer targeted training programs that simultaneously address curriculum competencies and supervisory skills. Schools should institutionalize regular collaborative planning sessions, peer observations, and feedback mechanisms to ensure that supervision remains developmental and contextually responsive, especially in remote or geographically challenging settings. For future research, it is recommended to investigate the remaining 32% of variance by incorporating additional variables such as teacher motivation, school culture, infrastructure availability, or parental involvement to build a more comprehensive model. Comparative studies across districts with different geographical characteristics would reveal contextual variations and inform tailored interventions. Longitudinal designs are essential to track how sustained supervision and curriculum implementation dynamically affect learning quality over time, while mixed-method approaches combining quantitative surveys with qualitative interviews or classroom observations could provide deeper insights into implementation challenges and successful strategies within water-based rural contexts. Action research involving teachers as co-researchers could further refine context-responsive supervision and curriculum practices.

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