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Agile Leadership and Digital Capability as Drivers of Teacher Performance in Educational Organizations

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ABSTRACT

This study examines to examine the role of agile leadership and digital capability as human resource management factors in improving teacher performance in educational organizations. The research highlights the importance of adaptive leadership and digital competence in supporting employee effectiveness amid technological and organizational changes. This study employed a quantitative approach with an associative research design. The population consisted of all teachers at Madrasah Aliyah Swasta Proyek Univa Medan, with a total of 33 respondents. The sampling technique used was saturated sampling, where all members of the population were selected as research samples. Data were collected through questionnaires, observation, interviews, and documentation, and analyzed using multiple linear regression, partial tests, simultaneous tests, and coefficient of determination analysis. The results indicate that agile leadership has a positive and significant effect on teacher performance. Digital capability, represented through the utilization of information technology, also has a positive and significant effect on teacher performance. Simultaneously, agile leadership and digital capability significantly influence teacher performance, demonstrating their important role in enhancing employee effectiveness. This study contributes to human resource management literature by integrating adaptive leadership and digital capability as strategic factors for improving employee performance in educational organizations. The findings provide practical implications for educational institutions in developing responsive leadership practices and strengthening digital competencies to achieve sustainable performance improvement.

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INTRODUCTION

Rapid technological change has intensified the need for educational institutions to develop adaptable leadership and digitally competent teaching staff (Honkley et al., 2025). Human resource management provides a framework for aligning employee development, organizational support, and performance management with institutional objectives (Thamrin et al., 2026). In schools, these priorities are especially salient because teachers must integrate evolving instructional demands with professional responsibilities (Hasibuan et al., 2026).

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Agile leadership describes leadership practices that enable responsiveness, collaboration, and adaptation in changing organizational environments. Leadership scholarship emphasizes the role of leaders in shaping employee behavior, coordination, and organizational processes (Sirinopmanee & Piatanom, 2026). Similarly, employee development and learning opportunities are central to effective human resource management (Syaifullah et al., 2024). The digitalization of education also requires teachers to adapt their professional practices to technological and institutional change (Lubis et al., 2024).

Digital capability refers to the capacity to use digital tools and resources effectively in professional tasks. Research on teachers' digital competence has examined the knowledge and skills required to integrate information and communication technologies into instructional planning and delivery (Djabbar et al., 2022). Teachers' digital literacy and supportive institutional conditions are also relevant to educational digitalization (Nasib, Harianto, Juliansyah, et al., 2024). Nevertheless, whether technology usage is associated with teacher performance in the present institutional setting remains an empirical question (Nasib, Harianto, Albert, et al., 2024).

Prior scholarship has considered agile leadership and employee performance, human resource development, and teachers' digital competence (Nugroho et al., 2024). Notably, a nonsignificant association between agile leadership and employee performance has been reported in another organizational context, suggesting that findings may not generalize uniformly across settings (Kurnianto et al., 2026). The combined associations of agile leadership and digital capability with teacher performance at Madrasah Aliyah Swasta Proyek Univa Medan have not been established by the studies cited here. Accordingly, this study investigates both predictors within a single regression model (Sidharta & Purbojo, 2023).

This study offers context-specific evidence concerning the joint relevance of adaptive leadership and technology-related professional capability to teacher performance. Rather than claiming a novel general theory, it extends the application of human resource management concepts to a single educational institution and identifies practical questions for subsequent research.

Therefore, the objectives of this study are (1) to examine the effect of agile leadership on teacher performance, (2) to analyze the effect of digital capability on teacher performance, and (3) to examine the simultaneous effect of agile leadership and digital capability on teacher performance in educational organizations.

METHODS

This study adopted a quantitative, cross-sectional, associative design to investigate statistical relationships between agile leadership, digital capability, and teacher performance. The analysis was informed by a human resource management perspective that emphasizes leadership practices and professional competency development. Because the data were observational and collected at one point in time, the research design does not support causal inference.

The population of this study consisted of all teachers at Madrasah Aliyah Swasta Proyek Univa Medan. The total population was 33 teachers. Due to the relatively small population

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size, this study applied a saturated sampling technique, in which all members of the population were selected as research respondents. Therefore, the final sample consisted of 33 teachers who participated in the research.

Primary data were collected using teacher questionnaires measuring agile leadership, information technology usage (treated in this article as an operational indicator of digital capability), and teacher performance. Observation, interviews, and documentation provided contextual information but were not entered into the regression model. The original study used Likert-type responses. Item-level Pearson correlations and Cronbach's alpha were used to assess the reported measurement properties; these diagnostics do not, by themselves, establish comprehensive construct validity.

Data were analyzed using SPSS 25. The analysis comprised item–total Pearson correlations, Cronbach's alpha, regression diagnostics, multiple linear regression, partial t-tests, an overall F-test, and R^2 and adjusted R^2. The thesis used a critical correlation value of $r = 0.344$ ($n = 33$). Residual normality was evaluated using the Kolmogorov–Smirnov test with the Lilliefors correction; multicollinearity was assessed through tolerance and variance inflation factors (VIF), and heteroscedasticity through the Glejser test. A post hoc Harman single-factor diagnostic was calculated using principal component analysis of the standardized 33-item response matrix. This diagnostic is exploratory and cannot rule out or measure common method bias.

RESULTS AND DISCUSSION

This study examined the effect of agile leadership and digital capability on teacher performance in educational organizations. The analysis was conducted using multiple linear regression to determine the partial and simultaneous influence of the independent variables on teacher performance. Data analysis was performed using SPSS 25 through regression analysis, hypothesis testing, and coefficient of determination analysis.

Measurement Validity and Reliability

The thesis reported Pearson item–total correlations for 33 questionnaire items. Each observed correlation exceeded the critical r value of 0.344, indicating that all items met the instrument validity criterion used in the original study. Table 1 reports the item-level results. The use of this threshold follows the thesis; the correlations should not be interpreted as proof of construct validity.

Table 1. Item-Level Instrument Validity

Item	Agile leadership (X1)	IT usage (X2)	Teacher performance (Y)
1	0.793	0.707	0.681
2	0.780	0.888	0.685
3	0.722	0.903	0.699
4	0.743	0.910	0.723
5	0.605	0.925	0.683
6	0.771	0.839	0.738

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Item	Agile leadership (X1)	IT usage (X2)	Teacher performance (Y)
7	0.731	0.778	0.817
8	0.761	0.494	0.723
9	0.726	0.518	0.733
10			0.765
11			0.681
12			0.685
13			0.738
14			0.817
15			0.765

Note: Critical r = 0.344, as applied in the thesis. All 33 item correlations exceed the threshold. Source: Maulana Addin (2026), thesis Tables 4.8–4.10. Internal consistency was satisfactory for all three scales. Cronbach's alpha exceeded the 0.60 cutoff adopted in the thesis and also exceeded the conventional 0.70 benchmark. The results are summarized in Table 2.

Table 2. Internal Consistency of the Research Instruments

Construct	Number of items	Cronbach's alpha	Assessment
Agile leadership (X1)	9	0.888	Reliable
Information technology usage (X2)	9	0.921	Reliable
Teacher performance (Y)	15	0.931	Reliable

Source: Thesis Table 4.11; values cross-checked against the respondent-level item data in the thesis appendix.

Classical Assumption Tests

The Kolmogorov–Smirnov test with Lilliefors correction was applied to unstandardized regression residuals (n = 33). The test statistic was 0.147 with p = 0.069. Thus, residual normality was not rejected at the 5% significance level. Tolerance values of 0.468 and VIF values of 2.138 for both predictors did not indicate severe multicollinearity. The Glejser test yielded p = 0.076 for agile leadership and p = 0.145 for information technology usage, providing no evidence of heteroscedasticity at $\alpha = 0.05$. Failure to reject these test hypotheses does not establish that the underlying assumptions hold exactly.

Table 3. Regression Diagnostic Tests

Test / variable	Statistic	p-value / indicator	Interpretation
Kolmogorov–Smirnov, residual	D = 0.147	p = 0.069	Normality not rejected
Tolerance: X1 and X2	0.468 each	VIF = 2.138 each	No severe multicollinearity
Glejser: X1	t = −1.837	p = 0.076	Not significant
Glejser: X2	t = 1.496	p = 0.145	Not significant

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Source: Thesis Tables 4.12–4.14. The Kolmogorov–Smirnov significance uses the Lilliefors correction.

Common Method Bias Assessment

The thesis did not originally report a CMB test. To examine this concern without inventing new observations, Harman's single-factor diagnostic was calculated from the 33 × 33 item-level response matrix in the thesis appendix. A principal component analysis of the standardized responses, with no rotation, showed that the first component accounted for 50.50% of total item variance. This result marginally exceeds the frequently used 50% heuristic and suggests that common method variance may be a material concern. Harman's test is an imperfect diagnostic and cannot establish or quantify the extent of common method bias. As respondents rated the predictors and teacher performance themselves, the very high model R^2 should be interpreted cautiously; independent outcome ratings or temporally separated data collection would strengthen future studies.

Table 4. Post Hoc Harman Single-Factor Diagnostic

Indicator	Result
Respondents	33
Questionnaire items included	33 (X1: 9; X2: 9; Y: 15)
Extraction method	PCA, unrotated; standardized items
Variance explained by first component	50.50%
Interpretation	Potential common method variance; not ruled out

Source: Author's recalculation using the respondent-level questionnaire data reproduced in the thesis appendix. The original thesis contains no separate CMB test.

The multiple linear regression equation obtained from the analysis is presented as follows:

$Y = 6.546 + 1.368X_1 + 0.142X_2 + e$

where: Y = Teacher Performance

X_1 = Agile Leadership

X_2 = Digital Capability

E = Error term

The results of multiple linear regression analysis are presented in Table 5.

Table 5. Multiple Linear Regression Analysis Results

Variable	B	Std. Error	Beta	t-value	Sig.
Constant	6.546	1.924	-	3.403	0.002
Agile Leadership	1.368	0.074	0.902	18.427	0
Digital Capability	0.142	0.065	0.107	2.183	0.037

Source: Data Processing Using SPSS 25

As shown in Table 5, agile leadership was positively associated with teacher performance (B = 1.368, standardized β = 0.902), whereas digital capability also showed a positive but substantially smaller coefficient (B = 0.142, standardized β = 0.107). The estimates describe conditional associations within the fitted regression model and should not

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be interpreted as evidence that changing either predictor would necessarily improve performance.

The Effect of Agile Leadership on Teacher Performance

Agile leadership showed a positive, statistically significant association with teacher performance (B = 1.368, t = 18.427, p < 0.001). Accordingly, H1 was supported in the statistical model. The observed association is consistent with the proposition that responsive leadership practices may accompany stronger teacher performance. Collaborative decision-making, timely guidance, and support for professional adaptation are plausible mechanisms, although these mechanisms were not directly tested in the present model. From a human resource management perspective, leadership can provide organizational conditions that support employee development and performance (Çalışkan Yılmaz & Özgenel, 2023). Leadership theory likewise emphasizes the influence of leader behavior on work processes and employee responses (Dachachuy & Piatanom, 2025). These perspectives provide an interpretive framework for the observed association without establishing causality (Kurnianto et al., 2026). For school management, the findings suggest that leadership development and supportive professional practices merit consideration (Nugroho et al., 2024). However, the effectiveness of specific leadership interventions should be evaluated in future research rather than inferred from these cross-sectional results (Sidharta & Purbojo, 2023).

The Effect of Digital Capability on Teacher Performance

Digital capability, measured through information technology usage, was positively associated with teacher performance (B = 0.142, t = 2.183, p = 0.037). Therefore, H2 was supported, although the standardized coefficient was considerably smaller than that for agile leadership. This result suggests that technology-related professional capability may be relevant to teachers' reported performance. Digital resources can support instructional preparation, communication, and access to learning materials, although the study did not test these processes as mediators. Prior research has highlighted the role of digital competence in teachers' instructional practices (Afrizal et al., 2025). Within human resource management, digital capability development can be understood as part of professional learning and workforce adaptation (Çalışkan Yılmaz & Özgenel, 2023). Educational digitalization also depends on institutional conditions and teachers' readiness to work with technology (Cortez & Ponsades, 2024). Accordingly, training provision and organizational support may be relevant managerial responses, but their effects require separate evaluation (Dachachuy & Piatanom, 2025). The evidence therefore supports further investigation of digital professional development alongside leadership practices (Hesti & Susijawati, 2026). Because the measure was described as information technology usage in the original instrument, future studies should distinguish actual technology use from broader digital capability (Joni et al., 2025).

The Simultaneous Effect of Agile Leadership and Digital Capability on Teacher Performance

The simultaneous effect of agile leadership and digital capability on teacher performance was tested using the F-test. The results are presented in Table 6.

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Table 6. Simultaneous Test (F-Test) Results

Model	Sum of Squares	df	Mean Square	F-value	Sig.
Regression	1248.417	2	624.208	430.86	0
Residual	43.462	30	1.449	-	-
Total	1291.879	32	-	-	-

Source: Data Processing Using SPSS 25

The overall regression was statistically significant, $F(2, 30) = 430.864$, $p < 0.001$. Thus, H3 was supported in the sense that the two-predictor model explained a statistically significant share of observed variation in teacher performance. Considered jointly, leadership and technology usage were strongly associated with self-reported teacher performance. Nevertheless, the simultaneous F-test does not demonstrate interaction, synergy, or causal influence between the predictors. The findings are compatible with a human resource management perspective in which leadership practices and employee development are both relevant to performance (Hesti & Susijawati, 2026). However, the relative contribution of each variable should be interpreted in light of their standardized coefficients, shared variance, and measurement limitations (Liashin & Dzulkifli, 2026). Educational organizations may consider coordinated leadership development and digital training initiatives, while evaluating whether such initiatives yield measurable improvements using more rigorous research designs (Sari et al., 2026).

Coefficient of Determination Analysis

The coefficient of determination analysis was conducted to determine the contribution of agile leadership and digital capability in explaining teacher performance.

Table 7. Coefficient of Determination (R^2) Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.983	0.966	0.964	1.20363

Source: Data Processing Using SPSS 25

The model yielded $R^2 = 0.966$ and adjusted $R^2 = 0.964$, indicating that the fitted predictors accounted for 96.6% of the observed variation in teacher performance in this sample (96.4% after adjustment). These values are in-sample measures of model fit, not estimates of causal influence or out-of-sample predictive accuracy. The unusually high explanatory power warrants careful interpretation, particularly because all constructs were reported by the same respondents and the post hoc single-factor diagnostic explained 50.50% of item variance. Shared-method variance, construct overlap, and the small sample may contribute to the observed fit; the present data cannot disentangle these possibilities. This study offers context-specific evidence concerning the joint relevance of adaptive leadership and technology-related professional capability to teacher performance. Rather than claiming a novel general theory, it extends the application of human resource management concepts to a single educational institution and identifies practical questions for subsequent research.

CONCLUSION

This study found positive statistical associations between agile leadership, information technology usage as an indicator of digital capability, and teacher performance among 33 teachers at Madrasah Aliyah Swasta Proyek Univa Medan. Agile leadership displayed the larger standardized coefficient, while digital capability retained a smaller but statistically significant association after accounting for leadership. The two-predictor regression model was statistically significant and showed high in-sample explanatory power. These findings suggest that adaptive leadership practices and technology-related professional development deserve attention in educational management, but the cross-sectional design does not demonstrate that interventions targeting these variables will cause performance improvements.

The study contributes institution-specific evidence on leadership and technology usage within an educational human resource management framework. Practical implications include reviewing leadership support practices and assessing teachers' professional digital learning needs, while monitoring outcomes independently of the predictor measures. Several limitations qualify the conclusions: the single-school sample (n = 33), self-reported measures, potential common method variance (first unrotated component = 50.50%), and the absence of temporal ordering. Future studies should recruit larger multi-school samples, use independent or administrative performance indicators, distinguish digital capability from technology usage, and employ longitudinal or intervention designs to examine the robustness and direction of the relationships.

REFERENCE

Afrizal, A., Indryani, I., & Aina, M. (2025). The Influence of Digitalization, Digital Competency, Self-Efficacy on Teacher Educational Performance. *Tekno-Pedagogi: Jurnal Teknologi Pendidikan*, *15*(2), 1–19. https://doi.org/10.22437/teknopedagogi.v15i2.42998

Çalışkan Yılmaz, F., & Özgenel, M. (2023). Agile Leadership as an Antecedent of School Effectiveness: A Relational Investigation on Teachers. *Journal of Education and Future*, *23*, 27–40. https://doi.org/10.30786/jef.1071657

Cortez, R. F. C., & Ponsades, O. (2024). The Mediating Effect of 21st Century Skills on the Relationship Between Digital Literacy and Teaching Performance. *International Journal of Research and Innovation in Social Science*, 526–539. https://doi.org/10.47772/IJRISS.2024.801039

Dachachuy, R., & Piatanom, P. (2025). Agile Leadership of School Administrators Affecting Core Competencies of Government Teachers in Schools Under the Secondary Educational Service Area Office, Bangkok 2. *Shanlax International Journal of Education*, *14*(1), 141–151. https://doi.org/10.34293/education.v14i1.9707

Djabbar, V. R., Nawawi, N., & Tamsah, H. (2022). The Effect of Training and Incentives on Employee Performance through Work Productivity at the Public Health Center in Bissapu Sub-district , Bantaeng Regency. *Proceedings of the First Australian International Conference on Industrial Engineering and Operations Management*, *2011*, 1591–1598.

Hasibuan, H. A., Syaifuddin, Rusiadi, Nasib, & Hassim, A. A. (2026). The Role of Harmonization and Employee Performance in Advancing a Sustainable Hospitality Industry. *APTISI Transactions on Technopreneurship (ATT)*, *8*(3), 1008–1018. https://doi.org/https://doi.org/10.34306/att.v8i3.708

Hesti, H., & Susijawati, N. (2026). The Role Of Digital Competence And Work Motivation On Teacher Performance In The Era Of Digitalization Of Junior High Schools In Cirebon City. *International Journal of Economics, Business and Development*, *9*(3). https://doi.org/10.29138/ijebd.v9i3.3590

Honkley, T., Banuari, N., & Tandeas, W. (2025). Peer Trust as a Mediator Between Learning Organization Culture and Innovative Behavior Among Faculty. *Journal of Business Integration and Competitive*, *1*(2), 141–154. https://doi.org/Journal of Business Integration and Competitive

Joni, M., Susanti, N., & Hendra, R. (2025). The Influence of Digital Competency and Teacher Leadership on Innovative Behaviour and Teaching Performance in Jambi Province. *Tekno-Pedagogi: Jurnal Teknologi Pendidikan*, *15*(2), 306–323. https://doi.org/10.22437/teknopedagogi.v15i2.47480

Kurnianto, D. B., Al Rosid, M. H., & Santoso, B. (2026). Agile Leadership-Based Principal Leadership: Collaborative Culture Transformation and Its Impact on Improving Teachers' Adaptive Performance in the Era of Impactful Curriculum. *GHAITSA: Islamic Education Journal*, *7*(1), 155–174. https://doi.org/10.62159/ghaitsa.v7i1.2474

Liashin, K. B., & Dzulkifli, D. N. A. K. (2026). Communicative School Climate and Digital Pedagogical Competence in Driving Teacher Performance: Evidence from Malaysia's TS25 Reform. *International Journal of Research and Innovation in Social Science*, *10*(2), 8634–8644. https://doi.org/10.47772/IJRISS.2026.10200612

Lubis, K. S., Ayu, A. R., Fathimah, V., Irana, D., & Lubis, D. (2024). Empowering Kindergarten Teachers : The Role of Online Business in Enhancing Economic Well-being at Yayasan Chalisarurrahmi Luqman Halim , Medan. *RESPINARIA: Jurnal Pengabdian Kepada Masyarakat*, *1*(1), 16–21.

Nasib, Harianto, A., Juliansyah, R., Novirsari, E., Honkley, T., Martin, Hervina Sihombing, E., Hastuty HS, W., Amelia, R., & Tambunan, D. (2024). Efforts to Increase Digital Literacy in Class XII Students at Budi Agung Private Vocational School Medan. *GANDRUNG: Jurnal Pengabdian Kepada Masyarakat*, *5*(2), 1618–1626. https://doi.org/10.36526/gandrung.v5i2.3765

Nasib, Harianto, E. N. R. K. A. F. A., Albert, M. R. R., Martin, D. T., Satrianny, I. P., Hou, M. D. B. D. D. R. A. A., & Tamba, Z. R. D. D. P. A. I. F. U. (2024). *Mengenal bisnis 5.0*. PT. Pena Persada Kerta Utama.

Nugroho, J., Muniroh, & Arifin, A. L. (2024). Agile Leadership's Influence on Lecturer Effectiveness and Career Development in the Education Sector. *AL-ISHLAH: Jurnal Pendidikan*, *16*(4), 5875–5886. https://doi.org/10.35445/alishlah.v16i4.6217

Sari, O. V. M., Suseno, B. D., & Umalihayati. (2026). Emotional Intelligence and Digital Competence in Enhancing Teacher Performance: A Two-Stage Higher-Order PLS-SEM with Learning Effectiveness as Mediator. *Journal of Education and E-Learning*.

https://doi.org/10.37251/jee.v7i3.2913

Sidharta, E., & Purbojo, R. (2023). The Effect of Principal's Agile Leadership on Generation-Y Teacher's Performance with Wellbeing as Mediator in SMPK XYZ Under VUCA Context. *JIIP - Jurnal Ilmiah Ilmu Pendidikan*, *6*(9), 6476–6485. https://doi.org/10.54371/jiip.v6i9.2047

Sirinopmanee, N., & Piatanom, P. (2026). The Influence of School Administrators' Agile Leadership on Work Enthusiasm of Government Teachers Under the Samut Prakan Secondary Educational Service Area Office. *Shanlax International Journal of Education*, *14*(3), 190–199. https://doi.org/10.34293/education.v14i3.10518

Syaifullah, Yusuf, R. M., Pujiwati, A., & Hidayah, Z. (2024). The Role of TQM and Agile Leadership in Improving Teacher Performance: A Study on Madrasah Aliyah in South Kalimantan. *Jurnal Penelitian Pendidikan Indonesia*, *10*(2), 902–910. https://doi.org/10.29210/020244481

Thamrin, Endang Maryanti, Loly, Nasib, & Hassim, A. A. (2026). Human Resource Practices, Organizational Culture, And Digital Leadership: Drivers Of Employee Performance In A State-Owned Plantation Company. *International Journal of Accounting, Management, Economics and Social Sciences*, *4*(4), 2181–2204. https://doi.org/https://doi.org/10.61990/ijamesc.v4i4.887