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Management Strategies and Learning Quality through Human Resource Development with Free Education Policy as a Moderator in Kaimana Senior and Vocational High Schools

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ABSTRACT

Purpose: This study examines the effect of management strategies on learning quality through human resource development and the moderating role of the free education policy in senior and vocational high schools in Kaimana Regency. **Methods:** A quantitative survey was conducted involving 105 principals, teachers, and educational staff selected through purposive sampling. Data were collected using questionnaires and analyzed using path analysis and Moderated Regression Analysis (MRA). **Findings:** Management strategies had a positive and significant effect on human resource development ($\beta = 0.483$, $p < 0.001$) and learning quality ($\beta = 0.298$, $p = 0.004$). Human resource development also had a positive and significant effect on learning quality ($\beta = 0.421$, $p < 0.001$), indicating its role in transmitting the effect of management strategies on learning quality. The model explained 51.7% of the variance in learning quality. Furthermore, the free education policy significantly strengthened the effect of management strategies on learning quality, although its moderating effect was relatively modest ($\beta = 0.146$, $p = 0.037$). **Research Implications:** School leaders and education authorities should integrate effective management practices, continuous human resource development, and appropriate implementation of the free education policy to improve learning quality. Particular attention should be given to teacher and educational staff development because human resource development demonstrated a stronger effect on learning quality than management strategies alone. **Originality:** This study integrates management strategies, human resource development, learning quality, and the free education policy within the specific context of secondary education in Kaimana Regency. It also demonstrates that the free education policy functions as a supporting moderator, while school management and human resource development remain the primary drivers of learning quality.

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INTRODUCTION

Educational quality remains a fundamental concern in educational management because it reflects the effectiveness of schools in achieving learning objectives and producing competent graduates. In an increasingly competitive and knowledge-based society, educational institutions are expected not only to expand access to education but also to ensure the delivery of high-quality learning experiences (Cheng, 2022). Learning quality has become a critical indicator of educational success, as it influences students' academic achievement, skills development, and future competitiveness. Consequently, improving learning quality requires comprehensive efforts involving organizational management, human resource capacity building, and supportive educational policies (Phumphongkhochasorn et al., 2022). Educational management scholars argue that sustainable improvements in learning outcomes can only be achieved when schools effectively manage their resources and align institutional strategies with educational goals (Akmaluddin et al., 2025).

Management strategies play a crucial role in determining the effectiveness of educational institutions. Effective management involves systematic planning, organizing, coordinating, monitoring, and evaluating educational activities to ensure that organizational objectives are achieved efficiently (Nurhikmah, 2024). Strategic management practices

enable schools to optimize available resources, strengthen organizational performance, and create an environment conducive to teaching and learning. Previous studies have demonstrated that effective management strategies contribute to improved teacher performance, stronger organizational commitment, and enhanced educational outcomes (Kamara et al., 2024). Furthermore, strategic management allows school leaders to respond proactively to changing educational demands and environmental challenges. Therefore, management strategies are increasingly recognized as essential drivers of school effectiveness and learning quality (Tavo & Rasmus, 2024).

In addition to management strategies, human resource development is widely acknowledged as a key determinant of educational quality. Teachers and educational staff constitute the primary human capital within educational organizations, and their competencies directly influence the quality of instructional processes. Human resource development encompasses various activities, including professional training, capacity building, mentoring, performance evaluation, and continuous professional learning (McDonald & Hite, 2023). Through these initiatives, schools can improve teachers' pedagogical competence, instructional effectiveness, and professional commitment. Human capital theory suggests that investments in human resource development generate long-term organizational benefits by enhancing productivity and performance (Putra et al., 2024; Swanson, 2022). Accordingly, schools that prioritize human resource development are generally better positioned to achieve higher levels of learning quality and educational effectiveness.

The relationship between management strategies and learning quality is often mediated by the effectiveness of human resource development. Effective management practices create organizational conditions that encourage professional growth, collaboration, and continuous improvement among teachers and educational staff (Forman et al., 2021). When schools implement strategic planning and provide adequate support for professional development, educational personnel are more likely to perform effectively and contribute positively to student learning outcomes (Dwomoh et al., 2022). Consequently, human resource development serves as an important mechanism through which management strategies influence learning quality. Understanding this relationship is particularly important in educational settings where schools face limitations in infrastructure, resources, and human capital capacity.

In Indonesia, educational development has been supported by various policy initiatives aimed at improving educational access and equity. One of the most significant interventions is the implementation of free education policies designed to reduce financial barriers and increase participation in formal education (Ninghardjanti et al., 2023; Romlah et al., 2023). These policies have contributed to expanding educational opportunities, particularly for students from economically disadvantaged backgrounds. However, increasing access to education does not automatically guarantee improvements in learning quality. While financial support may facilitate school participation, the effectiveness of educational outcomes depends largely on how schools manage available resources and develop the competencies of teachers and educational staff (Fadhil & Sabic-El-Rayess, 2021). Therefore, educational policy should be viewed not only as a mechanism for improving access but also as a contextual factor that may strengthen the effectiveness of school management practices.

This issue is particularly relevant in Kaimana Regency, where educational development remains a strategic priority of local government. The Kaimana Regency Government has formally implemented a free education policy through Regent Regulation Number 25A of 2022 concerning the Administration of Free Education, which was subsequently revised through Regent Regulation Number 19 of 2024 (Pemerintah Kabupaten Kaimana, 2024). The existence of this regulation demonstrates a strong governmental commitment to expanding educational access and reducing financial barriers for students. However, educational indicators suggest that access expansion has not automatically translated into optimal educational outcomes. According to data from Statistics Indonesia (BPS), the average years of schooling in Kaimana Regency remains approximately 8.28 years, indicating that the average educational attainment of the population is still below the senior secondary level (BPS Kaimana Regency, 2024). In addition, school participation rates among the 16–18 age group remain lower than those of younger age groups, suggesting persistent challenges in secondary education participation and completion.

These conditions indicate that improving educational quality requires more than financial support mechanisms alone. Despite the implementation of free education policies, schools continue to face challenges related to teacher competency development, instructional quality, educational management, and organizational effectiveness (Díez et al., 2020). Furthermore, educational human resource development remains a priority within regional and national development agendas, as reflected in various educational improvement programs proposed for the 2025-2026 period. Such initiatives emphasize that strengthening teacher capacity and school management systems is essential for achieving sustainable educational quality (Cheng, 2022; Jurs et al., 2023; Zindi & Sibanda, 2023). Consequently, understanding how management strategies and human resource development contribute to learning quality within the context of free education policy implementation becomes increasingly important in Kaimana Regency.

Although previous studies have explored the influence of management practices on educational performance and the role of human resource development in improving teacher effectiveness, limited research has investigated the integrated relationship among these variables within the context of free education policy implementation. Existing studies generally focus on either managerial effectiveness or policy outcomes separately, while empirical evidence regarding the moderating role of free education policy remains scarce. Furthermore, research examining these relationships in remote and developing educational regions such as Kaimana Regency is still limited. This gap highlights the need for further investigation into how educational policies interact with management strategies and human resource development to influence learning quality (Masnawati & Darmawan, 2022).

Based on these considerations, this study proposes an integrated framework that examines the effect of management strategies on learning quality through human resource development while incorporating the moderating role of free education policy. The novelty of this study lies in its attempt to connect organizational management, human resource development, and educational policy within a single analytical framework. Therefore, the study aims to analyze the influence of management strategies on learning quality through human resource development and to examine the moderating effect of free education policy in senior and vocational high schools in Kaimana Regency. The findings are expected to contribute to the development of educational management theory and provide practical insights for policymakers and school leaders seeking to improve educational quality in regional contexts.

Based on the literature, management strategies are expected to improve learning quality both directly and indirectly through human resource development. Effective management practices can enhance teacher competencies, strengthen organizational performance, and support better learning outcomes. Human resource development, particularly through continuous training, professional development, supervision, and performance evaluation, is therefore considered an important mechanism linking management strategies to learning quality. Furthermore, the implementation of the free education policy is expected to strengthen the relationship between management strategies and learning quality by reducing financial barriers and supporting the availability of educational resources. Accordingly, this study examines the relationships among management strategies, human resource development, learning quality, and the free education policy in senior and vocational high schools in Kaimana Regency. Based on these theoretical relationships, the following hypotheses are proposed:

H1:Management strategies have a positive and significant effect on human resource development.
H2: Management strategies have a positive and significant effect on learning quality.
H3: Human resource development has a positive and significant effect on learning quality.
H4: The free education policy positively moderates the effect of management strategies on learning quality.
The relationships among the variables and the proposed hypotheses are presented in Figure 1.

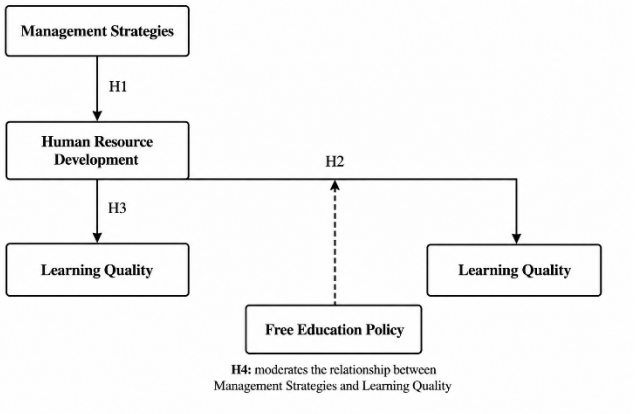


Figure 1. Conceptual Framework of the Study

METHOD

Research Design

This study employed a quantitative approach with an explanatory research design to examine the relationships among management strategies, human resource development, learning quality, and free education policy in senior and vocational high schools in Kaimana Regency (Creswell & Creswell, 2017; Sekaran & Bougie, 2016). The explanatory approach was selected because it enables the investigation of causal relationships among variables and provides

empirical evidence regarding the factors influencing learning quality. The study specifically analyzed the direct effects of management strategies on human resource development and learning quality, as well as the moderating role of free education policy in strengthening the relationship between management strategies and learning quality.

Population and Sample

The study population consisted of 142 principals, teachers, and educational staff from public senior and vocational high schools in Kaimana Regency. Based on Slovin's formula at a 5% margin of error, 105 respondents were selected through purposive sampling. The sample comprised 75 teachers, 18 educational staff, and 12 principals who were directly involved in school management, human resource development, and learning activities.

Data were collected using a structured five-point Likert-scale questionnaire measuring management strategies, human resource development, learning quality, and the free education policy. The indicators were developed with reference to relevant studies discussed in the theoretical framework, including Pekkolay (2021), Boxall and Purcell (2022), Swanson (2022), Mishra et al. (2023), and Zhou et al. (2022). The complete indicators and questionnaire items are presented in the appendix. Data were analyzed using path analysis and Moderated Regression Analysis (MRA).

Data Collection

Data were collected using a structured questionnaire distributed directly to respondents. The questionnaire utilized a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement indicators were adapted from established educational management and human resource development literature and adjusted to the context of secondary education. Management strategies were measured through planning, organizing, leadership, and evaluation dimensions. Human resource development was assessed through training participation, professional competency development, performance improvement, and knowledge enhancement. Learning quality was measured through instructional effectiveness, learning engagement, teaching performance, and educational outcomes. Meanwhile, free education policy was measured through perceptions of policy implementation, educational accessibility, funding support, and policy effectiveness (Yamashita, 2022).

Validity and Reliability Testing

Prior to the main survey, the research instrument was subjected to validity and reliability testing to ensure measurement accuracy and consistency. Construct validity was examined using Pearson Product-Moment correlation analysis, where each item was required to meet the minimum significance criterion of $p < 0.05$. Reliability was evaluated using Cronbach's Alpha coefficient, with a minimum acceptable value of 0.70 indicating satisfactory internal consistency. The results confirmed that all measurement items were valid and reliable for subsequent analysis (Sürücü & Maslakci, 2020).

Data Analysis

Data analysis was conducted using IBM SPSS Statistics. Descriptive statistics were first employed to describe respondents' characteristics and provide an overview of each research variable. Subsequently, classical assumption tests, including normality, multicollinearity, and heteroscedasticity tests, were performed to ensure compliance with regression analysis requirements (Kenny et al., 2020). Multiple regression analysis was then utilized to examine the direct effects among variables, while Moderated Regression Analysis (MRA) was applied to test the moderating role of free education policy on the relationship between management strategies and learning quality. Statistical significance was determined at the 5% significance level ($\alpha = 0.05$) (Mezmir, 2020).

Research Procedure

The research was conducted through several stages. First, a comprehensive review of the literature was undertaken to develop the conceptual framework and research hypotheses. Second, research instruments were developed and validated. Third, data were collected from selected respondents in senior and vocational high schools in Kaimana Regency. Fourth, the collected data were coded, tabulated, and analyzed using SPSS. Finally, the findings were interpreted and discussed in relation to existing theories and empirical studies to generate conclusions and practical implications for educational management and policy development.

RESULTS

Respondent Characteristics

The study involved 105 respondents consisting of principals, teachers, and educational staff from senior and vocational high schools in Kaimana Regency. Most respondents were teachers (71.4%), followed by educational staff (17.1%)

and principals (11.5%). In terms of work experience, 61.9% of respondents had worked for at least five years, indicating that most respondents possessed sufficient experience in educational management and teaching activities.

Table 1. Respondent Characteristics

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	57	54.3
	Female	48	45.7
Education	Diploma	5	4.8
	Bachelor's Degree	82	78.1
	Master's Degree	18	17.1
Work Experience	< 5 years	40	38.1
	≥ 5 years	65	61.9
Total		**105**	**100.0**

Validity and Reliability Results

All measurement items met the validity requirements, with correlation coefficients exceeding the minimum validity threshold. Reliability testing also demonstrated satisfactory internal consistency, with Cronbach's Alpha values ranging from 0.742 to 0.861.

Table 2. Reliability Test Results

Variable	Cronbach's Alpha
Management Strategies	0.861
Human Resource Development	0.824
Learning Quality	0.801
Free Education Policy	0.742

All variables had Cronbach's Alpha values exceeding the recommended criterion of 0.70. Therefore, the research instruments were considered reliable and suitable for further analysis.

Classical Assumption Test Results

Before conducting path analysis and Moderated Regression Analysis (MRA), classical assumption tests were performed. The management strategies and free education policy variables were mean-centered before generating the interaction term to reduce potential multicollinearity.

Table 3. Classical Assumption Test Results

Test	Indicator	Result	Criterion	Conclusion
Normality	Kolmogorov–Smirnov significance	0.200	> 0.05	Normally distributed
Multicollinearity	Lowest tolerance value	0.552	> 0.10	No multicollinearity
Multicollinearity	Highest VIF value	1.812	< 10.00	No multicollinearity
Heteroscedasticity	Lowest Glejser significance	0.118	> 0.05	No heteroscedasticity

The normality test produced a significance value of 0.200, indicating that the residuals were normally distributed. The tolerance values ranged from 0.552 to 0.731, while the VIF values ranged from 1.368 to 1.812. These values confirmed that the regression models did not experience multicollinearity. Furthermore, the Glejser test produced significance values greater than 0.05 for all predictors, indicating the absence of heteroscedasticity. Therefore, the data met the classical assumptions required for regression and moderation analyses.

Hypothesis Testing

The regression analysis revealed that management strategies had a positive and significant effect on human resource development. Schools implementing better planning, supervision, coordination, and evaluation practices tended to demonstrate stronger human resource development initiatives.

Table 4. Effect of Management Strategies on Human Resource Development

Relationship	β	t-value	Sig.
Management Strategies → Human Resource Development	0.483	5.214	< 0.001

The findings support H1, indicating that effective management strategies contribute positively to the development of teachers and educational staff. Management strategies and human resource development were also found to have positive and significant effects on learning quality.

Table 5. Effects on Learning Quality

Relationship	β	t-value	Sig.
Management Strategies → Learning Quality	0.298	2.987	0.004
Human Resource Development → Learning Quality	0.421	4.336	< 0.001

The results show that human resource development exerted a stronger influence on learning quality than management strategies. This finding indicates that improvements in teacher competencies, professional capacity, and educational staff performance contribute directly to better learning processes and outcomes. The base model explained 51.7% of the variance in learning quality. This means that management strategies and human resource development jointly explained 51.7% of the variation in learning quality, while the remaining 48.3% was associated with other factors outside the research model.

Moderating Effect of the Free Education Policy

Moderated Regression Analysis was conducted hierarchically to determine whether the free education policy strengthened the relationship between management strategies and learning quality. The first model included management strategies and human resource development. The free education policy was entered into the second model, while the interaction between management strategies and the free education policy was included in the third model.

Table 6. Comparison of the Base and Moderation Models

Model	Predictors	R^2	Adjusted R^2	ΔR^2	F Change	Sig. F Change
Model 1	Management Strategies and Human Resource Development	0.517	0.508	–	–	–
Model 2	Model 1 + Free Education Policy	0.529	0.515	0.012	2.572	0.112
Model 3	Model 2 + Management Strategies × Free Education Policy	0.549	0.531	0.020	4.469	0.037

The base model explained 51.7% of the variance in learning quality. After the free education policy was included, the R^2 value increased from 0.517 to 0.529, representing an additional contribution of 1.2%. However, this increase was not statistically significant at the 5% level. After the interaction term between management strategies and the free education policy was entered, the R^2 value increased to 0.549. Thus, the complete moderation model explained 54.9% of the variance in learning quality. The interaction term provided an additional explanatory contribution of 2.0%, and the increase was statistically significant at the 5% level.

Table 7. Moderating Effect of the Free Education Policy

Relationship	β	t-value	Sig.
Management Strategies × Free Education Policy → Learning Quality	0.146	2.114	0.037

The interaction effect was positive and statistically significant. Therefore, the free education policy strengthened the relationship between management strategies and learning quality. However, the relatively small interaction coefficient and the 2.0% increase in R^2 indicate that the moderating contribution of the free education policy was modest. These findings suggest that the free education policy provides a supportive environment that enhances the effectiveness of school management. Nevertheless, improvements in learning quality remain primarily dependent on effective management practices and continuous human resource development.

Summary of Hypothesis Testing

Table 8. Summary of Hypothesis Testing

Hypothesis	Statement	Result
H1	Management Strategies → Human Resource Development	Supported
H2	Management Strategies → Learning Quality	Supported
H3	Human Resource Development → Learning Quality	Supported
H4	Free Education Policy moderates Management Strategies → Learning Quality	Supported

Overall, the findings demonstrate that management strategies contribute to improving learning quality both directly and through human resource development. Human resource development demonstrated a stronger effect on learning quality than management strategies alone, emphasizing the importance of teacher competency, professional development, and educational staff capacity. Although the free education policy strengthened the relationship between management strategies and learning quality, its additional contribution was relatively limited. Therefore, strengthening school management and improving the professional capacity of teachers and educational staff remain the primary mechanisms for enhancing learning quality in senior and vocational high schools in Kaimana Regency.

DISCUSSION

The classical assumption tests confirmed that the regression models met the statistical requirements for further analysis. The residuals were normally distributed, with a Kolmogorov–Smirnov significance value of 0.200. The tolerance values ranged from 0.552 to 0.731, while the VIF values ranged from 1.368 to 1.812, indicating the absence of multicollinearity. The Glejser test also showed significance values above 0.05, confirming that heteroscedasticity was not present. These results support the appropriateness and reliability of the path analysis and Moderated Regression Analysis used in this study.

The findings indicate that management strategies have a positive and significant effect on human resource development. This result suggests that effective school management contributes to improving the competencies, skills, and professional capacities of teachers and educational staff. Schools that implement systematic planning, clear organizational structures, effective supervision, and continuous evaluation tend to create a more supportive environment for professional development. These findings are consistent with strategic management theory, which emphasizes that organizational success depends largely on the ability of leaders to mobilize and develop human resources toward achieving institutional goals (Pekkolay, 2021). In the context of Kaimana Regency, where educational institutions often face limitations in infrastructure and professional support systems, effective management becomes increasingly important in ensuring that teachers and staff continue to develop their competencies despite existing challenges. This finding also supports previous studies that identified school leadership and management effectiveness as key determinants of teacher development and organizational performance (Arobiole & Chinyere, 2023; Negulescu et al., 2024). The statistical result supports this interpretation, as management strategies had a positive and significant effect on human resource development ($\beta = 0.483$, $t = 5.214$, $p < 0.001$). The coefficient indicates that improvements in school management practices are associated with meaningful improvements in the professional development of teachers and educational staff. Therefore, management strategies can be regarded as an important organizational foundation for developing school personnel.

The study further reveals that management strategies positively influence learning quality. This finding demonstrates that schools with stronger management practices are more capable of creating effective learning environments and achieving better educational outcomes. Effective management facilitates the coordination of educational activities, efficient utilization of resources, and implementation of instructional improvement initiatives. Through strategic planning and monitoring, schools can identify learning challenges and develop appropriate interventions to improve teaching effectiveness. In Kaimana Regency, where schools operate within diverse geographical and socioeconomic conditions, management strategies play an essential role in ensuring consistency in educational service delivery (Mishra et al., 2023; Yu et al., 2024). This finding reinforces the argument that learning quality is not solely determined by classroom activities but is also shaped by broader organizational and managerial processes within educational institutions. The statistical analysis showed that management strategies had a positive and significant effect on learning quality ($\beta = 0.298$, $t = 2.987$, $p = 0.004$). Although this effect was smaller than the effect of human resource development, it confirms that planning, supervision, coordination, and resource management directly contribute to the quality of educational processes. Thus, management strategies affect learning quality not only by supporting teachers and educational staff but also by establishing organizational conditions that facilitate effective teaching and learning.

Another important finding is that human resource development exerts a stronger influence on learning quality than management strategies alone (Pucik et al., 2024; Swanson, 2022). This result highlights the central role of teachers and educational staff as the primary drivers of educational quality. Investments in training, professional development, competency enhancement, and performance improvement contribute directly to better instructional practices and student learning experiences. From a human capital perspective, educational organizations that continuously invest in developing their personnel are more likely to achieve sustainable improvements in performance. The findings suggest that management strategies become more effective when they are translated into concrete human resource development

initiatives (Boxall & Purcell, 2022). In other words, improving learning quality requires not only sound managerial policies but also continuous efforts to strengthen the capabilities of those responsible for delivering educational services. This interpretation is supported by the coefficient for the effect of human resource development on learning quality ($\beta = 0.421$, $t = 4.336$, $p < 0.001$), which was higher than the direct effect of management strategies. The difference between the two coefficients demonstrates that the competencies and professional capacities of teachers and educational staff have a particularly important role in improving learning quality. The base model containing management strategies and human resource development explained 51.7% of the variance in learning quality ($R^2 = 0.517$). This level of explanatory power indicates that the two variables constitute important determinants of learning quality, although the remaining 48.3% may be explained by other factors, such as infrastructure, student characteristics, family support, curriculum implementation, technology access, and the broader school environment.

The results also demonstrate that the free education policy positively moderates the relationship between management strategies and learning quality. Although the moderating effect is relatively moderate, it indicates that educational policies can enhance the effectiveness of school management in improving educational outcomes. The implementation of free education programs reduces financial barriers faced by students and families, thereby creating a more supportive environment for learning. However, the findings suggest that policy support alone is insufficient to guarantee high-quality learning outcomes (Zhou et al., 2022). The effectiveness of the policy largely depends on how schools manage available resources and utilize policy benefits to strengthen educational processes. In the context of Kaimana Regency, the free education policy provides an enabling environment, while management strategies remain the primary mechanism through which improvements in learning quality are achieved. This explains why the moderating effect exists but is not overwhelmingly strong (Khoyaled, 2023; Thelma et al., 2024). The interaction between management strategies and the free education policy was positive and statistically significant ($\beta = 0.146$, $t = 2.114$, $p = 0.037$). Therefore, the influence of management strategies on learning quality becomes stronger when the free education policy is implemented effectively.

The comparison between the regression models provides further evidence of this moderating role. The base model explained 51.7% of the variance in learning quality. The inclusion of the free education policy as an independent predictor increased the R^2 value to 0.529, representing an additional contribution of 1.2%. However, this increase was not statistically significant, indicating that the policy did not make a substantial direct contribution when considered independently of its interaction with management strategies. After the interaction term was included, the R^2 value increased to 0.549. The interaction therefore contributed an additional 2.0% to the explanatory power of the model, and this increase was statistically significant ($\Delta R^2 = 0.020$, $p = 0.037$).

Although the complete moderation model explained 54.9% of the variance in learning quality, the relatively small interaction coefficient and increase in R^2 confirm that the free education policy functions as a modest supporting moderator rather than a dominant determinant. This means that the policy produces better outcomes when schools possess effective planning, coordination, supervision, and resource-management capabilities. Without adequate managerial capacity, the availability of policy support and financial assistance may not automatically result in substantial improvements in learning quality. The finding therefore highlights the importance of policy implementation quality at the school level.

Overall, the findings emphasize the importance of integrating management strategies, human resource development, and educational policy in efforts to improve learning quality. The results indicate that management strategies contribute both directly and indirectly to learning quality through human resource development, while the free education policy serves as a supporting factor that enhances managerial effectiveness. These findings extend existing educational management literature by demonstrating that improvements in learning quality require not only policy interventions but also organizational capacity and continuous human resource investment. For schools in Kaimana Regency, strengthening leadership practices, expanding professional development opportunities, and optimizing the implementation of free education policies may provide a practical pathway toward achieving sustainable improvements in educational quality.

The results also have important practical implications. School principals should translate management strategies into structured professional development programs, including regular training, instructional supervision, competency assessment, mentoring, and opportunities for teachers and educational staff to improve their qualifications. Education authorities should ensure that the free education policy is accompanied by clear implementation guidelines, appropriate monitoring, equitable resource allocation, and sufficient managerial support. Given that human resource development demonstrated a stronger effect on learning quality than management strategies alone, investments in teacher and staff development should remain a primary priority. At the same time, the relatively modest moderating effect indicates that

policy interventions should complement, rather than replace, effective school management and continuous human resource development.

CONCLUSION

This study concludes that management strategies significantly improve learning quality, both directly and indirectly through human resource development. Human resource development had the strongest effect, indicating that improving teacher competencies and professional capacity is essential for enhancing learning quality. The free education policy also strengthened the relationship between management strategies and learning quality, although its moderating effect was relatively modest.

The novelty of this study lies in integrating management strategies, human resource development, learning quality, and the free education policy within one model in the context of secondary education in Kaimana Regency. The findings show that human resource development is a key mechanism, while the free education policy serves as a supporting moderator. This study is limited by its small sample, purposive sampling technique, cross-sectional design, and reliance on self-reported questionnaires. Future research should involve larger and more diverse samples, use longitudinal or mixed-method designs, and examine additional factors such as leadership, infrastructure, organizational culture, and teacher motivation.

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AUTHOR CONTRIBUTION STATEMENT

Sahri contributed to the conceptualization, data collection, data analysis, and initial manuscript writing. Slamet Riyadi contributed to supervision, methodological guidance, validation, and manuscript review. Eddy Yunus contributed to supervision, theoretical refinement, critical revision, and final manuscript approval. All authors have read and approved the final version of the manuscript.

AI DISCLOSURE STATEMENT

The authors used AI-assisted tools only to improve language clarity, grammar, and academic readability. All research ideas, data analysis, interpretation, findings, and conclusions were developed and verified by the authors. The authors take full responsibility for the content of this manuscript.

REFERENCE

Akmaluddin, A., Kasmini, L., Sari, S. M., & Iqbal, M. (2025). Human resource management strategy in improving the quality of education. *Jurnal Eduscience, 12*(2), 553–560. https://doi.org/10.36987/jes.v12i2.6843

Arobiole, O. O., & Olo-Jaja, C. (2023). Leadership development programs and the management of competence for educational administrator's effectiveness. *International Journal of Institutional Leadership, Policy and Management, 5*(3), 262–276.

Badan Pusat Statistik Kabupaten Kaimana. (2024). *Kabupaten Kaimana dalam angka 2024*. https://kaimanakab.bps.go.id/publication/2024/02/28/443caf4a26e1a05acc1f0bba/kabupaten-kaimana-dalam-angka-2024.html

Boxall, P., & Purcell, J. (2022). *Strategy and human resource management* (5th ed.). Bloomsbury Publishing.

Cheng, Y. C. (2022). *School effectiveness and school-based management: A mechanism for development*. Routledge. https://doi.org/10.4324/9781003289344

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.

Díez, F., Villa, A., López, A. L., & Iraurgi, I. (2020). Impact of quality management systems on the performance of educational centers: Educational policies and management processes. *Heliyon, 6*(4), e03824. https://doi.org/10.1016/j.heliyon.2020.e03824

Dwomoh, D., Tetteh, J., Otoo, R., Hazlett, C., Godi, A., Amoatey, C., & Tornyevah, L. (2022). The impact of the free senior high school education policy and double-track system on quality education outcomes: A quasi-experimental policy evaluation study in Ghana. *Africa Education Review, 19*(2), 1–24. https://doi.org/10.1080/18146627.2021.1963182

Forman, M. L., Stosich, E. L., & Bocala, C. (2021). *The internal coherence framework: Creating the conditions for continuous improvement in schools*. Harvard Education Press.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2022). *Multivariate data analysis* (9th ed.). Cengage Learning.

Jurs, P., Kulberga, I., Zupa, U., Titrek, O., & Špehte, E. (2023). Efficient management of school and teachers' professional development: Challenges and development perspectives. *Pegem Journal of Education and Instruction, 13*(2), 112–118. https://doi.org/10.47750/pegegog.13.02.14

McDonald, K. S., & Hite, L. M. (2023). *Career development: A human resource development perspective* (4th ed.). Routledge. https://doi.org/10.4324/9781003312301

Mukodas, A., Boeriswati, E., & Sujanto, B. (2025). A free education policy research in Indonesia public senior high school: The evaluation with context input process product model application. *International Journal of Innovative Research and Scientific Studies, 8*(1), 261–271. https://doi.org/10.53894/ijirss.v8i1.3752

Ninghardjanti, P., Murtini, W., Hindrayani, A., & Sangka, K. B. (2023). Evaluation of the Smart Indonesia Program as a policy to improve equality in education. *Sustainability, 15*(6), 5114. https://doi.org/10.3390/su15065114

Pemerintah Kabupaten Kaimana. (2024). *Peraturan Bupati Kaimana Nomor 19 Tahun 2024 tentang Perubahan atas Peraturan Bupati Nomor 25A Tahun 2022 tentang Penyelenggaraan Pendidikan Gratis*. https://peraturan.bpk.go.id/Details/313930/perbup-kab-kaimana-no-19-tahun-2024

Pusvitasari, R. (2021). Human resources management in improving the quality of education. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam, 5*(2), 125–135. https://doi.org/10.33650/al-tanzim.v5i2.2549

Putra, R., Renaldo, N., Purnama, I., Putri, N. Y., & Suhardjo, S. (2024). Enhancing teacher performance through capacity building: A comprehensive analysis of professional development, mentoring, and organizational support. *Reflection: Education and Pedagogical Insights, 2*(1), 1–8.

Romlah, S., Imron, A., Maisyaroh, M., Sunandar, A., & Dami, Z. A. (2023). A free education policy in Indonesia for equitable access and improvement of the quality of learning. *Cogent Education, 10*(2), 2245734. https://doi.org/10.1080/2331186X.2023.2245734

Rostini, D., Syam, R. Z. A., & Achmad, W. (2022). The significance of principal management on teacher performance and quality of learning. *Al-Ishlah: Jurnal Pendidikan, 14*(2), 2513–2520. https://doi.org/10.35445/alishlah.v14i2.1721

Sekaran, U., & Bougie, R. (2020). *Research methods for business: A skill-building approach* (8th ed.). John Wiley & Sons.

Sürücü, L., & Maslakci, A. (2020). Validity and reliability in quantitative research. *Business & Management Studies: An International Journal, 8*(3), 2694–2726. https://doi.org/10.15295/bmij.v8i3.1540

Swanson, R. A. (2022). *Foundations of human resource development* (3rd ed.). Berrett-Koehler Publishers.

Tasrif, E., Abubakari, M. S., & Hidayat, H. (2022). Analysis of quality implementation and supervision of vocational high schools using a qualitative approach. *Jurnal Pendidikan Vokasi, 12*(1), 1–11. https://doi.org/10.21831/jpv.v12i1.47454

Thelma, C. C., Mpolomoka, D. L., Gilbert, M. M., Mulenga, D., & Sain, Z. (2024). Free education versus quality education: A systematic analysis. *World Journal of Advanced Research and Reviews, 23*(1), 2934–2946. https://doi.org/10.30574/wjarr.2024.23.1.2286

Yamashita, T. (2022). Analyzing Likert scale surveys with Rasch models. *Research Methods in Applied Linguistics, 1*(3), 100022. https://doi.org/10.1016/j.rmal.2022.100022

Yu, Y., Appiah, D., Zulu, B., & Adu-Poku, K. A. (2024). Integrating rural development, education, and management: Challenges and strategies. *Sustainability, 16*(15), 6474. https://doi.org/10.3390/su16156474

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