



## The Relationship between Merdeka Mengajar Platform Utilisation and Learning Management Effectiveness

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### Article History:

Received: Jul 07, 2025

Revised: Dec 28, 2025

Accepted: Feb 15, 2026

Online First: Feb 28, 2026

### Keywords:

Learning Management, Merdeka Curriculum, Merdeka Mengajar Platform, Teacher Professional Development.

### Kata Kunci:

Manajemen Pembelajaran, Kurikulum Merdeka, Platform Merdeka Mengajar, Pengembangan Profesi Guru.

### How to cite:

Hendri, J., Hendrizal, H., Adriantoni, A. (2026). The Relationship between Merdeka Mengajar Platform Utilisation and Learning Management Effectiveness. *Edunesia : Jurnal Ilmiah Pendidikan*, 7(2), 928-945.

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**Abstract:** This study was motivated by various obstacles public elementary school teachers in Padang Selatan District face in utilising the Merdeka Mengajar Platform (PMM) and in managing learning based on the Merdeka Curriculum. The research aims to describe the level of PMM utilisation, examine the effectiveness of learning management, and analyse the relationship between the two variables. A quantitative approach with a descriptive survey method was employed. The sample consisted of 78 teachers selected through stratified proportional random sampling from a population of 157 teachers. Data were collected using a Likert-scale questionnaire and analysed through simple linear regression. The findings reveal that PMM utilisation was categorised as good (86.39%), while learning management effectiveness was 88.09%. The analysis indicates a significant relationship between PMM utilisation and learning management effectiveness, with a contribution of 74.4%. These results demonstrate that PMM plays a substantial role in supporting the implementation of the Merdeka Curriculum. Practically, optimising PMM usage enhances learning management effectiveness, while theoretically, it reinforces the importance of integrating educational technology to improve teachers' professional performance and instructional management quality.

**Abstract:** Penelitian ini dilatarbelakangi oleh berbagai kendala yang dihadapi guru Sekolah Dasar Negeri di Kecamatan Padang Selatan dalam memanfaatkan Platform Merdeka Mengajar (PMM) serta mengelola pembelajaran berbasis Kurikulum Merdeka. Penelitian ini bertujuan untuk mendeskripsikan tingkat pemanfaatan PMM, mengkaji efektivitas manajemen pembelajaran, serta menganalisis hubungan antara kedua variabel tersebut. Penelitian menggunakan pendekatan kuantitatif dengan metode survei deskriptif. Sampel penelitian berjumlah 78 guru yang dipilih melalui teknik stratified proportional random sampling dari total populasi 157 guru. Data dikumpulkan menggunakan angket skala Likert dan dianalisis dengan regresi linear sederhana. Hasil penelitian menunjukkan bahwa pemanfaatan PMM berada pada kategori baik (86,39%), sedangkan efektivitas manajemen pembelajaran mencapai 88,09%. Analisis menunjukkan adanya hubungan signifikan antara pemanfaatan PMM dan efektivitas manajemen pembelajaran dengan kontribusi sebesar 74,4%. Temuan ini menegaskan bahwa PMM berperan penting dalam mendukung implementasi Kurikulum Merdeka. Secara praktis, optimalisasi penggunaan PMM meningkatkan efektivitas pengelolaan pembelajaran, sekaligus memperkuat peran teknologi pendidikan dalam meningkatkan kinerja profesional guru.

## A. Introduction

The curriculum is a fundamental element of the education system because it provides direction and guidance in the learning process. Without a clear, structured curriculum, the education process will lose direction and struggle to achieve its goals effectively (Karakuş, 2021). The curriculum is not only a formal document, but also a strategic tool in designing, implementing, and evaluating the learning process. Changes in the era marked by the development of science and technology require the curriculum to be continually updated to remain relevant to students' and society's needs. In line with that, Almonacid-Fierro et al (2021) stated that curriculum renewal is essential to ensure education keeps pace with the times. In Indonesia, curriculum changes have occurred several times, from the Lesson Plan, Curriculum 1975, and Curriculum 1994 to KBK, KTSP, Curriculum 2013, and now the Merdeka Curriculum.

To support the implementation of the Independent Curriculum, the Ministry of Education has developed the Independent Teaching Platform (PMM) as a digital learning tool to help teachers understand and implement it effectively. According to Matulesy et al (2025), PMM is designed to provide independent training, references for teaching tools, learning videos, and a space for educators to share good practices. However, during implementation, various challenges have emerged that hinder the full utilisation of the platform. Rahmani et al (2025) revealed that limitations in technological infrastructure, such as inadequate devices and internet connections in many elementary schools, are among the main obstacles. In addition, PMM content is not yet fully integrated with elementary-level learning needs.

Teachers also face obstacles in understanding and mastering the features available in PMM (Anggraini & Winarti, 2023). Low technological skills and minimal training received are the reasons why teachers are less confident in using the platform optimally (Saputra et al., 2024). Time constraints and high administrative burdens also make it difficult for teachers to allocate time to study and apply PMM in daily learning activities (Syahrani et al., 2023; Ikram et al., 2023). Evaluating the effectiveness of PMM use remains a challenge, as there are no standardised methods or instruments to assess teachers' success in using this platform to improve learning quality.

Previous research provides a clear picture of PMM's role in supporting the Independent Curriculum. Research (Ristiani et al., 2025; Margareta & Krismiyati, 2025) shows a positive relationship between the use of PMM and the implementation of the Independent Curriculum. Meanwhile, research by Sa'diah et al (2023) identified obstacles to curriculum implementation stemming from the lack of government support and teachers' limited understanding of technology. Meanwhile, Anwar & Utami (2023) highlighted the difficulty teachers face in translating PMM into concrete actions, which has led to low certification rates.

As a principal who has implemented the Independent Curriculum for more than two years, the author has observed similar challenges in the local context. One of the main problems is teachers' inability to formulate concrete, measurable learning outcomes.

Teachers tend to use overly general achievement formulations, such as "improving reading skills," without clear indicators. In addition, teachers find it difficult to adjust the learning flow to students' individual needs. The lesson plans prepared are often not flexible enough to accommodate changes in class conditions, especially when students need special attention. Another challenge lies in preparing summative assessments. Many teachers stated that the evaluation instruments they used did not fully reflect students' mastery of competencies. Assessments tend to be textual and do not holistically describe understanding. Teachers also have difficulty in carrying out joint reflection. Reflective meetings between educators tend to be short and not in-depth due to differences in views and time constraints.

In fact, reflection and collaboration features are an important part of the PMM ecosystem, which is designed to improve learning practices. According to [Lailaturrahmah et al \(2025\)](#), PMM has great potential to develop teacher capabilities sustainably. However, the lack of good practice-sharing habits, low participation in uploading learning videos, and minimal use of digital teaching tools indicate that there is still a gap in platform use ([Susanti et al., 2021](#)).

Seeing this phenomenon, research on the relationship between the use of the Merdeka Mengajar Platform and the effectiveness of learning management in the Merdeka Curriculum is very important. This research was conducted among State Elementary School teachers in Padang Selatan District, Padang City, to provide a clear picture of the actual conditions on the ground. This study also aims to describe the extent to which teachers use PMM in the learning process and to analyse the relationship between the platform's use and the effectiveness of learning management in the context of the Merdeka Curriculum. The results of this study are expected to serve as evaluation materials for policymakers and schools in developing strategies to strengthen teacher capacity and improve digital-based training systems.

Based on a review of previous studies, most research on the Merdeka Mengajar Platform (PMM) has focused on teachers' perceptions, levels of platform adoption, or general challenges in implementing the Merdeka Curriculum. However, empirical studies that quantitatively examine the relationship between PMM usage and learning management effectiveness, particularly at the elementary school level and within specific local contexts, remain limited. Furthermore, few studies have comprehensively linked PMM use to learning management practices, including planning, implementation, assessment, and reflection.

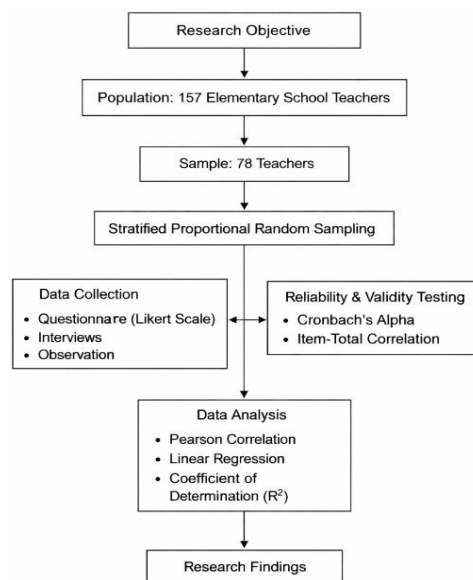
The novelty of this study lies in its empirical, quantitative examination of the contribution of the Merdeka Mengajar Platform (PMM) to the effectiveness of learning management in implementing the Merdeka Curriculum. Unlike prior studies that primarily focused on teachers' perceptions, platform adoption levels, or general implementation challenges, this research quantifies PMM's influence using statistical analysis to assess its explanatory power for learning management effectiveness. Furthermore, this study specifically investigates the elementary school level, which has received limited empirical

attention in previous PMM research. Another distinctive contribution is its contextual focus on Padang Selatan District, a region characterized by particular social conditions and technological readiness, thereby providing localized evidence that enriches contextual and implementation-based studies of the Merdeka Curriculum. By integrating technological utilization, learning management dimensions, and quantitative contribution analysis, this study offers a more comprehensive empirical model of how national digital education platforms support curriculum reform at the school level.

This study aims to describe the level of use of the Merdeka Mengajar Platform and the effectiveness of the learning management system, and to analyze the relationship between the two in the implementation of the Merdeka Curriculum at the elementary school level. In line with this objective, the study addresses the following research question: to what extent does the utilization of the Merdeka Mengajar Platform influence the effectiveness of learning management in the implementation of the Merdeka Curriculum?. Scientifically, this research contributes to the field of technology-based learning management by providing empirical, quantitative evidence on the role of a national digital learning platform in enhancing teachers' learning management effectiveness. The findings further strengthen the theoretical foundation for integrating educational technology into curriculum reform, particularly in platform-supported instructional practices. In addition, this study offers practical contributions by providing data-driven insights for schools and policymakers to optimize the utilization of the Merdeka Mengajar Platform. It may serve as a reference for future research in developing more effective models for implementing the Merdeka Curriculum across diverse educational contexts.

## **B. Method**

This study uses a quantitative, descriptive survey design to examine the relationship between the use of the Merdeka Mengajar Platform and the effectiveness of learning management in the Merdeka Curriculum. The independent variable in this study is the level of use of the Merdeka Mengajar Platform, while the dependent variable is learning management effectiveness. This platform is a digital application from the Ministry of Education, Culture, research, and Technology of the Republic of Indonesia that supports teachers in accessing teaching materials, improving competencies, and implementing the Merdeka Curriculum. Meanwhile, the Merdeka Curriculum gives teachers the flexibility to design learning tailored to students' needs, with features such as character development, flexible learning, and Pancasila student profile projects. The overall research procedure and analytical stages employed in this study are illustrated in Figure 1.



**Figure 1.** Research Flow Design

This figure illustrates the research flow employed in this study, beginning with the formulation of research objectives and proceeding to population identification and sample determination via stratified proportional random sampling. The process continues with data collection via questionnaires, interviews, and observations, as well as testing instrument validity and reliability. Subsequently, data were analyzed using correlation and regression techniques, including the coefficient of determination, to examine the relationship and contribution of the Merdeka Mengajar Platform to learning management effectiveness. The flow concludes with the interpretation of research findings.

The study population comprised all teachers of grades I, II, IV, and V at Public Elementary Schools in Padang Selatan District, Padang City, totaling 157 participants. The sample was determined using the Slovin formula with a 10% significance level, yielding a minimum of 61 respondents. However, this study ultimately involved 78 teachers as samples. The sampling technique used was Proportional Stratified Random Sampling based on length of service (<15 years and  $\geq 15$  years). This technique ensures that representatives from each stratum are selected proportionally, thereby making the research results more representative of field conditions.

Instruments and techniques used in the study to measure the relationship between the use of the Merdeka Mengajar Platform and learning management in the Merdeka Curriculum. Researchers used three main instruments, namely interviews, observations, and questionnaires. Interviews were conducted with teachers to gather data from direct experience. Observations were used to record phenomena in the field systematically. Meanwhile, the questionnaire was compiled using a Likert scale with five response categories and underwent several stages, from indicator compilation to validity and reliability testing using SPSS version 29.0. The questionnaire was the primary data source for statistical analysis, while interviews and observations served as supporting data to strengthen interpretation and contextual understanding. These supporting data were not

included in the main quantitative analysis. Interpretation of respondent achievement used a modified classification by Sudjana (2010):

**Table 1.** Interpretation of Respondents' Achievements

No	Average	Category
1.	90% - 100%	Very good
2.	80% - 89%	Good
3.	65% - 79%	Pretty good
4.	55% - 64%	Not enough
5.	0% - 54%	Very less

The data collection process involved distributing questionnaires to teachers at Padang Selatan District Elementary Schools, then analyzing the results through several steps, including data verification, scoring, and interpretation using the Sudjana classification. Furthermore, prerequisite analyses were carried out, including normality and linearity tests, to ensure statistical validity. Finally, the hypothesis was tested using SPSS's correlation analysis and coefficient of determination to assess the strength of the relationship between the independent variable (platform usage) and the dependent variable (learning management effectiveness).

This study followed a systematic research flow consisting of problem identification, literature review, research design, population and sample determination, instrument development, validity and reliability testing, data collection, prerequisite testing (normality and linearity), statistical analysis, and interpretation of results.

Instrument validity was assessed using item-total correlations, and reliability was measured using Cronbach's alpha in SPSS version 29.0. All instruments met the validity and reliability criteria, indicating their suitability for data collection.

Pearson correlation and simple linear regression were used to analyze the relationship between PMM usage and learning management effectiveness. These tests were selected because the data were interval-scaled, normally distributed, linear, and involved one independent and one dependent variable, with the coefficient of determination used to measure contribution.

## C. Result

### Description of Merdeka Mengajar Platform Usage Data

Data on the Merdeka Mengajar Platform usage variable were collected through a 29-question questionnaire administered to 78 teachers at the Padang Selatan District Elementary School in Padang City. The scores obtained from respondents ranged from 145 to the lowest score. The ideal maximum score is 145, and the ideal minimum score is 29. Based on data processing in SPSS 29.0 for Windows, the average score was 125.27, the median was 124, the mode was 116, and the standard deviation was 10.699. To get an idea

of the scores on the Merdeka Mengajar Platform usage variable, you can refer to the following table:

**Table 2.** Obtained Scores for Using the Merdeka Mengajar Platform

Use of the Merdeka Mengajar Platform		Score
N	Valid	78
	Missing	0
Mean (Average)		125.27
Median (Middle Value)		124
Mode (Value that appears most often)		116
Standard Deviation		10,699
Range		38
Minimum		107
Maximum		145
Sum		9771

The frequency distribution of Merdeka Mengajar Platform usage scores shows that the data are spread across several class intervals with a total of 78 respondents. The highest frequency appears in the interval 113–118, with 20 respondents, indicating that most respondents' scores are concentrated in this range, while the lowest frequency is found in the interval 143–148, with 6 respondents. Other intervals, such as 125–130 and 119–124, also show relatively high frequencies, suggesting moderate to high platform usage among respondents. Overall, the histogram shows that the majority of respondents fall within the middle to upper score ranges, indicating generally good use of the Merdeka Mengajar Platform.

Based on Table 2, the average use of the Merdeka Mengajar Platform was 16.7% (13 teachers); 33.3% (26 teachers) were above the average, and 50% (39 teachers) were below it. Based on the processing of questionnaire data for the Merdeka Mengajar Platform variable, by comparing the average score with the maximum score multiplied by 100%, the mean value of 125.27 divided by the maximum score of 145 yields 0.8639, which is multiplied by 100% = 86.39%. This means that the Merdeka Mengajar Platform by teachers at SDN Padang Selatan District has been implemented "Well" with a respondent achievement level of 86.39%. To find out the average per indicator of the Merdeka Mengajar Platform by teachers, see the following table.

The level of achievement of indicators for the use of the Merdeka Mengajar Platform is categorized as good. The PMM access indicator, consisting of five items with an ideal score of 25, yielded an average total score of 22.42, an average indicator score of 4.50, and a TCR of 89.92%, indicating that respondents could easily access the platform. Meanwhile, the indicator of using PMM features, comprising 24 items with an ideal score of 120, achieved an average total score of 102.85, an average indicator score of 4.29, and a TCR percentage of 85.89%, also classified as good, indicating that respondents utilized the available features effectively. Overall, across 29 items with an ideal total score of 145, the average total score

was 125.27, with an average score of 4.32 and a TCR of 86.39%, confirming that overall use of the Merdeka Mengajar Platform was at a good level.

Based on the table above, the highest average score is for the indicator of accessing PMM, at 4.50 (89.92%), while the lowest average score is for the indicator of using the PMM feature, at 4.29 (85.89%). In general, the average score for using the Merdeka Mengajar Platform is 4.32, with a 86.39% success rate. This means that the use of the Merdeka Mengajar Platform by teachers at SDN Padang Selatan District has been implemented well. Data on the implementation variable of the Merdeka Curriculum were collected by administering a 38-item questionnaire to 78 teachers at the Padang Selatan District Public Elementary School in Padang City. The scores obtained from respondents ranged from 190 to 147. The ideal maximum score is 190, and the ideal minimum score is 38. Based on data processing in SPSS 29.0 for Windows, the average score was 167.37, the median was 164.50, the mode was 152, and the standard deviation was 14.148. To get an overview of the scores on the Merdeka Curriculum implementation variable, you can refer to the following table:

The Independent Curriculum implementation scores obtained from 78 valid respondents show no missing data. The mean score is 167.37, indicating a relatively high level of curriculum implementation, while the median score of 164.50 suggests that half of the respondents scored above and below this value. The mode of 152 indicates the score that occurred most frequently among respondents. The standard deviation of 14.148 indicates a moderate variation in the implementation scores, with a range of 43 between the minimum score of 147 and the maximum score of 190. Overall, the total score of 13,055 reflects a generally strong implementation of the Independent Curriculum among the respondents.

The frequency distribution of the Merdeka Curriculum implementation data scores is presented in the following table:

**Table 3.** Frequency Distribution of Independent Curriculum Implementation Scores

Class Interval	Frequency	%Relative Frequency
189-195	8	
182-188	10	37.2%
175-181	11	
168-174	9	11.5%
161-167	6	51.3%
154-160	12	
147-153	22	
Amount	78	100%

Based on Table 3, the average score for implementing the Independent Curriculum is 11.5% (9 teachers); 37.2% (29 teachers) are above the average, and 51.3% (40 teachers) are below it. Based on the processing of questionnaire data for the Independent Curriculum implementation variable, by comparing the average score with the maximum score multiplied by 100%, the mean value of 167.37 is divided by the maximum score of 190, yielding 0.8809, which is multiplied by 100% = 88.09%. This means that the Implementation

of the Independent Curriculum by teachers at SDN Padang Selatan District has been carried out "Well", namely with a respondent achievement level of 88.09%. To find out the average per indicator of the Implementation of the Independent Curriculum by teachers, see the following table:

**Table 4.** Level of Achievement of Independent Curriculum Implementation Indicators

No	Indicator	Number of Items	Ideal Total Score	Total Score Average	Average Indicator	% TCR	Category
1.	Learning Planning	10	50	44.13	4.41	88.25%	Good
2.	Implementation of Learning	8	40	36.28	4.53	90.69%	Very good
3.	Learning Assessment	9	45	39.79	4.42	88.43%	Good
4.	Reflection And Follow-up Learning	11	55	47.58	4.33	86.50%	Good
Total Average Score		38	190	167.37	4.40	88.09%	Good

Based on the table above, the highest average score is for the learning implementation indicator at 4.53 (90.69%). In comparison, the lowest average score is for the learning reflection and follow-up indicator at 4.33 (86.50%). In general, the average score for the Implementation of the Independent Curriculum is 4.40 with a percentage of 88.09%. This means that the Implementation of the Independent Curriculum by teachers at SDN Padang Selatan District has been carried out well.

## Requirements Analysis Test

### Normality Test

The normality test is part of the classical assumption test. The normality test determines whether the residuals are normally distributed. According to Ghozali (2017), there are two ways to assess whether the residuals have a normal distribution: graphical analysis and nonparametric tests, such as the Kolmogorov-Smirnov (KS) test. The normality of the variables in this study was assessed using the Kolmogorov-Smirnov test. According to Suliyanto (2011), the basis for decision-making from this analysis is whether the regression model meets the normality assumption as follows:

If the Sig value is  $> 0.05$ , the residual values are normally distributed.

If the Sig value is  $< 0.05$ , then the residual values are not normally distributed.

**Tabel 5.** Results of Normality Test using SPSS 29.0 for Windows

Componen	Value
N	78
Normal Parameters <sup>ab</sup>	
Mean	0
Std. Deviation	7,15341797

Componen	Value
Most Extreme Differences	
Absolute	0,092
Positive	0,092
Negative	-0,072
Test Statistic	0,092
Asymp. Sig. (2-tailed) <sup>c</sup>	0,099
Monte Carlo Sig. (2-tailed) <sup>d</sup>	0,102
99% Confidence Interval Lower Bound	0,094
99% Confidence Interval Upper Bound	0,11

Based on the results of the classical normality test for residuals, namely the One-Sample Kolmogorov-Smirnov (K-S) test, the p-value was 0.99, which is greater than alpha (0.05). These results indicate that the residuals are normally distributed.

### Correlation Coefficient Test

Using the product-moment correlation analysis in SPSS 29.0, the results indicate a strong, significant relationship between the use of the Merdeka Mengajar Platform (X) and the implementation of the Merdeka Curriculum (Y). The correlation coefficient obtained ( $r = 0.863$ ) is greater than the  $r$  table value of 0.185 at the 5% significance level, with a significance value of  $< 0.01$ , indicating a statistically significant correlation between the two variables.

**Tabel 6.** Results of the Product-Moment Correlation Test using SPSS 29.0 for Windows

Variable	Using PMM	Implementation Independent Curriculum
<b>Using PMM</b>		
Pearson Correlation	1	0,863**
Sig. (2-tailed)	-	< 0,001
N	78	78
<b>Implementation Independent Curriculum</b>		
Pearson Correlation	0,863**	1
Sig. (2-tailed)	< 0,001	-
N	78	78

### Correlation Significance Test

A T-test was conducted using SPSS 29.0 to examine the significance of the relationship between the use of the Merdeka Mengajar Platform and the implementation of the Merdeka Curriculum. Based on the decision criteria, the hypothesis is accepted if the  $t$  value is greater than or equal to the  $t$  table value, indicating a significant contribution of the

Merdeka Mengajar Platform to the implementation of the Merdeka Curriculum among public elementary school teachers in Padang Selatan District.

**Table 5.** T-test results using SPSS 29.0 for Windows

Model	Variable	B (Unstandardized)	Std. Error	Beta (Standardized)	t	Sig.
1	(Constant)	24,451	9,642	-	2,536	0,013
	Using PMM	1,141	0,077	0,863	14,875	<0,001

Based on the calculation results above, the t count result is 14.875. After the t count value is obtained, the next step is to find the t table value at Alpha 0.5 with degrees of freedom ( $df = N-2$ ). The t table with  $N = 78$  at a significance level of 5% or at a confidence level of 95% is 1.665 (T table can be seen in Appendix 13). From the results of the correlation significance test, the t statistic is greater than the t table value at the 5% significance level:  $14.875 > 1.665$ . The criteria for calculating the significance of the correlation test state that if the t statistic exceeds the t-value from the t-table, the hypothesis is accepted.

### Coefficient of Determination (R<sup>2</sup>)

Furthermore, to determine the magnitude of the contribution of the use of the Merdeka Mengajar Platform to the implementation of the Merdeka Curriculum by teachers, the coefficient of determination formula is used, using the assistance of SPSS 29.0 for Windows, which can be seen in the image below:

**Table 6.** Results of the Determination Test in the SPSS 29.0 for Windows program

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	0,863	0,744	0,741	7,2

Based on the output above, the R-squared is 0.744. This means that the contribution of the Use of the Merdeka Mengajar Platform to the Implementation of the Merdeka Curriculum is 74.4%, with the remaining 25.6% attributed to other variables not included in this study. The following is a recapitulation of the research results, which can be seen in the table below:

**Table 7.** Recapitulation of Correlation Test Results, Correlation Significance, and Determination Coefficient Test with R Test Table and T Test Table

r count	> r table	t count	> t table	Coefficient Determination (R <sup>2</sup> )
0.863	0.1852	14,875	1,665	74.4%

Thus, based on the test results, the hypothesis that states "there is a significant contribution between the use of the Merdeka Mengajar Platform to the Implementation of the Curriculum by teachers at Public Elementary Schools in Padang Selatan District, Padang

City" can be accepted. With a large contribution of 74.4%, the remaining 25.6% is due to other variables not included in this study.

The study found that the use of the Merdeka Mengajar (PMM) Platform by Elementary School teachers in Padang Selatan District was in the good category, with most teachers actively using features such as Independent Training, inspirational videos, and teaching tools to support learning. This finding is supported by the opinions of [Hartanto \(2024\)](#) and [Rahmadani & Kamaluddin \(2023\)](#), who state that PMM provides easily accessible, comprehensive learning resources to support the implementation of the Independent Curriculum. [Rahmawati et al \(2024\)](#) also assesses PMM as a concrete manifestation of government support for teacher professional development, whereas [\(Lastini et al., 2025\)](#) emphasizes the benefits of flexible, applicable training features. In addition, [Budiarti \(2022\)](#) stated that PMM helps teachers find teaching materials that are appropriate to student characteristics. The high level of PMM utilization reflects teachers' growing awareness of technology's importance as a tool for student-centered learning. [\(Sujarwo, 2013\)](#).

In implementing the Independent Curriculum, teachers have demonstrated strong performance in developing teaching modules, implementing differentiated learning, and creating formative and summative assessments. However, aspects of reflection and learning evaluation still need improvement [\(Ihsan et al., 2025\)](#). Emphasized that the success of implementing this curriculum is greatly influenced by the flexibility of teachers in designing contextual learning [\(Rahim et al., 2024; Hadisti et al., 2025\)](#). Both highlight the importance of reflection as an integral part of the ongoing learning process. Furthermore, there is a very strong relationship between PMM use and the effectiveness of the Independent Curriculum, with PMM accounting for more than two-thirds of the curriculum's implementation success. This shows that the intensity and quality of PMM use play an important role in strengthening teachers' competence in implementing active, differentiated, and project-based learning [\(Nasrullah et al., 2024; Alvita et al., 2025\)](#). Continuous training and mentoring support for teachers is essential to optimize the use of educational technology in curriculum implementation.

#### **D. Discussion**

The findings of this study reveal that the utilization of the Merdeka Mengajar Platform (PMM) has a very strong relationship with the implementation of the Merdeka Curriculum, as indicated by its contribution value of 74.4%. This result directly answers the research question regarding the extent to which PMM utilization influences the effectiveness of learning management. The magnitude of this contribution confirms that PMM functions not merely as a supplementary digital platform but as an integrated instructional support system that significantly shapes teachers' learning management practices at the elementary school level. The increasing reliance on digital platforms in instructional management reflects broader trends in the transformation of technology-supported education [\(Almonacid-Fierro et al., 2021\)](#).

From a pedagogical perspective, PMM's strong influence can be explained by its integrated learning support features. The platform provides independent training, structured teaching modules, curriculum-aligned lesson plans, and instructional videos that enhance teachers' conceptual understanding of the Merdeka Curriculum. These features support the practical implementation of differentiated and student-centered learning approaches. In line with the Technological Pedagogical Content Knowledge (TPACK) framework, PMM facilitates the integration of technological tools with pedagogical strategies and curriculum content, enabling teachers to design more adaptive and competency-oriented instruction. Similar findings have been reported in studies highlighting the role of digital learning platforms in strengthening teacher instructional competence (Rahmawati et al., 2024).

In addition, PMM contributes to assessment and reflective practices. Teachers are guided to develop competency-based evaluations and conduct instructional reflections to improve learning effectiveness. This continuous cycle aligns with professional learning models that emphasize reflective teaching and ongoing competency development. Research on digital professional development platforms also indicates that structured online training environments can significantly enhance teachers' reflective capacity and instructional innovation (Lailaturrahmah et al., 2025). Consequently, the statistical strength identified in this study reflects the cumulative pedagogical impact of PMM across planning, implementation, assessment, and reflection stages.

From a managerial standpoint, PMM also strengthens learning management effectiveness. The platform assists teachers in organizing curriculum documentation, instructional administration, and assessment reporting more systematically. By reducing administrative complexity and providing structured implementation guidelines aligned with national curriculum standards, PMM allows teachers to focus more on instructional quality. This managerial function positions PMM not only as a pedagogical resource but also as a digital learning management system that improves efficiency, consistency, and accountability in curriculum execution. The integration of digital management tools within instructional systems has been widely acknowledged as a critical factor in improving institutional learning performance (Lastini et al., 2025).

The strong relationship identified in this study can also be interpreted through the Technology Acceptance Model (TAM). The high level of PMM utilization suggests that teachers perceive the platform as useful and easy to use, which in turn influences their willingness to integrate it into daily instructional management. Technology adoption research consistently shows that perceived usefulness and usability significantly determine the effectiveness of educational technology implementation (Saputra et al., 2024).

In relation to previous studies, the findings of this research reinforce and extend earlier evidence highlighting the positive role of PMM in supporting curriculum implementation and teacher professional development. Prior studies have predominantly focused on teachers' perceptions, adoption readiness, or general platform benefits. This study advances the discourse by quantitatively measuring the magnitude of PMM's

contribution to learning management effectiveness. By providing statistical evidence of its explanatory power, this research positions PMM as a key determinant rather than merely a supporting factor in curriculum implementation.

In this context, this study also provides localized empirical evidence from the elementary school level in Padang Selatan District. The regional focus reflects how technological readiness, institutional support, and professional engagement interact to shape platform effectiveness. This contextual dimension enriches the broader discourse on digital platform integration within curriculum reform, particularly in foundational education settings.

Overall, this study strengthens the empirical and theoretical foundation of technology-based learning management by demonstrating that integrated digital platforms such as PMM can simultaneously enhance pedagogical quality and managerial efficiency. The findings highlight the strategic role of national education platforms in supporting sustainable instructional improvement and effective curriculum transformation at the school level.

## **E. Implication**

The findings of this study carry significant theoretical, practical, and policy implications for advancing technology-based learning management within curriculum reform contexts. From a theoretical perspective, this research strengthens the conceptual framework that positions educational technology as a key determinant of effective learning management. By providing empirical evidence of the substantial contribution of the Merdeka Mengajar Platform (PMM) to the implementation of the Merdeka Curriculum, the study reinforces the theoretical discourse on the integration of digital platforms in supporting instructional planning, delivery, assessment, and reflective practice within contemporary curriculum transformation.

From a practical standpoint, the results highlight the necessity for teachers and schools to optimize the utilization of PMM as an integrated instructional and managerial tool. The platform's features facilitate lesson planning, differentiated learning design, competency-based assessment, and reflective evaluation, thereby enhancing teachers' professional competence while simultaneously reducing administrative complexity. Effective platform engagement enables educators to allocate greater focus to instructional quality and student learning outcomes.

At the policy level, these findings underscore the importance of sustained institutional support to maximize PMM effectiveness. Educational authorities are encouraged to strengthen platform utilization through continuous professional training programs, technical assistance, and equitable infrastructure provision. In addition, school leadership should integrate PMM usage into academic supervision frameworks and teacher professional development systems to ensure consistent, accountable, and sustainable implementation of the Merdeka Curriculum across educational settings.

## **F. Limitation & Suggestion for Further Research**

This study has several limitations that should be considered when interpreting its findings. First, the research employed a quantitative survey design, which limits the ability to explore in depth the underlying processes explaining how and why teachers utilize the Merdeka Mengajar Platform (PMM) in their daily instructional and managerial practices. While statistical analysis can measure the strength of the relationship, it cannot capture experiential, behavioral, and contextual nuances that influence platform utilization. Second, the study was conducted within a single district at the elementary school level, which may limit the generalizability of the findings to broader educational settings, including secondary schools, private institutions, and regions with different levels of technological readiness and institutional support. Third, this research examined only the direct relationship between PMM utilization and the implementation of the Merdeka Curriculum without incorporating other potential influencing variables that may interact with or mediate this relationship.

Given these limitations, future research is recommended to adopt mixed-methods designs that integrate quantitative analysis with qualitative approaches, such as in-depth interviews, focus group discussions, or classroom observations. Such approaches would provide richer insights into teachers' lived experiences, pedagogical adaptations, and contextual challenges in utilizing PMM. Furthermore, subsequent studies should investigate the roles of mediating and moderating variables—including digital literacy, school leadership, organizational support, and teachers' professional motivation—to develop a more comprehensive explanatory model of how digital platforms influence the effectiveness of curriculum implementation. Expanding research across diverse educational levels and regional contexts is also essential to strengthen the external validity and policy relevance of future findings.

## **G. Conclusion**

Based on the findings of this study, it can be concluded that the research objectives have been successfully achieved, particularly in describing the level of utilization of the Merdeka Mengajar Platform (PMM) and examining its relationship with the implementation of the Merdeka Curriculum at the elementary school level. The results explicitly confirm that PMM utilization has a significant and meaningful association with the effectiveness of curriculum implementation, thereby answering the research question regarding the extent to which digital platform usage supports learning management practices.

The main contribution of this study is to demonstrate that the Merdeka Mengajar Platform functions not only as a learning resource but also as a strategic instructional and managerial support system. Its integrated features strengthen lesson planning, instructional delivery, and classroom practice, although assessment and reflective components still require further optimization. Overall, this study underscores the strategic role of national digital learning platforms in enhancing teacher professionalism, improving instructional

management, and supporting sustainable educational transformation, particularly in elementary education contexts undergoing curriculum reform.

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