MJP Journal of Education and Teaching Learning
Vol.4, No.1 (2026): 311 – 317
https://jurnalilmiah.co.id/index.php/MJPJETL

Digital Academic Supervision Transformation to Improve Teacher Efficacy and Performance at SMAN 1 Bagan Sinembah

[1] Nurul Hardianti Hasibuan, [2] Maya Novita Sari,
[1,2] Master of Education Management, Faculty of Education, Universitas Negeri Yogyakarta
Email: Nurulhardianti.2025@student.uny.ac.id

***Correspondence Author:** Nurulhardianti.2025@student.uny.ac.id

Article Info

Keywords:

Academic supervision; Digital supervision; Teacher efficacy; Teacher performance; Instructional leadership.

ABSTRACT

Digital transformation has changed the way principals conduct academic supervision and has created new opportunities for data-informed teacher development. This study examined the transformation of principal academic supervision in improving teacher efficacy and performance in the digital era at SMAN 1 Bagan Sinembah. A qualitative case study design was applied from February to May 2026. Data were collected through semi-structured interviews with the principal, vice principals, teachers, and a school supervisor, participatory observation of supervision activities, and documentation of supervision policies, instruments, and follow-up programs. The data were analyzed using the interactive model of reduction, display, and conclusion verification, while credibility was strengthened through source triangulation, technique triangulation, and member checking. The findings show that digital supervision was transformed through data-based planning, classroom observation using digital instruments, integrated performance evaluation, and individualized mentoring. This transformation strengthened teachers' confidence in managing instruction, increased their willingness to use learning technology, and improved lesson planning, classroom implementation, assessment practices, and reflective collaboration. The study concludes that digital academic supervision works effectively when technology use is accompanied by collaborative leadership, constructive feedback, and continuous professional support.

Informasi Artikel

Kata Kunci:

Supervisi akademik; Supervisi digital; Efikasi guru; Kinerja guru; Kepemimpinan pembelajaran.

ABSTRAK

Transformasi digital telah mengubah cara kepala sekolah melaksanakan supervisi akademik dan membuka peluang pengembangan guru yang lebih berbasis data. Penelitian ini menganalisis transformasi supervisi akademik kepala sekolah dalam meningkatkan efikasi dan kinerja guru era digital di SMAN 1 Bagan Sinembah. Penelitian menggunakan desain studi kasus kualitatif selama Februari sampai Mei 2026. Data dikumpulkan melalui wawancara semi-terstruktur dengan kepala sekolah, wakil kepala sekolah, guru, dan pengawas, observasi partisipatif terhadap kegiatan supervisi, serta dokumentasi kebijakan, instrumen, dan program tindak lanjut. Analisis data menggunakan model interaktif reduksi, penyajian, dan verifikasi kesimpulan, dengan keabsahan melalui triangulasi sumber, triangulasi teknik, dan member check. Temuan menunjukkan bahwa supervisi digital bertransformasi melalui perencanaan berbasis data, observasi kelas dengan instrumen digital, evaluasi kinerja terintegrasi, dan mentoring individual. Transformasi ini memperkuat kepercayaan diri guru dalam mengelola pembelajaran, mendorong pemanfaatan teknologi, serta meningkatkan perencanaan, pelaksanaan, asesmen, dan kolaborasi reflektif. Supervisi akademik digital efektif ketika penggunaan teknologi disertai kepemimpinan kolaboratif, umpan balik konstruktif, dan dukungan profesional berkelanjutan.

Article History

Received : 15/03/2026
Revised : 25/05/2026
Accepted : 21/07/2026

✉ ***Corresponding Author:*** (1) Nurul Hardianti Hasibuan, (2) Department of Education Management, (3) Universitas Negeri Yogyakarta, (4) Yogyakarta,Indonesia, (5) Email: Nurulhardianti.2025@student.uny.ac.id

1. Introduction

The quality of secondary education is strongly determined by teachers' ability to design, implement, and evaluate learning that is adaptive to digital change. In schools, principals have a strategic role as instructional leaders who ensure that teacher professional development is directed, continuous, and aligned with classroom needs. This challenge has become increasingly important because teacher competence and the use of learning technology remain uneven, while national teacher competency data and studies of online learning show the need for systematic strengthening of pedagogy and digital literacy [1], [2].

Previous studies have emphasized that self-efficacy influences teachers' courage in facing instructional challenges, including when adopting new technologies [3]. Supervision studies also show that effective academic supervision must shift from administrative inspection toward collaborative and reflective professional assistance [4]. Research in Indonesia indicates that principal supervision is related to improvements in teacher competence and performance [5], [6], while recent studies on technology-based supervision emphasize the importance of digital instruments, online communication, cloud documentation, and needs-based follow-up [7], [8].

Empirically, at SMAN 1 Bagan Sinembah, the use of digital tools in academic supervision has begun through PMM, Google Drive, Google Meet, and WhatsApp. However, this practice has not been widely examined in depth as an integrated supervision system that connects data-based planning, classroom observation, performance evaluation, mentoring follow-up, teacher efficacy, and improved instructional performance.

The research gap lies in the limited number of studies that examine digital-based academic supervision transformation as a complete process from planning, implementation, evaluation, to follow-up, while also connecting it with teacher self-efficacy and teacher performance in senior high schools. The novelty of this study lies in mapping the process of digital supervision transformation in a secondary education unit that has used the Merdeka Mengajar Platform, Google Drive, Google Meet, and WhatsApp as a supervision ecosystem. This study aimed to analyze the form of principal academic supervision transformation and its impact on teacher efficacy and performance at SMAN 1 Bagan Sinembah.

2. Method

This study used a qualitative approach with a case study method. This design was selected because the research focused on a single case unit, namely the transformation of academic supervision at SMAN 1 Bagan Sinembah, Rokan Hilir Regency, Riau. A case study allows researchers to examine the processes, actors, context, and meaning of digital supervision in depth within a natural setting [9]. The study was conducted for four months, from February to May 2026.

Informants were selected purposively based on their direct involvement in the planning, implementation, evaluation, or follow-up of supervision. The informants consisted of one principal, two vice principals, three senior teachers, three junior teachers, and one school supervisor. Primary data were obtained through semi-structured interviews and participatory observation. Interviews were conducted two to three times for each informant, lasting 60 to 90 minutes per session. Observation focused on supervision planning meetings, classroom observation, feedback delivery, digital archiving, and mentoring activities. Secondary data were obtained from supervision policy documents, supervision schedules, PMM instruments, supervision notes, teacher training archives, activity photos, and the school profile.

Data were analyzed using the interactive model of Miles, Huberman, and Saldana, which includes data reduction, data display, and conclusion drawing and verification [10]. Data reduction was conducted by coding findings based on the categories of planning, implementation, evaluation, follow-up, teacher efficacy, teacher performance, supporting factors, and inhibiting factors. Data were displayed in analytical narratives and thematic matrices. Data validity was maintained through source triangulation, technique triangulation, and member checking with key informants. These procedures make the study replicable in other schools by adjusting informant criteria, data collection techniques, analytical categories, and validation processes.

3. Results and Discussion

Digital-Based Academic Supervision Transformation

The findings show that the transformation of academic supervision at SMAN 1 Bagan Sinembah occurred through changes in tools, procedures, and professional relationships. Changes in tools were reflected in the use of PMM, Google Drive, Google Meet, WhatsApp, and Google Form. Procedural changes appeared in data-based planning, the use of digital instruments during observation, automatic archiving, and follow-up mapped according to teachers' needs. Changes in professional relationships were seen in a more dialogical supervision pattern that did not only assess teachers but also assisted them in improving instructional practices.

Table 1 shows that digital transformation did not stop at the use of applications but formed a more measurable and participatory supervision cycle. At the planning stage, data from previous supervision served as the basis for determining the focus of coaching. At the implementation stage, digital instruments accelerated the recording of observation results. At the evaluation stage, supervision data could be compared across cycles. At the follow-up stage, the principal organized mentoring and training according to individual teacher needs.

Table 1 Digital academic supervision transformation at SMAN 1 Bagan Sinembah

Supervision	Form of	Processed	Developmen

stage	digital transformation	data found	t meaning
Planning	Schedules, indicators, and observation focus were prepared using PMM data and digital documents.	The focus of supervision became more specific to teaching documents, active methods, assessment, and media use.	Supervision became needs-based, not merely an administrative agenda.
Implementation	Classroom observation used digital instruments and limited visual documentation.	Observation notes were stored more quickly and could be easily traced by supervisors.	Teachers received more objective evidence of instructional practice.
Evaluation	Observation results were compiled in digital archives and compared across cycles.	Improvement trends appeared in teaching readiness, method variation, and assessment.	Coaching decisions became more data-based and did not depend on momentary impressions.
Follow-up	Mentoring, discussion, and sharing of good practices were conducted offline and online.	The needs of senior and junior teachers could be distinguished more clearly.	Professional support became personal, continuous, and collaborative.

This finding is consistent with the idea of education in the Society 5.0 era, which positions the integration of physical and digital spaces as a way to strengthen human-centered educational services [11]. In the supervision context, technology does not replace the principal's role as an instructional leader but strengthens the principal's ability to identify teacher needs, provide rapid feedback, and continuously document the coaching process. This result is also consistent with studies on electronic supervision instruments and spreadsheet-based supervision, which show that digitalization improves efficiency, traceability, and access to supervision data [12], [13].

3.2. The Impact of Supervision Transformation on Teacher Efficacy

Digital supervision transformation affected teacher efficacy through three main patterns. First, teachers felt more prepared for supervision because the schedule and indicators were communicated earlier. Second, teachers received more concrete feedback because observation notes were stored in digital format. Third, teachers had opportunities to reflect on their own development through supervision archives and mentoring sessions. These changes reduced teacher anxiety and increased their confidence that they could improve learning.

Theoretically, the improvement of teacher efficacy can be explained through four sources of self-efficacy: mastery experiences, vicarious experiences, verbal persuasion, and supportive emotional conditions [3]. Teachers gained mastery experiences when supervisors' suggestions were successfully applied in learning. Vicarious experiences emerged when teachers observed colleagues successfully using technology and active methods. Verbal persuasion appeared through constructive feedback from the principal and vice principals. Emotional conditions improved because supervision was understood as a learning space rather than a punitive space.

Table 2 presents a synthesis of the impact of digital supervision on teacher efficacy and performance. The data presented are the results of reduction from interviews, observation, and documentation; therefore, they do not display raw data but thematic categories verified through triangulation.

Table 2 Impact of digital supervision on teacher efficacy and performance

Aspect	Condition before transformation	Condition after transformation	Interpretation
Efficacy in facing supervision	Some teachers felt tense and viewed supervision as one-sided assessment.	Teachers became calmer because indicators were clear, feedback was dialogical, and follow-up was mutually agreed.	Digital supervision strengthened psychological safety and readiness to receive input.
Efficacy in using technology	Senior teachers tended to hesitate when using PMM, videos, or interactive quizzes.	Teachers began trying digital media with individual assistance and examples from peers.	Small successes in using technology increased self-confidence.
Lesson planning	Teaching modules did not always show clear time allocation and method variation.	Planning became more systematic and referred more often to digital resources in PMM.	Supervision data helped teachers improve instructional design in a targeted manner.
Learning implementation	Lecture-based methods were still dominant in several classes.	Group discussions, project-based learning, videos, and interactive media were used more often.	Teaching performance improved because teachers dared to change learning strategies.
Learning evaluation	Assessment relied heavily	Teachers began using	Assessment became more

	on written tests.	portfolios, presentations, projects, and reflection.	varied and aligned with student-centered learning principles.

This finding reinforces Hilman's study, which showed that online academic supervision can still improve teachers' professional competence when implemented with supportive communication [14]. The relationship between efficacy and performance is also consistent with the meta-analysis by Klassen and Tze, which found that teacher efficacy is related to teaching effectiveness [15]. In the case of SMAN 1 Bagan Sinembah, efficacy did not emerge as an abstract motivation but as a belief growing from the experience of improving planning, trying digital strategies, and receiving actionable feedback.

3.3. The Impact of Supervision Transformation on Teacher Performance

Improved teacher performance was evident in three main areas: lesson planning, implementation, and learning evaluation. In planning, teachers prepared teaching modules with more proportional time allocation, more measurable learning objectives, and activities more appropriate to classroom conditions. In implementation, teachers began using active methods and digital media to increase student participation. In evaluation, teachers developed more varied instruments, such as projects, portfolios, presentations, and performance assessments.

These changes indicate that digital supervision functions as a mechanism of professional learning. Teachers do not merely receive supervision scores but also understand which aspects of learning need improvement. When supervision notes are stored digitally, teachers and supervisors can trace development across cycles. This encourages teachers to become more reflective because improvement no longer depends on memory but on records that can be reviewed.

This result is consistent with Badriyah's study, which stated that principal academic supervision helps teachers identify the strengths and weaknesses of teaching practices [16]. This finding also supports Rosmawati's study that continuous supervision encourages teachers to innovate in learning strategies [17]. At the school culture level, improved teacher performance also shapes practices of sharing experiences among teachers, as emphasized in the study by Sopacuaperu and colleagues on the role of supervision in building educator collaboration [18].

3.4. Supporting Factors, Inhibiting Factors, and Improvement Strategies

The success of digital supervision transformation at SMAN 1 Bagan Sinembah was influenced by a combination of policy, infrastructure, leadership, and teacher readiness factors. Support from the education office and the use of PMM provided legitimacy for the principal to integrate digital supervision into the school agenda. Basic infrastructure such as Wi-Fi and tablet devices helped supervisors conduct observation and archive data. The principal's communicative leadership reduced teacher resistance, especially among senior teachers who needed more personal assistance.

Table 3 shows that the main obstacles were not only technical problems but also human readiness and time management. Network instability, limited devices, gaps in digital competence, and supervisors' administrative workload can hinder supervision consistency. Therefore, improvement strategies should combine digital training, individual mentoring, supervisor task distribution, and infrastructure strengthening.

Table 3 Supporting factors, inhibiting factors, and improvement strategies for digital supervision

Dimension	Supporting factors	Inhibiting factors	Improvement strategies
Policy	Strengthening PMM and support from the education office.	Not all digital supervision procedures had been documented as school SOPs.	Prepare hybrid supervision SOPs and a data-based supervision calendar.
Infrastructure	School Wi-Fi, tablets, Google Drive, and communication applications.	The network was unstable in several rooms and devices were unevenly distributed.	Expand internet access points and prepare device-use schedules.
Teacher competence	Some teachers were open to training and sharing good practices.	Senior teachers needed a longer adaptation period.	Conduct individual mentoring and regular technology clinics.
Leadership	The principal and vice principals shared supervision roles.	Administrative workload reduced time for observation and follow-up.	Distribute supervisor duties, use report templates, and schedule brief feedback sessions.
School culture	Feedback was delivered dialogically and without judgment.	Digital reflection features had not been optimally used by all teachers.	Integrate PMM reflection into teacher learning communities.

The findings on inhibiting factors are consistent with studies on the digital divide among teachers in the implementation of online supervision [19]. However, this case also shows that digital barriers can be reduced when the principal applies adaptive leadership, builds a culture of mutual learning, and provides differentiated assistance according to teacher profiles. Thus, digital academic supervision transformation cannot be understood merely as a technology project but as a school organizational change that requires policy support, human resource readiness, and consistent change management. The

digital supervision model that focuses on improving teacher competence is also in line with studies on digital academic supervision in the post-pandemic era [20].

4. Conclusion

The transformation of principal academic supervision at SMAN 1 Bagan Sinembah occurred through data-based planning, classroom observation using digital instruments, documented performance evaluation, and follow-up in the form of mentoring according to teacher needs. This transformation improved teacher efficacy because supervision became more transparent, dialogical, concrete, and provided a safe space for teachers to try new learning strategies. The increased efficacy affected teacher performance, especially in the preparation of teaching modules, the use of active methods, the utilization of learning technology, classroom management, and the development of more varied assessments. The success of digital supervision was determined by collaborative principal leadership, infrastructure support, the use of accessible platforms, and a school culture that accepts feedback. Obstacles such as gaps in digital competence, network instability, limited devices, and administrative workloads need to be addressed through hybrid supervision SOPs, individual assistance, strengthening teacher learning communities, and distributing supervisor tasks. Therefore, digital academic supervision is effective as a strategy for improving teacher efficacy and performance when technology is positioned as a tool for continuous professional coaching, not merely as an administrative tool.

Acknowledgments

The authors express their gratitude to the Principal of SMAN 1 Bagan Sinembah, vice principals, teachers, school supervisor, and all informants who supported the research process. Appreciation is also extended to Universitas Negeri Yogyakarta and the authors' family for their academic and moral support during the research.

References

[1] C. Ministry of Education Research, and Technology, "2021 Teacher Competency Test (UKG) Results Report," Kemendikbudristek, Jakarta, 2022.

[2] P. Rahayu and Y. Wirza, "Teachers' perception of online learning during pandemic COVID-19," *J. Penelit. Pendidik.*, vol. 20, no. 3, pp. 392–406, 2020.

[3] A. Bandura, *Self-efficacy: The Exercise of Control*. New York: W.H. Freeman and Company, 1997.

[4] C. D. Glickman, S. P. Gordon, and J. M. Ross-Gordon, *SuperVision and Instructional Leadership: A Developmental Approach*, 10th ed. Boston: Pearson, 2018.

[5] N. A. Pangestuti and A. M. Triono, "Implementation of principal academic supervision in improving teacher competence at SMP Al-Islam Kartasura," *Didakt. J. Kependidikan*, vol. 13, no. 2, pp. 1701–1710, 2024.

[6] D. K. Sitaasih, "Academic supervision to improve teacher competence in the learning process at elementary schools," *J. Ilm. Sekol. Dasar*, vol. 4, no. 2, pp. 241–247, 2020.

[7] M. Idris, Pujiarman, S. Patimah, A. Warisno, N. H. Murtafiah, and A. Gani, "Implementation of digital technology-based academic supervision in improving teachers professional competence in the Society 5.0 era," *J. Manaj. Pendidik.*, vol. 12, no. 1, pp. 1–11, 2026.

[8] A. S. Harahap and F. R. Nasution, "The effectiveness of the Merdeka Mengajar Platform in academic supervision at A-accredited public senior high schools," *J. Pendidik. Indones.*, vol. 13, no. 4, pp. 891–904, 2024.

[9] R. K. Yin, *Case study research and applications: Design and methods*, 6th ed. SAGE Publications, 2018.

[10] M. B. Miles, A. M. Huberman, and J. Saldana, *Qualitative data analysis: A methods sourcebook*, 3rd ed. Sage Publications, 2014.

[11] F. Nastiti and A. Abdu, "Study: Indonesian education readiness in facing the Society 5.0 era," *Edcomtech J. Kaji. Teknol. Pendidik.*, vol. 5, no. 1, pp. 61–66, 2020.

[12] S. B. Sembiring and M. Kurniawan, "Development of spreadsheet-based electronic academic supervision instruments for kindergarten level," *J. Obs. J. Pendidik. Anak Usia Dini*, vol. 6, no. 5, pp. 4794–4804, 2022.

[13] A. T. Rahayu, "Improving teacher competence in managing learning-from-home activities through Google Spreadsheet-based academic supervision," *J. Ilm. Pendidik. TRISALA*, vol. 2, no. 20, pp. 15–25, 2021.

[14] Hilman, "Principal academic supervision as an effort to improve teachers professional competence in online learning," *J-KIP (Jurnal Kegur. dan Ilmu Pendidikan)*, vol. 3, no. 3, pp. 529–537, 2022.

[15] R. M. Klassen and V. M. C. Tze, "Teachers' self-efficacy, personality, and teaching effectiveness: A meta-analysis," *Educ. Res. Rev.*, vol. 12, pp. 59–76, 2014.

[16] Badriyah, "Principal academic supervision in improving teacher performance," *MUNAQASYAH J. Ilmu Pendidik. dan Pembelajaran*, vol. 4, no. 1, pp. 58–79, 2022.

[17] R. Rosmawati, "Improving teachers ability through academic supervision in assessing student learning outcomes at SD Negeri 2 Geureudong Pase," *ACTION J. Inov. Penelit. Tindakan Kelas dan Sekol.*, vol. 3, no. 1, pp. 93–98, 2023.

[18] A. Sopacuaperu, T. Repelita, M. I. Akmal, and M. A. S. A. Danajaya, "Implementation of principal academic supervision in improving elementary school teacher performance," *Kelola J. Manaj. Pendidik.*, vol. 12, no. 1, pp. 59–72, 2025.

[19] B. Santosa and W. Nugroho, "Analysis of teachers digital divide in the implementation of online academic supervision," *J. Manaj. dan Supervisi Pendidik.*, vol. 8, no. 1, pp. 22–35, 2024.

[20] D. P. Sari and N. Hidayat, "Digital academic

supervision model for enhancing teacher digital competence in post-pandemic era," *J. Pendidik. Teknol. dan Kejuru.*, vol. 22, no. 1, pp. 45–58, 2025.