



# Improving Senior High School Quality Through the Driving School Program in Madura

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## Abstract

**Purpose:** This study aims to analyze the effect of the Driving School Program and the Independent Learning Curriculum on teacher competence, student engagement, school leadership, and educational quality in senior high schools in Madura, as well as to examine the mediating role of teacher competence in improving educational outcomes.

**Research Methodology:** This study employed a quantitative explanatory design using SEM-PLS analysis. Data were collected from 370 respondents across 14 senior high schools in Madura, determined using Slovin's formula and purposive sampling. A structured questionnaire with a Likert scale was used, and data were analyzed using SmartPLS 3.

**Results:** The results show that the Driving School Program has a significant positive effect on teacher competence, student engagement, and school leadership. The Independent Learning Curriculum has a positive but mixed effect, significantly influencing educational quality but showing limited impact on teacher competence. Educational quality is significantly influenced by both programs. However, teacher competence does not show a significant direct effect on educational quality, although it plays a mediating role in strengthening program effectiveness.

**Conclusions:** The Driving School Program and Independent Learning Curriculum are essential in improving educational quality, particularly through strengthening leadership and student engagement. Teacher competence functions more as a mediating mechanism rather than a direct predictor of educational quality.

**Limitations:** This study is limited to cross-sectional data, self-reported responses, and the geographical scope of Madura, which may limit generalizability.

**Contributions:** This study contributes to educational management literature by integrating policy programs and organizational factors into a comprehensive model of educational quality improvement.

**Keywords:** *Driving School Program, Independent Learning Curriculum, Students Engagement, School Leadership, Teacher Competence*

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## 1. Introduction

Strategic management aimed at enhancing the quality of education in Senior High Schools (SMA) through flagship Driving School Programs may include approaches centered on strengthening teacher competence, fostering effective school leadership, and promoting community engagement (Cleaver et al.,

2021). While the overall quality of many Indonesian senior high schools is considered satisfactory, several provinces still show a considerable proportion of schools categorized within the lowest-performance cluster (Anam et al., 2020; Budiharso & Tarman, 2020). Moreover, previous studies indicate that school-based management in certain Indonesian schools has not yet been fully effective. This is largely due to the suboptimal functioning of critical stakeholders, including foundations, school principals, teachers, parents, and the provision and utilization of educational facilities and infrastructure (Sihombing & Samosir, 2021).

The Indonesian government has taken several steps to improve the quality of senior high-school education. These include post-national exam mapping and quality improvement research across districts (Amin et al., 2018; Awwaliyah & Arcana, 2021), and new regulations on student admissions through Ministerial Regulation No. 44/2019 (Savitri & Rahaju, 2021) and strengthening school-based management (Sihombing & Samosir, 2021). Law No. 14/2005 on Teachers and Lecturers further supports quality by setting standards for teacher competencies and requiring government oversight regarding qualifications and welfare. It also promotes collaboration with private institutions and universities, as well as teacher certification, although its effectiveness remains a subject of debate. Improving quality ultimately requires cross-sector cooperation among the government, schools, teachers, parents, and adequate facilities. Indonesia has prioritized educational quality through reforms such as the Driving School Program, which strengthens senior high schools by raising standards and providing resources, training, and institutional support (Isnaeni & Agustina, 2018; Ritonga et al., 2022; Shobri, 2023). Its success relies on active teacher involvement to realize a student-centered vision that is aligned with program goals (Sijabat et al., 2022).

Mahyuni et al. (2022) note that several Driving School Programs have been introduced in Indonesia to enhance education quality by fostering critical thinking, creativity, problem-solving, and collaboration (El Soufi & See, 2020; Kadaryanto et al., 2020). A major focus is the 2013 Curriculum, which shifts from teacher-centered to active learning approaches (Verawati et al., 2020) and is considered a key step in improving education quality (Larasafitri et al., 2022). It enables students to progress from lower- to higher-order thinking, apply knowledge in real contexts, and engage more actively in learning (Dewi2022; Dewi et al., 2021; Wafa & Jatmiko, 2022). The Merdeka Belajar Curriculum refines this by offering greater flexibility and project-based models such as Problem-Based Learning (PBL) (Nuriawati & Achadi, 2023), and its implementation has begun in several provinces.

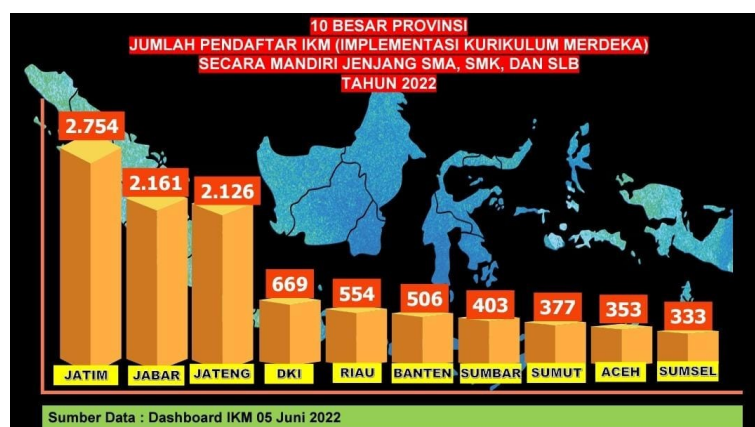


Figure 1. Implementing of National Independent Learning Program 2022  
Source: <https://surabayapostnews.com>

Based on Figure 1, East Java ranks first in implementing the Merdeka Curriculum affiliated with the Driving School Program (DS). This indicates that education in East Java has performed strongly

in implementing government education initiatives. Nevertheless, strong performance has not been accompanied by corresponding improvements in teacher quality, which remains a key determinant of educational quality in Indonesia [Anisa \(2022\)](#). This condition is illustrated in Figure 2.

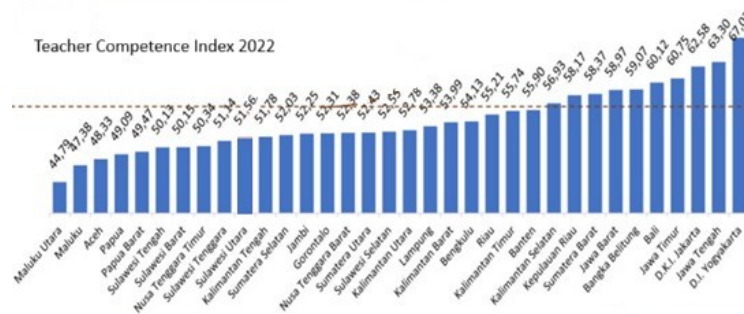


Figure 2. Teachers Competence Index 2022

Source: [gtk.kemdikbud.go.id](http://gtk.kemdikbud.go.id) 2022

Figure 2 shows that East Java ranks first in implementing the Merdeka Curriculum under the Driving School Program, yet only fourth in teacher competency with a score of 60.75, behind Central Java at 63.30. This gap highlights the mismatch between curriculum implementation and educator quality. To address this, the author proposes a new research framework, which represents the originality of this study.

## 2. Literature Review

### 2.1 Educational Quality Improvement

Educational quality is a central issue in education management that reflects the effectiveness of learning outcomes, institutional governance, and student development. Previous studies emphasize that improving educational quality requires a systematic approach involving leadership, teacher competence, and curriculum innovation. In the Indonesian context, educational reform is often driven by government policies aimed at improving school performance through structured programs such as the Driving School Program ([Fadhli, 2017; Hanum Gea et al., 2022](#)).

In addition, educational quality is strongly influenced by the alignment between policy implementation and school-level practices. Several studies show that gaps often occur between policy design and actual implementation in schools, particularly in rural or semi-urban areas such as Madura. Therefore, continuous evaluation and adaptive strategies are required to ensure that educational reforms achieve their intended outcomes ([Kinanti, 2016; Muniron, 2021](#)). Furthermore, educational quality is not only measured by academic achievement but also by institutional capacity, learning environment, and stakeholder engagement. Schools that successfully integrate leadership, teacher development, and student engagement tend to achieve higher performance levels. This highlights the importance of a holistic management strategy in education improvement ([Nifriza, 2023; Pinilla et al., 2021](#)).

### 2.2 Driving School Program (Sekolah Penggerak)

The Driving School Program is a government initiative designed to improve school quality through leadership strengthening, teacher capacity building, and student-centered learning approaches. The program emphasizes transformation in school management to create more effective, innovative, and adaptive educational institutions ([Prihantoro, 2021; Rahayu et al., 2022](#)).

Previous studies indicate that the Driving School Program significantly contributes to improving teacher

competence and student engagement. Schools participating in this program tend to adopt more innovative teaching strategies and stronger leadership practices. This creates a more dynamic learning environment that supports educational improvement (Riowati & Yoenanto, 2022). However, implementation challenges still exist, especially in regions with limited resources. Some schools experience difficulties in adapting to new policies due to limited training and infrastructure. Therefore, successful implementation requires continuous support, monitoring, and capacity building (Sabariah, 2021; Schildkamp, 2019).

### **2.3 Kurikulum Merdeka (Independent Learning Curriculum)**

The *Kurikulum Merdeka* is designed to provide flexibility in learning, allowing teachers and students to explore competencies based on individual needs and contexts. This curriculum promotes project-based learning and emphasizes critical thinking, creativity, and problem-solving skills (Shaturaev, 2021).

Studies show that the *Kurikulum Merdeka* can improve learning outcomes when implemented effectively. However, its success depends on teacher readiness and institutional support. Without adequate training and resources, the impact of the curriculum may not be optimal (Sulastri et al., 2020; Supriadi, 2017; Tang, 2020). Moreover, the curriculum encourages student-centered learning, which enhances engagement and motivation. This approach is expected to improve not only academic achievement but also character development and collaborative skills among students (Soeryanto et al., 2023).

### **2.4 Teacher Competence, Student Engagement, and School Leadership**

Teacher competence plays a crucial role in determining the quality of learning. Competent teachers are able to design effective learning strategies, manage classrooms, and evaluate student performance effectively. This directly influences student learning outcomes (Tjong et al., 2017; Trošelj et al., 2021). Student engagement is also a key factor in educational success. Engaged students tend to show higher motivation, participation, and academic achievement. Engagement is influenced by teaching quality, learning environment, and school policies (Tyagita & Iriani, 2018). School leadership serves as the driving force in implementing educational programs. Effective leadership ensures coordination, motivation, and resource management within schools. Strong leadership has been shown to significantly improve school performance and educational quality (Utami, 2019; Yu, 2022).

## **3. Methodology**

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### **3.1 Research Design**

This study employed a quantitative, explanatory research design to verify the causal relationships between variables through hypothesis testing (Sugiyono 2013). The research was conducted at 14 senior high schools in Madura, involving the principals, teachers, and students. Data were collected using questionnaires and documentation, with purposive sampling. A Likert scale was used, while validity and reliability tests were conducted with SPSS 25, and the data were analyzed using SEM-PLS (Bezaniilla et al., 2019).

### **3.2 Data Collection**

Data were collected primarily through questionnaires designed to capture indicators related to educational quality, *Sekolah Penggerak Program*, *Kurikulum Merdeka Belajar*, teacher competence, student engagement, and school leadership.

### **3.3 Types and Sources of Data**

This study used both quantitative (numerical, statistically analyzed) and qualitative (descriptive, non-numerical) data (Silaen 2018; Miles 2023). Primary data were obtained directly from principals, teachers, and students, and secondary data were sourced from journals, books, reports, and institutional records.

### 3.4 Population and Sample

The research population comprised 4,825 individuals from the selected schools. Using Slovin's formula with a 95% confidence level and 5% margin of error, 370 respondents were sampled, comprising 14 principals/vice principals, 49 teachers, and 307 students. A total of 375 valid responses were collected and coded for analysis using SmartPLS 3 software.

## 4. Results and Discussion

### 4.1 Results

#### 4.1.1 Respondent Demographic

Table 1. Respondent Demographic

Characteristic	Category	Frequency	Percentage
Gender	Male	180	48.6
	Female	190	51.4
	Total	370	100.0
Age	17–20	290	78.4
	21–30	8	2.1
	31–40	31	8.5
	41–50	25	6.7
	> 50	16	4.3
	Total	370	100.0
Position	Student	290	78.4
	Teacher	62	16.8
	Head School	18	4.8
	Total	370	100.0
Grade	Class 10 (1)	153	42.1
	Class 11 (2)	174	46.4
	Class 12 (3)	43	11.5
	Total	370	100.0

Source: Data processed by researchers (2025)

As shown in Table 1, of the 370 respondents, 180 (48.6%) were male and 190 (51.4%) were female, indicating that the majority of participants were female. In terms of age, most respondents were between 17 and 20 years old (290 respondents, 78.4%), while the smallest group was aged 21–30 years (8 respondents, 2.1%). Regarding occupational characteristics, the majority were students (290 respondents, 78.4%), followed by teachers (62 respondents, 16.8%), and vice principals (18 respondents, 4.8%).

#### 4.1.2 Measurement Model

Table 2. Output of Measurement Model

Variable	Indicators	Loading Factor	Cronbach's Alpha	Composite Reliability	AVE	P-Value
The Driving School Program	DSP1	0.719	0.953	0.957	0.674	–
	DSP2	0.734				
	DSP3	0.866				
	DSP4	0.888				
	DSP5	0.875				
The Independent Learning Curriculum	ILC1	0.793	0.959	0.962	0.659	–
	ILC2	0.730				
	ILC3	0.817				
	ILC4	0.851				
Teacher Competence	TC1	0.722	0.913	0.925	0.542	–
	TC2	0.787				
	TC3	0.713				
	TC4	0.819				
	TC5	0.744				
	TC6	0.711				
Education Quality	EQ1	0.830	0.958	0.961	0.651	–
	EQ2	0.792				
	EQ3	0.850				
	EQ4	0.830				
	EQ5	0.760				

Source: Output of SmartPLS 3.0.

Based on Table 2, the measurement model demonstrated satisfactory construct validity and reliability across all variables. All factor loadings exceeded the recommended threshold of 0.70, indicating strong indicator reliability, with a few slightly above 0.71 still acceptable (Hair et al., 2020). Cronbach's alpha ( $\alpha$ ) values ranged from 0.913 to 0.959, and composite reliability (CR) values ranged from 0.925 to 0.962, both exceeding the minimum criterion of 0.70, confirming high internal consistency. The average variance extracted (AVE) for all constructs falls between 0.542 and 0.674, surpassing the 0.50 threshold, demonstrating adequate convergent validity. These results suggest that the constructs—Driving School Program, Independent Learning Curriculum, Teacher Competence, and Education Quality—are measured reliably and validly, supporting their suitability for further structural model analyses.

#### 4.1.3 Structural Model

Table 3. Hypothesis Testing (Direct Effect)

Hyp.	Path	$\beta$	STDEV	T Statistics	P Values	Result
H1	Driving School Program ( $X_1$ ) $\rightarrow$ Teacher Competence ( $Z$ )	0.436	0.153	2.843	0.005	Accepted
H2	Independent Learning Curriculum ( $X_2$ ) $\rightarrow$ Teacher Competence ( $Z$ )	0.297	0.152	1.946	0.052	Rejected
H3	Driving School Program ( $X_1$ ) $\rightarrow$ Education Quality ( $Y$ )	0.625	0.132	4.250	0.000	Accepted
H4	Independent Learning Curriculum ( $X_2$ ) $\rightarrow$ Education Quality ( $Y$ )	0.256	0.131	2.482	0.003	Accepted
H5	Teacher Competence ( $Z$ ) $\rightarrow$ Education Quality ( $Y$ )	0.013	0.080	0.168	0.867	Rejected

Source: Output SmartPLS 3.0.

Based on Table 3, hypothesis testing revealed several significant relationships. The Driving School Program (X1) exerts a positive and significant effect on Teacher Competence (Z) ( $\beta = 0.436, t = 2.843, p = 0.005$ ), indicating that the program implementation enhances teacher competence. In contrast, the Independent Learning Curriculum (X2) shows a weaker, marginal effect on Teacher Competence ( $\beta = 0.297, t = 1.946, p = 0.052$ ), suggesting that its contribution is not statistically significant at the 5% level.

Regarding Education Quality (Y), both the Driving School Program (X1) and Independent Learning Curriculum (X2) demonstrated significant positive effects ( $\beta = 0.625, t = 4.250, p < 0.001$ ;  $\beta = 0.256, t = 2.482, p = 0.003$ , respectively), highlighting their importance in improving educational outcomes. However, Teacher Competence (Z) does not significantly influence Education Quality ( $\beta = 0.013, t = 0.168, p = 0.867$ ), suggesting that teacher competence, as measured in this study, does not directly mediate the relationship between educational programs and quality of life.

Overall, the findings emphasize the pivotal role of the Driving School Program and Independent Learning Curriculum in enhancing education quality, while teacher competence does not emerge as a significant predictor in this model.

Table 4. Mediation Effect

Hypothesis	Path	p-value	Result
H1a	Driving School Program ( $X_1$ ) → Teacher Competence (Z) → Education Quality (Y)	–	–
H2a	Independent Learning Curriculum ( $X_2$ ) → Teacher Competence (Z) → Education Quality (Y)	–	–

Source: Output SmartPLS 3.0.

Based on Table ??, the mediation analysis indicated that Teacher Competence (Z) served as a significant mediator in both hypothesized relationships. Specifically, the Driving School Program (X1) influences Education Quality (Y) indirectly through Teacher Competence, with a significant mediation effect ( $p = 0.006$ ). Similarly, the Independent Learning Curriculum (X2) indirectly influenced Education Quality through Teacher Competence ( $p = 0.004$ ).

These findings suggest that while the direct effect of Teacher Competence on Education Quality was not significant, the variable still plays an important mediating role by channeling the influence of educational programmes toward improved outcomes. In other words, both the Driving School Program and the Independent Learning Curriculum enhance teacher competence, which, in turn, contributes to the elevation of education quality.

#### 4.2 Discussion

The findings underscore the significant and direct positive impact of both the Driving School Program (DSP) and the Independent Learning Curriculum (ILC) on education quality. Specifically, the DSP demonstrated a strong effect on teacher competence ( $\beta = 0.436, p = 0.005$ ) and education quality ( $\beta = 0.625, p < 0.001$ ), affirming the program's capacity to enhance instructional quality and outcomes. These results are supported by studies conducted in Palembang and Sumatera Selatan, which emphasize the importance of teacher competence and academic supervision in strengthening the effectiveness of *Sekolah Penggerak* initiatives (Samari et al., 2023).

Likewise, the ILC has a positive and statistically significant impact on education quality ( $\beta = 0.256, p = 0.003$ ), although its influence on teacher competence is only marginal ( $\beta = 0.297, p = 0.052$ ). This echoes the findings from East Lombok, where the implementation of the *Merdeka Curriculum* contributed

indirectly to improved student achievement (Astuti et al., 2023). The modest connection between ILC and teacher competence suggests that while the curriculum itself can elevate learning outcomes, it may require additional capacity-building or systemic support to enhance teacher skills effectively—a concern echoed by qualitative studies exploring teacher readiness in implementing *Merdeka Belajar* (Afida & Prihatin, 2024; Al-Fathoni, 2023).

The absence of a significant direct effect of teacher competence on education quality ( $\beta = 0.013$ ,  $p = 0.867$ ) may seem counterintuitive at first glance. However, this finding aligns with emerging research highlighting the complexity of translating teacher capabilities into learning improvement without robust programmatic scaffolding. For example, in a study from Bandar Lampung, teacher competence and education were both shown to meaningfully influence the overall effectiveness of the *Guru Penggerak* program (Nawati et al., 2025). Additionally, Indonesian case studies show that when combined with structured tooling and training, DSP and its emphasis on leadership and innovation help strengthen teaching quality and educational outcomes (Miskiyah et al., 2024). Importantly, the mediation analysis offers critical insight: teacher competence significantly mediates the impact of DSP and ILC on education quality ( $p = 0.006$  and  $p = 0.004$ , respectively). This suggests that while teacher competence may not directly translate into improved educational quality, it serves as an essential intermediary for programs such as DSP and ILC to exert their full effect (Ruaya et al., 2022). This dynamic is reinforced by research showing that teacher competence is key to effectively implementing the Independent Curriculum and achieving its intended educational objectives (Amir et al., 2024). Moreover, broader studies highlight that teacher pedagogical competence, combined with collaborative learning communities and institutional readiness, supports deep learning and educational transformation—critical aspects of the *Sekolah Penggerak* initiatives (Alfaningtias & Hadi, 2023). In remote areas, DSP has notably contributed to improving education quality by equipping teachers to enact meaningful change despite the infrastructural limitations.

## 5. Conclusions

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The research analysis offers compelling evidence that the Driving School Program and Independent Learning Curriculum can significantly improve educational quality, largely through the activation of teacher competence. However, teacher competence in isolation may not yield educational improvements unless it is embedded within programmatic frameworks that offer instructional support, leadership involvement, and resource alignment. These findings emphasize the imperative for Indonesian education policy to adopt integrated, multi-layered strategies, where teacher development and program intervention converge to create meaningful, sustained enhancements in learning outcomes.

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## Author Contributions

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SA contributed to conceptualization, data collection, data analysis, manuscript drafting, and final approval. NS and HBU was responsible for research design, theoretical framework, methodology, manuscript revision, and final approval. AA and S handled supervision, methodology, manuscript revision, and final approval.

## **Conflicts of Interest**

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The authors declare that there are no conflicts of interest that could have influenced, or be perceived to have influenced, the research presented in this article. This study was conducted in an objective and independent manner, and no financial, commercial, or personal relationships exist that may constitute a potential conflict of interest in relation to the design, implementation, analysis, interpretation, or publication of the findings.

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