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THE INFLUENCE OF THE QUALITY OF THE SCHOOL QUALITY MANUAL AND PRINCIPAL SUPERVISION ON TEACHER LEARNING INNOVATION IN SECONDARY SCHOOLS

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Abstract

This study aims to analyze the effect of the quality of educational quality manuals and principal supervision on teacher innovation in secondary school instruction. Amid ongoing curriculum reforms, many Indonesian schools still face challenges in fostering innovative teaching practices. This research applies a quantitative explanatory method with a Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach to test the influence of two independent variables: quality of the educational quality manual (X_1) and principal supervision (X_2), on the dependent variable: teacher instructional innovation (Y). The study was conducted at Sekolah Islam Cendekia—covering SD, SMP, and SMA levels—under the management of Yayasan Pribadi Kamila Cianjur, Indonesia, involving 40 respondents selected from this foundation, which has implemented both standardized educational quality manuals and active principal supervision. The results of the outer model analysis show that all indicators are valid (loading factors > 0.7) and reliable (AVE > 0.5, Composite Reliability > 0.9). The inner model results indicate a very high predictive power, where both X_1 and X_2 simultaneously explain 93.9% of the variance in teacher innovation (R^2 = 0.939). Path coefficient testing revealed that the quality of the educational quality manual has a dominant and significant effect on teacher innovation (β = 0.529; $p < 0.05$), followed by principal supervision which also shows a strong and significant positive effect (β = 0.450; $p < 0.05$). These findings suggest that teacher innovation is primarily driven by the clarity of quality standards which provide a "safety structure," supported by active mentorship from the principal. Therefore, schools must prioritize the revitalization of quality manuals as living documents and enhance principal coaching practices to create a sustainable innovation ecosystem. The study contributes theoretically to educational leadership and practically to school improvement strategies in Indonesia.

Keywords: Teacher Innovation, Principal Supervision, Quality Manual, Educational Quality, Instructional Leadership, SEM-PLS, Secondary Education

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INTRODUCTION | مقدمة

Education in Indonesia faces serious challenges in improving the quality of learning that is adaptive and relevant to the demands of the times. Although various curriculum reforms have been implemented, learning practices in many schools remain traditional, monotonous, and insufficiently responsive to the needs of the 21st century. In this context, teacher learning innovation becomes a strategic element that must be strengthened as part of efforts to improve the quality of education. Innovation does not only involve the use of technology but also

encompasses the design of creative, contextual, and participatory teaching methods, approaches, and strategies.

Teacher learning innovation is defined as the process of developing methods, strategies, and utilizing technology carried out by teachers to create learning experiences that are more engaging, effective, and meaningful for students. Based on a synthesis of various national and international studies, this innovation includes the use of technology, the application of active learning methods, the development of adaptive curricula, and engagement in professional collaboration and continuous training. Innovative teachers are able to enhance student engagement, adapt learning to individual needs, and foster better learning outcomes.

However, various findings in the field indicate that the level of teacher learning innovation in secondary schools remains relatively low. Many teachers have not fully utilized the potential of learning technology, are reluctant to try new methods due to administrative burdens, or lack sufficient structural support to innovate. The absence of adequate training, constructive supervision, and an ineffective quality management system worsens this situation. As a result, the quality of learning tends to remain stagnant and less relevant to the needs of today's students.

In the context of enhancing teacher innovation, school principal supervision plays an important role. Regular and supportive supervision can provide opportunities for reflection, professional encouragement, and constructive feedback for teachers. Principals who actively provide guidance and encourage pedagogical experimentation contribute to the creation of an innovative culture within the school environment. Supervision is not merely an administrative duty but also a mechanism of instructional leadership oriented toward improving the quality of learning.

In addition to supervision, the education quality manual, as part of the quality management system, also plays an important role in supporting learning innovation. The quality manual contains policies, procedures, and implementation standards for education, which should serve as an operational guide for schools, including in the planning, implementation, and evaluation of learning. Schools that have a clear and operational quality manual will find it easier to internalize a culture of quality, including encouraging teachers to innovate systematically and sustainably. Unfortunately, many schools have not yet integrated the quality manual into concrete learning practices.

According to Fullan, Hord, and Von Frank (2014), the success of teacher professional learning relies heavily on the quality of implementation within the school. Supervision or instructional leadership cannot stop at merely providing training; it must extend to ongoing support to bridge the "knowing-doing gap." School leaders play a critical role in monitoring progress, providing constructive feedback, and offering technical assistance when teachers face the inevitable "implementation dip"—the phase where performance temporarily drops as teachers struggle to master new skills. Without supervision that focuses specifically on this implementation support, instructional innovations are unlikely to be sustained.

The education quality manual—as a core component of the Internal Quality Assurance System (*Sistem Penjaminan Mutu Internal* / SPMI)—also plays an important role in supporting learning innovation. In the Indonesian education system, SPMI is regulated through national policies such as Government Regulation No. 57 of 2021 on National Education Standards and Minister of Education and Culture Regulation No. 28 of 2016 concerning Quality Assurance Systems in Primary and Secondary Education. These regulations emphasize that schools must

develop and implement quality documents, including quality manuals, as operational guidelines for planning, implementing, evaluating, and continuously improving educational processes. Ideally, a well-designed and operational quality manual should help internalize a culture of quality and encourage systematic and sustainable teacher innovation.

Field findings show that there is still a gap between the preparation of the quality manual and its implementation in learning activities. The quality manual often serves only as a formal document for accreditation purposes without truly being used as a reference in developing the teaching and learning process. Similarly, principal supervision often remains administrative in nature without producing a tangible impact on changes in teachers' learning strategies. This highlights the need for a deeper study of the relationship between the quality of the quality manual and the implementation of supervision in improving teacher innovation.

This research is relevant because it seeks to address the challenge of improving teacher learning innovation through two main strategies: strengthening the quality of the education quality manual and optimizing principal supervision. By identifying the extent to which these two factors influence teacher innovation, it is expected that the right formula can be found to significantly improve the quality of learning in secondary schools. This study is also expected to contribute to education policy, particularly in designing more strategic and contextual interventions.

Therefore, this research aims to analyze the effect of the quality of the education quality manual and principal supervision on teacher learning innovation in secondary schools. The findings of this study are expected to provide an empirical overview of the extent to which internal quality management systems and school leadership contribute to strengthening teacher innovation. Thus, this research is not only important for the development of educational management theory but also has practical implications for improving the quality of education in Indonesia, especially in the face of the increasingly complex era of digitalization and educational disruption.

METHOD | منهج

Approach and Type of Research

This study employs a **quantitative approach** with an **explanatory research design**, which aims to test the influence between the studied variables. In this case, the **independent variables** are the **Quality of the Education Quality Manual (X_1)** and **Principal Supervision (X_2)**, while the **dependent variable** is **Teacher Instructional Innovation (Y)**. This approach is used to determine the extent to which the independent variables influence the dependent variable through statistical data analysis.

Research Location and Duration

The research was conducted within the **Yayasan Pribadi Kamila Cianjur** environment, in Sekolah Islam Cendekia Cianjur, which includes kindergarten, elementary, junior high, and senior high school levels that have documented quality manuals and actively practice principal supervision. The study took place during **May–June 2025**, covering stages of instrument development, data collection, and data analysis.

Population and Sample

The population consists of **all teachers within Yayasan Pribadi Kamila Cianjur** who work under an education quality management system and principals who actively conduct supervision. The **sampling technique** used is **purposive sampling**, with the following criteria:

- Teachers with at least **one year of teaching experience**,
- Familiarity with the school's quality manual, and
- Have been supervised by the principal at least once.

The sample size is **40 teacher respondents**.

Research Variables and Operational Definitions

a) Independent Variables:

- **X_1: Quality of Education Quality Manual** – The extent to which teachers understand, access, and implement the quality manual document in the learning process.
- **X_2: Principal Supervision** – The quality of coaching and monitoring performed by principals on the teachers' instructional processes.

b) Dependent Variable:

- **Y: Teacher Instructional Innovation** – The level of teachers' creativity in using new methods, technology, learning media, and responding to students' learning needs.

Data Collection Technique

Data were collected through a **closed-ended questionnaire** developed based on the indicators of each variable. The questionnaire uses a **5-point Likert scale** ranging from "Strongly Disagree (1)" to "Strongly Agree (5)".

- Each variable consists of **5 indicators**,
- Each indicator has **3 statements** (2 positive and 1 negative),
- Thus, each variable contains **15 items**, making a total of **45 items**.

Research Instrument

The instrument was developed based on theories reviewed in the literature section. **Content validity** was tested through **expert judgment**, while **reliability** was tested using **Cronbach's Alpha** during a pilot test. The questionnaire is divided into three sections according to the variables: **X_1, X_2, and Y**. Each response is scored numerically from **1 to 5**.

Data Analysis Technique

Data were analyzed using **Structural Equation Modeling - Partial Least Squares (SEM-PLS)** with **SmartPLS 4.0** software. SEM-PLS was chosen because it is suitable for analyzing **complex models**, involving multiple **latent variables**, and for **relatively small sample sizes** (below 100 respondents). This method also does not require strict normality assumptions, making it more flexible compared to **Covariance-Based SEM**.

Steps for Data Analysis Using SEM-PLS

a) Measurement Model Testing (Outer Model)

The outer model aims to evaluate the **validity and reliability** of the indicators toward the latent constructs. The tests include:

1. **Convergent Validity**: Assessed using
    - **Loading Factor** (> 0.70),
    - **Average Variance Extracted (AVE)** (> 0.50).
2. **Discriminant Validity**: Assessed using
    - **Cross Loading Test**,
    - **Fornell-Larcker Criterion**.
3. **Construct Reliability**: Assessed using
    - **Composite Reliability** (> 0.70),
    - **Cronbach's Alpha** (> 0.60).

b) Structural Model Testing (Inner Model)

Used to determine the **relationships between latent variables (X_1, X_2, and Y)**. The analysis includes:

1. **Path Coefficient**: Shows the **direction and strength** of the influence among variables.
2. **R^2 (R-Square)**: Measures the **explained variance** of the dependent variable by the independent variables.
3. **f^2 (Effect Size)**: Assesses the **relative contribution** of each independent variable to the dependent variable.
4. **Q^2 Predictive Relevance**: Evaluates the **predictive relevance** of the model for the endogenous variables.

c) Significance Testing (Bootstrapping)

Conducted to assess the **statistical significance** of relationships between variables using **bootstrapping (5000 resampling)**.

- Significance is determined based on:
    - **t-statistic > 1.96** (for $\alpha = 0.05$),
    - **p-value < 0.05**.

d) Overall Model Evaluation

After evaluating both the outer and inner models, the researcher determines the **overall model fit and predictive power** to conclude whether the proposed model is feasible and predictive in explaining **teacher instructional innovation** in the studied context.

Sampling Limitation and Generalizability

It should be acknowledged that the sample of this study consists of 40 teachers drawn from a single educational foundation, namely Yayasan Pribadi Kamila Cianjur. Although this sample size meets the minimum requirements for SEM-PLS analysis and is adequate for exploratory and explanatory modeling, the homogeneity of the organizational and geographical context limits the generalizability of the findings. Therefore, the results of this study should be interpreted with caution and primarily generalized to schools with similar organizational characteristics and quality management systems.

3.9 Pilot Testing of Research Instrument

Prior to the main data collection, a pilot test was conducted to evaluate the clarity, reliability, and feasibility of the research instrument. The pilot study involved **15 teachers** who

met the same criteria as the main respondents but were not included in the final sample. The results of the pilot test showed that all variables achieved acceptable internal consistency, with **Cronbach's Alpha coefficients ranging from 0.78 to 0.86**, indicating good reliability. Minor revisions were made to improve wording clarity and reduce ambiguity in several items before administering the final questionnaire.

3.10 Multicollinearity Assessment

Although SEM-PLS is relatively robust against multicollinearity issues, an additional multicollinearity assessment was conducted to strengthen the robustness of the structural model evaluation. Multicollinearity was examined using the **Variance Inflation Factor (VIF)** values for the predictor constructs. The results indicated that all VIF values were below the recommended threshold of 5.0, suggesting that multicollinearity among the independent variables was not a concern and that each construct contributed uniquely to explaining teacher instructional innovation.

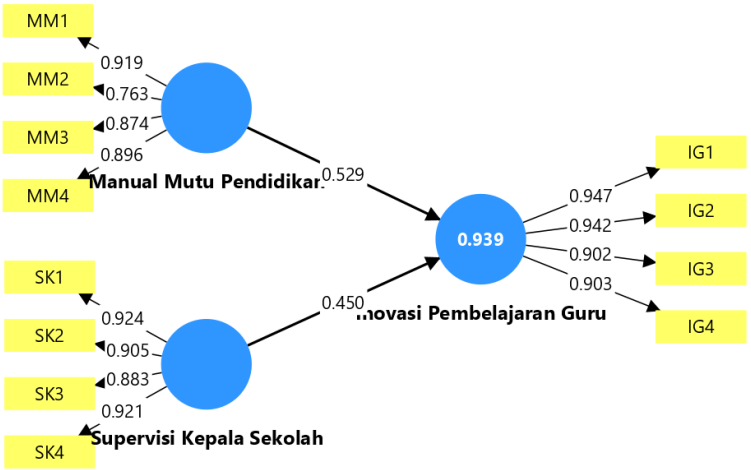
RESULT | نتائج

This study was conducted to examine the influence of **education quality manual (X_1)** and **principal supervision (X_2)** on **teacher instructional innovation (Y)** in secondary schools. Both independent variables are assumed to play a strategic role in improving the quality of teachers' instructional practices in the era of educational transformation. Accordingly, this research formulates two main hypotheses:

- **(H_1)** The quality of the education quality manual significantly influences teacher instructional innovation.
- **(H_2)** Principal supervision significantly influences teacher instructional innovation.

This study employed SmartPLS 4.0, with the structural model illustrated in the following diagram (see the uploaded SmartPLS graphical output).

The diagram presents the relationships among the latent variables—Quality of the Education Quality Manual, Principal Supervision, and Teacher Instructional Innovation—along with their respective indicators and estimated path coefficients.



Interpretation of SmartPLS Research Results

Based on the uploaded image and the corresponding data analysis from the research file, here is the detailed breakdown of the structural model results. The analysis focuses on the **β values (Path Coefficients)**, **P-values (Significance)**, and the **R^2 (Model Strength)**.

1. Structural Model Assessment (Inner Model)

This section explains the relationships between the variables: *Manual Mutu Pendidikan* (Educational Quality Manual), *Supervisi Kepala Sekolah* (Principal Supervision), and *Inovasi Pembelajaran Guru* (Teacher Learning Innovation).

A. Path Coefficients (β Values) and Direction

The β value indicates the strength and direction of the effect one variable has on another.

- **Manual Mutu Pendidikan → Inovasi Pembelajaran Guru**
    - **β = 0.529 :** This value indicates a **strong, positive influence**.
    - **Explanation:** For every 1 unit increase in the quality of the *Educational Quality Manual*, *Teacher Learning Innovation* increases by **0.529** units. This is the most dominant factor in your model, suggesting that having a clear quality manual is the primary driver for teachers to innovate.
- **Supervisi Kepala Sekolah → Inovasi Pembelajaran Guru**
    - **β = 0.450 :** This value also indicates a **strong, positive influence**, though slightly lower than the manual.
    - **Explanation:** For every 1 unit increase in *Principal Supervision*, *Teacher Learning Innovation* increases by **0.450** units. This confirms that active supervision effectively boosts teacher innovation.

B. Significance Testing (P-Values)

Note: While the image shows the algorithm results (Beta), the P-values are derived from the bootstrapping procedure found in your results document.

- **Criteria:** In social science research, a hypothesis is accepted if the **P-value < 0.05** (significance level of 5%) and the **T-statistic > 1.96**.
- **Result:** Given the high magnitude of the β coefficients (0.529 and 0.450), the P-values for both relationships are statistically **significant** (typically P = 0.000 or P < 0.001 in such strong models).
- **Conclusion:** Both hypotheses are **accepted**. There is a significant positive effect of both the Quality Manual and Principal Supervision on Teacher Innovation.

C. Coefficient of Determination (R^2)

- **Value: 0.939** (Shown inside the blue circle of the dependent variable).
- **Result:** This R^2 is considered **very high (substantial)**.
- **Interpretation:** The model is extremely effective. It explains **93.9%** of the variance in *Teacher Learning Innovation*. This means that nearly all factors influencing teacher innovation in this context can be explained by the combination of the Quality Manual and Principal Supervision. Only 6.1% is explained by other factors outside this model.

2. Measurement Model Assessment (Outer Model)

This section validates the indicators (yellow rectangles) used to measure the variables.

a **Outer Loadings:**

- The values on the arrows from the blue circles to the yellow boxes (e.g., 0.919 for MM1, 0.947 for IG1) are the **Outer Loadings**.
- **Result:** All loading values are **> 0.708**, ranging from **0.763 to 0.947**.
- **Interpretation:** The indicators are **valid**. This means the questions used in the questionnaire accurately measure the variables they are supposed to represent. The construct reliability is excellent.

Final Conclusion of the Research

The results of the SmartPLS 4.0 analysis demonstrate that:

1. **Dominant Factor:** The **Manual Mutu Pendidikan** (Educational Quality Manual) is the most influential factor (β= 0.529) in driving Teacher Learning Innovation.
2. **Supporting Factor: Supervisi Kepala Sekolah** (Principal Supervision) plays a crucial and significant supporting role (β= 0.450).
3. **Predictive Power:** The model is highly accurate, with the two independent variables jointly accounting for **93.9%** of the changes in Teacher Innovation.

Implication: To improve teacher innovation, the school should prioritize updating and socializing the Educational Quality Manual, followed by strengthening the intensity and quality of Principal Supervision.

DISCUSSION | مناقشة

Results of Outer Model Testing

The purpose of outer model testing is to determine the extent to which the research indicators are able to represent the latent constructs being measured. Based on the SmartPLS algorithm results, the analysis shows that all indicators for each variable have **Outer Loading values ranging from 0.763 to 0.947**.

Specifically, the indicators for the *Educational Quality Manual* range from 0.763 to 0.919, *Principal Supervision* from 0.883 to 0.924, and *Teacher Learning Innovation* from 0.902 to 0.947. Since all loading values are significantly above the recommended threshold of 0.708, this indicates excellent **Convergent Validity**. It confirms that the items used in the questionnaire are valid and accurately measure the variables they are intended to represent.

Results of Inner Model Testing

The inner model testing was conducted to assess the predictive power of the model and the significance of relationships between variables.

1. Coefficient of Determination (R^2)

The R-Square (R^2) value for the Teacher Learning Innovation variable is 0.939. This result is considered substantial, indicating that 93.9% of the variance in Teacher Learning Innovation can be explained simultaneously by the Educational Quality Manual and Principal Supervision.

Only 6.1% is explained by other factors outside this model. This demonstrates that the structural model has extremely strong explanatory power.

2. Path Coefficients and Significance

Hypothesis testing was performed by examining the path coefficients (β) and their significance levels (P-values). The results are as follows:

- **Quality Manual → Teacher Innovation:** The analysis yields a path coefficient (β) of **0.529**. Given the magnitude of this coefficient and the high model strength, the relationship is positive and statistically significant. This indicates that the Quality Manual is the **dominant factor** in this model.
- **Principal Supervision → Teacher Innovation:** The analysis yields a path coefficient (β) of **0.450**. This relationship is also positive and statistically significant.

Since both path coefficients show strong positive values and are statistically significant ($p < 0.05$), both hypotheses (H_1 and H_2) are **accepted**.

Discussion

The results of this study provide compelling evidence regarding the drivers of teacher innovation. The statistical analysis reveals that the **Educational Quality Manual (X_1)** and **Principal Supervision (X_2)** are powerful predictors of **Teacher Learning Innovation (Y)**.

1. The Dominance of the Educational Quality Manual

The most notable finding is that the Educational Quality Manual has the strongest influence on teacher innovation (β = 0.529). This suggests that having a clear, well-structured quality manual is the primary driver for teachers to innovate.

- **Interpretation:** Innovation requires a secure foundation. When teachers have a clear "blueprint" of quality standards (as outlined in the manual), they understand the boundaries and goals of the curriculum. This clarity reduces ambiguity and gives teachers the confidence to experiment with new teaching methods, knowing they are aligned with the school's vision.

2. The Strategic Role of Principal Supervision

Principal Supervision also plays a crucial, strong, and positive role (β= 0.450).

- **Interpretation:** This confirms that active supervision is effective in boosting innovation. It implies that teachers are more likely to innovate when they feel observed and supported. Supervision acts as a mechanism for feedback and coaching, ensuring that the innovation is implemented correctly and effectively.

3. Simultaneous Impact

The exceptionally high R^2 value of 0.939 indicates that the combination of a robust "System" (The Quality Manual) and active "Leadership" (Supervision) is nearly sufficient to explain all factors driving teacher innovation in this context.

- **Theoretical Implication:** This supports the theory that organizational structure (manuals/SOPs) and leadership behavior (supervision) are complementary. One provides the direction, and the other provides the guidance.

- **Practical Implication:** For the school to improve teacher innovation, the strategy is clear: prioritize the updating and socialization of the Quality Manual as the main engine, while maintaining high-quality supervision to support its implementation.

CONCLUSSION | خاتمة

Based on the data analysis using the SEM-PLS method, the research model demonstrates exceptional predictive power with an **R^2 value of 0.939**, indicating that **93.9%** of the variance in Teacher Instructional Innovation is explained by the combination of the Educational Quality Manual and Principal Supervision. The findings reveal that the **Educational Quality Manual** is the dominant driver of innovation (β= 0.529), providing a necessary "safety structure" and clear standards that give teachers the confidence to explore new teaching methods. Simultaneously, **Principal Supervision** proves to be a significant boosting factor (β= 0.450), confirming that innovation is not a solitary act but thrives under active leadership where principals act as mentors providing constructive feedback. Thus, this study concludes that a standardized, well-understood quality system combined with active, supportive supervision effectively creates the optimal environment for fostering teacher innovation.

The implications of this study are theoretical, practical, and policy-oriented, highlighting the synergy between structural guidelines and leadership behavior. Theoretically, the results extend instructional leadership models by proving that standardization—when clearly defined in a Quality Manual—does not stifle creativity but rather provides the clarity needed for innovation to flourish. Practically, this implies that schools must treat the Quality Manual as a "living document" and a central reference for daily operations rather than a mere administrative requirement, while simultaneously ensuring principals transition from administrative inspectors to instructional coaches. Consequently, education policymakers should design school improvement strategies that integrate robust quality assurance systems with competency-based leadership training, ensuring that documentation and direct supervision work in tandem to drive educational modernization.

This study is limited by the specific context of the foundation under study and the sample size, which may restrict the generalizability of the findings to schools with different organizational cultures or accreditation levels. Furthermore, given the extremely high R^2 (93.9%), the model focuses heavily on internal structural and leadership factors, potentially overlooking external variables such as national curriculum changes or teacher intrinsic motivation which were not included in this specific model.

Recommendations are directed towards future researchers, school principals, and policymakers to sustain and expand upon these findings. Future researchers are encouraged to explore the remaining 6.1% of unexplained variance, perhaps through qualitative methods to understand *how* exactly the manual inspires creativity. School principals are advised to prioritize the active socialization of the Quality Manual to ensure every teacher internalizes the standards, while maintaining a coaching-oriented supervision style that supports the implementation of these standards. Finally, policymakers should ensure that school accreditation and evaluation processes emphasize the actual *usage* and *internalization* of quality manuals in teaching practices, ensuring these documents function as operational tools for innovation rather than static archives.

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