Strategic for Improving Teacher Information Literacy as an Effort to Develop Professionalism in the Digital Era

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Article Info	ABSTRACT
	Background/purpose. The integration of digital systems in teacher performance management, such as Ruang GTK, demands adequate digital literacy among teachers. However, many educators face challenges in effectively utilizing the platform due to varying levels of competence and institutional support. This study aims to examine how teachers' digital literacy is strategically managed within a school setting to enhance the use of Ruang GTK as a tool for professional performance. **Materials/methods**. A qualitative approach, employing a single-case study method, was used at SMPN 5 Bandung. Eight purposively selected teachers participated in semi-structured interviews, direct observations, and document analysis. Thematic analysis was conducted to identify patterns, and SWOT–TOWS analysis was used to formulate strategic responses. **Results**. Findings reveal inconsistent levels of digital literacy among teachers, with younger educators adapting more quickly than their senior counterparts. Ruang GTK is primarily used for administrative reporting, while developmental features remain underutilized. Identified challenges include lack of technical support, limited training, and low engagement with digital tools. From the analysis, four strategic approaches were developed: empowering digital champions, implementing continuous peer coaching, establishing a digital literacy task force, and embedding digital competence in performance indicators. **Conclusion**. Strategic management of digital literacy is essential to optimize the use of Ruang GTK in enhancing teacher performance. Schools must foster a collaborative and reflective digital culture supported by ongoing capacity building and institutional commitment.

1. INTRODUCTION

The rapid development of digital technology has significantly transformed various aspects of life, including education. Global evidence emphasizes that meaningful digital transformation in education requires not only technological adoption but also institutional leadership, teacher capacity building, and alignment with broader educational policy frameworks (OECD, 2023). In Finland and Singapore, for instance, digital education reforms have been closely linked with teacher professional development and systemic support,

ensuring that technology integration goes hand in hand with pedagogical innovation (Reimers, 2021).

In Indonesia, one such transformation involves the shift from conventional teacher performance management systems to technology-based approaches. The Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) introduced the Merdeka Mengajar Platform (PMM) in early 2024 to support the professional development of teachers (Putri et al., 2025). One of its core features was the Teacher Performance Management (PKG) system, as outlined in Circular Letter Number 0348/C/HK.04.01/2024. However, relying too heavily on descriptive policy narratives without analyzing systemic challenges may obscure critical issues related to implementation (Siagian et al., 2024).

Teacher performance management is not merely administrative but plays a critical role in improving educational quality (Winarsih, 2024), (Ahyani et al., 2024). Through performance management, teachers are expected to plan, implement, and evaluate their teaching professionally, ultimately contributing to better student learning outcomes (Dewi et al., 2024). However, the implementation of performance management in the PMM system has faced several challenges, including technical issues, overly complex features, lack of guidance, and resistance from some teachers (Kurniawan et al., 2024), (Thoriq et al., 2024). Similar challenges have been documented globally, where digital reforms often face "technostress" and uneven readiness among educators (Makumane et al., 2023).

Responding to these challenges, the Directorate General of Primary and Secondary Education transformed PMM into Ruang GTK in January 2025 (UNESA, 2025), (Aranditio, 2025). This adjustment includes simplifications in the teacher performance management process to ensure the evaluation remains efficient and aligned with national education goals. Ruang GTK now facilitates teachers in independently planning, implementing, and evaluating their performance. Key changes include: (1) competency development is now reflection-based rather than point-based; (2) supporting evidence and accountability documents are no longer required for upload; and (3) performance evaluations are now conducted annually instead of biannually. Figure 1 shows the official interface of the Ruang GTK performance management dashboard (Kemdikbud, 2025).

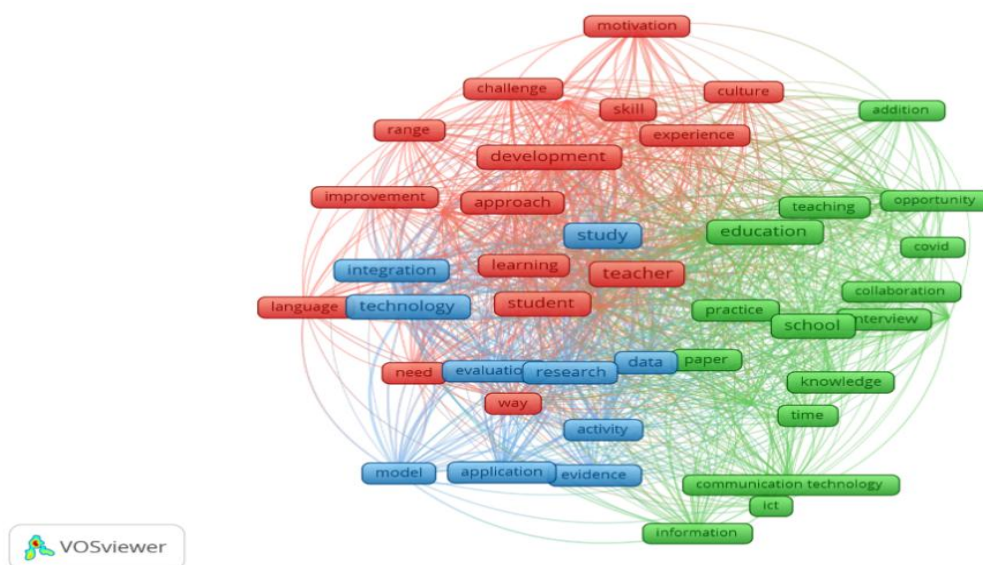**Figure 1.** Picture of Ruang GTK performance management dashboard.

Amidst these changes, the primary challenge lies in teachers' readiness to adapt to this digital system (Tamsiyati et al., 2024), (Hanif et al., 2024). The transformation of performance management requires not only technical skills but also digital literacy to effectively navigate the platform for reflection, professional development, and accountability (Wulandari & Aziz, 2024). Thus, it emphasizes that digital literacy gaps can hinder adoption rates and reduce meaningful engagement with technology-enhanced systems.

Digital literacy, as defined by Gilster (1997), encompasses not just technical abilities but also critical thinking skills in managing information, adapting to digital platforms, and leveraging technology for professional growth (Sakinah, 2024). Data from the 2024 National Digital Literacy Survey (Kemkominfo) reveals that Indonesian teachers exhibit varied levels of digital literacy: 40% possess basic skills, 35% intermediate, and only 25% advanced (Rahmadani, 2022). This disparity affects their readiness to utilize platforms such as PMM or Ruang GTK. Hence, enhancing teachers' digital literacy has become an urgent need to ensure technology-based performance management is both meaningful and effective.

SMPN 5 Bandung was selected as the research site due to its representativeness in adopting Ruang GTK within the public school system. Public schools are obligated to implement government-mandated policies, making them ideal for examining the opportunities and challenges of digital systems. Moreover, the variation in digital literacy levels among teachers at this school presents a compelling case for understanding their experiences and the effectiveness of Ruang GTK implementation.

Bibliometric analysis using VOSviewer was conducted to map current scholarly trends related to digital literacy and teacher performance. The analysis produced three major clusters: the first (red) relates to teacher development, skills, and motivation; the second (blue) focuses on technology integration, system evaluation, and application models; and the third (green) highlights school-based practices, collaboration, and institutional support. The dense network connections among these clusters indicate that teacher professional development (red) increasingly depends on the adoption of digital technologies and evaluation systems

(blue), which in turn require supportive institutional ecosystems (green). However, research at the intersection of the red and blue clusters—where teacher digital literacy meets technology-based performance management systems—remains limited, especially in the context of developing countries. This study is positioned precisely in that gap, aiming to link teachers' digital literacy with the strategic use of Ruang GTK for performance management within the institutional settings reflected in the green cluster. Figure 2 visualizes the keyword network using VOSviewer, revealing gaps in research related to Ruang GTK and digital performance management.

Figure 2. Picture of bibliometric analysis with Vosviewer

This study aims to address this gap by examining how teachers interpret, respond to, and navigate the performance management system within Ruang GTK from a digital literacy perspective. The expected contributions include enriching the academic discussion on the strategic management of teacher digital literacy and providing practical recommendations for educational institutions navigating ongoing policy and technological shifts. To guide this inquiry, the study formulates the following research questions:

- RQ1: How do teachers experience and make sense of using Ruang GTK within the context of their digital literacy?
- RQ2: What challenges and opportunities do teachers encounter when engaging with Ruang GTK for performance management?
- RQ3: How can insights from teachers' experiences inform strategic planning for strengthening digital literacy and performance management systems in schools?

Addressing these questions is expected to provide a comprehensive understanding of teachers' lived experiences with Ruang GTK while offering evidence-based insights for

policymakers and educational institutions to enhance digital literacy and performance management practices.

2.   METHODS

This study employed a qualitative approach with a single case study design to explore the strategic management of teachers' digital literacy in utilizing Ruang GTK. A **single case study** was selected because it allows for in-depth exploration of a bounded system within its real-life context, especially when the phenomenon and context are closely intertwined (Yin, 2018, in Mizukoshi, 2023). This approach is also supported by Baxter and Jack (2020), Yusanto (2020), who emphasize that single cases are appropriate for revelatory or critical settings where rich descriptions and deep analysis are prioritized over broad generalizations.

The research was conducted at SMPN 5 Bandung, a public junior high school located in the city of Bandung, West Java, Indonesia. The school has approximately 40 teaching staff and is mandated to implement national digital policies, including the Ruang GTK platform. As a public institution, SMPN 5 Bandung represents the challenges and expectations typically faced by state schools in adapting to technological transformation. Participants in this study consisted of eight teachers who were selected through purposive sampling. The selection criteria included: (1) active teaching status, (2) active use of Ruang GTK features, (3) a minimum of one year of teaching experience at the school, and (4) willingness to participate in interviews and be observed. The sample was balanced in terms of gender, age, subject area, and digital skill level to ensure data richness. Among the participants were both senior and junior teachers from subjects such as mathematics, Indonesian language, English, and science.

Data collection was conducted over eight weeks using three primary techniques:

a.   Semi-structured interviews, focusing on participants' experiences, perceived barriers, and adaptive strategies in using Ruang GTK. It was conducted lasting 45–60 minutes each, covering experiences, challenges, adaptive strategies, and perceptions of Ruang GTK. Sample questions included: *"Can you describe your experience using Ruang GTK for performance reflection?"* and *"What challenges have you encountered in integrating the platform into your teaching practices?"*

b.   Direct observations, particularly during their use of the platform at school, including reflection submissions and performance tracking.

c.   Document analysis, which involved examining school policies, internal memos, and training materials.

The data were analyzed using Moustakas' (1994) phenomenological approach. First, the epoche stage was conducted by bracketing the researchers' prior assumptions through reflexive journaling. Second, phenomenological reduction involved *horizonalization*, where all

significant statements from interview transcripts, observation notes, and documents were treated with equal value to identify *meaning units*. Third, imaginative variation explored multiple perspectives to uncover the structural meanings of teachers' experiences with Ruang GTK. Finally, the synthesis of meanings and essences produced thematic descriptions capturing the essence of participants' lived experiences.

For instance, a *meaning unit* such as *"I often get confused navigating the performance dashboard"* was first coded as *navigation difficulty*, later grouped under the theme *digital literacy readiness*, and finally categorized in SWOT as a *weakness*. Themes across participants were similarly mapped into internal (strengths, weaknesses) and external (opportunities, threats) factors for SWOT analysis, followed by the TOWS matrix to propose strategic recommendations grounded in empirical insights.

To ensure rigor, the study employed several strategies (Lincoln & Guba, 1985):

- Triangulation: Comparing data from interviews, observations, and documents to cross-verify findings.

- Member checking: Sharing preliminary codes and themes with three participants for validation and feedback.

- Audit trail: Maintaining research logs, coding memos, and decision trails documenting every analytic step.

- Peer debriefing: Engaging two qualitative research experts to review coding frameworks and thematic maps for coherence and credibility.

These measures enhanced the credibility, dependability, and confirmability of the findings.

This comprehensive methodological approach allowed the study to reveal not only the individual experiences of teachers but also the broader institutional strategies adopted by SMPN 5 Bandung in navigating digital transformation within the education sector.

3.   RESULTS AND DISCUSSION

RESULTS

The findings of this study are presented based on the four primary research focuses: (1) teachers' digital literacy readiness; (2) perception of the relationship between digital literacy and performance management; (3) utilization of Ruang GTK; and (4) the management strategies adopted by the school. These findings were derived from interview transcripts, field observations, and document analysis involving eight purposively selected teachers at SMPN 5 Bandung.

3.1.   Teachers' Digital Literacy Readiness

Teachers at SMPN 5 Bandung demonstrated a diverse range of digital literacy levels. Younger teachers showed higher competence and adaptability, while older teachers

expressed varying degrees of discomfort and resistance. Many teachers viewed digital literacy as extending beyond technical skills to include critical thinking, ethical behavior in digital environments, and collaborative practices. For example, one teacher, Reza, defined digital literacy as the ability to access, understand, and evaluate information while applying it in creating digital learning materials. Another teacher, Wisnu, emphasized the shift from textbook dependency to sourcing learning materials online.

Teachers generally recognized the importance of adapting to digital tools but acknowledged a gap in competence among generations. This gap was cited as a challenge in equalizing digital readiness across staff. While younger teachers like Reza expressed confidence in exploring digital platforms, senior teachers like Euis admitted to avoiding digital tools unless necessary, reflecting the need for differentiated support and training.

3.2. Perception of the Relationship Between Digital Literacy and Performance Management

Teachers perceived a strong interdependence between their level of digital literacy and their ability to effectively engage with Ruang GTK. They acknowledged that mastering the platform was essential not only for administrative compliance but also for professional growth. Dwi, for instance, highlighted that digital literacy is no longer optional but essential. Teachers also recognized that the platform provided opportunities to reflect on their practice, though some believed its usage was still largely for compliance.

3.3. Utilization Ruang GTK

The intensity and manner of platform use varied among teachers. Most used it for basic functions such as entering personal data, completing performance indicators, and accessing official training modules. Wisnu and Reza regularly accessed the platform and explored content such as videos and training resources. However, others like Dwi and Neneng indicated that their use was still sporadic and driven by immediate needs.

A recurring theme was that the platform was primarily seen as a compliance tool rather than a professional development resource. Teachers desired more guidance and user-friendly interfaces to better navigate and utilize advanced features.

Table 1. Summary of Platform Usage by Teachers

Teacher Code	Frequency of Use	Primary Purpose	Noted Challenges
T01 (Wisnu)	Frequent	e-Kinerja, video	Complexity of features
T02 (Dwi)	Infrequent	Data input	New system unfamiliarity
T03 (Reza	Periodic	Self-training, community	Requires a more structured guide
T04 (Neneng)	Situational	Exploring new features	Limited motivation

3.4. Management Strategies for Enhancing Digital Literacy

School management strategies to improve teachers' digital literacy, especially in the use of Ruang GTK, emerged through various forms of training models, mentoring systems, and

organically developed practices. These strategies include both formal initiatives and informal, collective learning practices that are contextually grounded.

a.   Effective Training Models According to Teachers

Teachers considered the most effective training models to be those that are sustainable, participatory, and practice-oriented. One-off training sessions without follow-up were seen as insufficient to change teacher behavior. Several teachers emphasized the importance of continuity, motivation-building, and inclusive planning. Syifa stressed the need for regular and scheduled sessions, while Reza emphasized the importance of stakeholder involvement and follow-up evaluations. Euis advocated for building awareness and sharing practices among peers to create a learning culture within the school.

b.   Mentoring and Support Needs

Teachers expressed differing needs regarding mentoring based on their individual digital literacy levels. Some, particularly senior teachers, felt the need for dedicated support, especially at the beginning of implementation. Others believed that short-term mentoring was sufficient, followed by self-directed learning or peer collaboration. A few teachers, such as Neneng, felt independent learning was adequate given sufficient time and support from colleagues.

c.   Teachers' Individual Strategies and Good Practices

In addition to institutional strategies, several teachers demonstrated personal initiatives that contributed to their digital adaptation. These included regularly using built-in help features on the platform, attending online webinars, and accessing tutorials via platforms like YouTube. These self-driven strategies reflected teachers' responsiveness and willingness to engage with digital learning tools independently. Such practices can serve as valuable models to be shared in professional learning communities.

The findings above illustrate that the school's digital literacy improvement efforts are driven by a combination of structured managerial strategies and teacher-led learning initiatives. These themes serve as the foundation for strategic formulation and are further analyzed in the discussion section.

DISCUSSION

The findings of this study highlight several important aspects of teacher digital literacy in the context of performance management through the Ruang GTK platform. Unlike previous studies that often portrayed digital transformation in schools as primarily technology-driven (Redecker, 2017; OECD, 2021), the results here indicate a more complex reality where institutional readiness, generational factors, and individual agency intersect.

The variation in teachers' digital literacy at SMPN 5 Bandung reinforces Gilster's (1997) foundational definition, conceptualizing digital literacy beyond technical competence

toward critical and reflective capacities. Younger teachers demonstrated intuitive use of digital tools, consistent with Prensky's (2001) notion of *digital natives*. In contrast, older teachers often experience technostress and apprehension, aligning with the concept of "digital immigrants." This generational gap reflects Belshaw's (2011) eight elements of digital literacy, where younger teachers showed stronger cognitive, communicative, and constructive traits (Kazharskaya & Medvedeva, 2024)

However, this study found that some senior teachers, despite initial technostress (Tarafdar et al., 2011), eventually developed creative peer-mentoring practices absent in earlier models. This bottom-up adaptation contrasts with existing studies in European contexts where institutional support structures dominated digital transformation efforts (European Commission, 2022) and with global reviews highlighting how digital transformation is often framed around pedagogical competence and institutional capacity (Otoya et al., 2024). Thus, while prior literature emphasizes centralized training and policy-driven change, the present findings reveal how informal, teacher-led initiatives can fill institutional gaps in resource-constrained settings.

The empirical data also deepen the application of the TOWS framework. The *SO strategies*—leveraging internal strengths to exploit external opportunities—were evident in teachers using peer collaboration (strength) to maximize national digital policies (opportunity). For instance, teachers formed informal learning circles to explore Ruang GTK features, reflecting proactive engagement rather than top-down mandates. This extends Wheelen and Hunger's (2012) strategic model by illustrating how grassroots adaptation, rather than formal policy training, can drive early-stage digital integration (Wohlfart & Wagner, 2023).

Nevertheless, some findings challenge existing frameworks. While Westerman et al. (2011) stress strategic alignment as a prerequisite for digital transformation, this study shows partial alignment: teachers demonstrated self-regulated learning strategies (Zimmerman, 2000) through YouTube tutorials and peer discussions, yet institutional monitoring and reward mechanisms lagged behind. This gap suggests that individual adaptation can outpace organizational readiness, a nuance underexplored in prior studies from both Asian (Hussain & Phulpoto, 2024) and European (European Commission, 2022) contexts.

From a management perspective, Armstrong's (2006) performance management cycle and Terry's classical functions remain partially implemented. While planning and self-monitoring stages emerged strongly, evaluation and reward mechanisms were weak—mirroring findings from global meta-analyses on digital school leadership (Brown et al., 2020). This underscores the need for systemic, not just individual, adaptation.

Critically, this study acknowledges several limitations. The single case design, while enabling in-depth analysis, limits broader generalization (Yin, 2018). Data triangulation mitigated but did not eliminate respondent bias, especially since participation was voluntary

and may have attracted more digitally confident teachers. Moreover, observational data captured real-time practices but could not fully access teachers' decision-making processes beyond the school setting. Future studies should consider multiple cases across diverse institutional contexts to strengthen external validity.

Overall, this study contributes to the international discourse on digital literacy by illustrating how institutional constraints and teacher agency interact in emerging education systems. It suggests that sustainable digital transformation in schools requires not only technological access but also adaptive leadership, intergenerational collaboration, and alignment between grassroots innovation and policy frameworks.

4. CONCLUSION

This study concludes that the implementation of digital literacy in teacher performance management through the Ruang GTK platform at SMPN 5 Bandung is shaped by three key dynamics: individual digital competence, generational differences, and institutional support structures. Younger teachers demonstrated higher levels of digital engagement and adaptability, whereas senior teachers frequently experienced technostress and lower digital confidence. Despite these differences, both groups recognized digital literacy as essential not only for administrative compliance but also for professional growth and reflective teaching practices.

However, the findings reveal that Ruang GTK utilization remains predominantly administrative in nature, with limited integration into broader instructional innovation. Informal peer-support networks emerged as a critical grassroots response to institutional gaps, highlighting a teacher-driven approach to digital transformation that contrasts with top-down models emphasized in previous studies. Through SWOT and TOWS analyses, this study identified strategic opportunities for aligning individual initiative with systemic support, proposing a roadmap for sustainable, school-wide digital literacy development.

Theoretically, this study contributes to the literature by expanding digital literacy discourse beyond technological access toward the interplay between institutional readiness, teacher agency, and generational adaptation. It challenges existing models that emphasize centralized training, showing how informal, teacher-led initiatives can drive early-stage digital transformation in resource-limited contexts.

Practically, the findings call for schools and policymakers to:
a. Develop structured, continuous, and context-sensitive digital literacy programs.
b. Institutionalize peer-mentoring and intergenerational collaboration mechanisms.
c. Integrate digital literacy indicators into performance management and evaluation systems.

d. Align national digital policies with school-level implementation support to ensure equitable access and reduce technostress.

Given the single case study design, future research should adopt multi-case or cross-country comparisons to enhance external validity and explore contextual variations in digital literacy integration. Longitudinal studies could further examine how teacher-driven innovations evolve when institutional support structures gradually improve. Moreover, mixed-methods approaches might provide deeper insights into the relationship between individual agency, policy frameworks, and long-term educational outcomes in digital transformation efforts.

5. REFERENCES

Ahyani, E., Rifky, S., Muharam, S., Murnaka, N. P., Kadiyo, K., & Dhuhani, E. M. (2024). Implementation of Teacher Performance Management to Improve Education Quality. *Cendikia: Media Jurnal Ilmiah Pendidikan*, *14*(4), 391–398. https://doi.org/10.35335/cendikia.v14i4.4855

Aranditio, S. (2025). *Ruang GTK Pengganti Platform Merdeka Mengajar Akan Mengurangi Beban Guru*. https://www.kompas.id/artikel/ruang-gtk-pengganti-pmm-diklaim-bisa-mengurangi-beban-guru

Aulia Ferdinan Putri, M., Ayu Larasati, S., Rohayati, S., Studi Pendidikan Madrasah Ibtidaiyah, P., Ilmu Tarbiyah dan Keguruan, F., Raden Fatah Palembang, U., Profesor Kiai Haji Zainal Abidin Fikri, J. K., Kemuning, K., Palembang, K., & Selatan, S. (2025). Pemanfaatan Teknologi Pendidikan dalam Meningkatkan Kinerja Guru di Era Digital. *Journal on Education*, *07*(02), 12192–12200.

Erni Ratna Dewi, A., Cahyani Kalil, N., Rahayu Juniati, S., Islam Makassar, U., Muhammadiyah Tanjung Redeb Berau Kalimantan Timur, S., Muslim Nusantara Al-Washliyah, U., & Muhammadiyah Sinjai, U. (2024). Creative Commons Attribution-ShareAlike 4.0 International License: https://creativecommons.org/licenses/by-sa/4.0/ Jurnal of Pedagogi: Jurnal Pendidikan Exploring the Relationship between Teacher Professional Development and Student Learning Outcomes. *Jurnal Pendidikan*, *1*(5), 109–116. https://doi.org/10.62872/k3d5gd27

Eti Tamsiyati, Riza Kurnia, Amilda, & Junaidah. (2024). Kesiapan Guru Menyongsong Era 5.0. *Indonesian Journal Of Education*, *1*(3), 63–67. https://doi.org/10.71417/ije.v1i3.161

Fernández-Otoya, F., Cabero-Almenara, J., Pérez-Postigo, G., Bravo, J., Alcázar-Holguin, M. A., & Vilca-Rodríguez, M. (2024). Digital and Information Literacy in Basic-Education Teachers: A Systematic Literature Review. *Education Sciences*, *14*(2). https://doi.org/10.3390/educsci14020127

Fernando M Reimers. (2021). Implementing Deeper Learning and 21st Education Reforms. In *Implementing Deeper Learning and 21st Education Reforms*. https://www.oecd-

ilibrary.org/education/oecd-digital-education-outlook-2023_c74f03de-en

Hanif, M., Sm, A., & Tanjungpura, U. (2024). *Adaptasi Guru terhadap Teknologi Pendidikan di Era Digital : Tantangan dan Peluang*. 1033–1044.

Hussain, N., & Phulpoto, S. (2024). Digital Literacy: Empowering Individuals in the Digital Age. *Assyfa Learning Journal*, *2*(2), 70–83. https://doi.org/10.61650/alj.v2i2.231

Kazharskaya, O. N., & Medvedeva, S. A. (2024). Raising the young teachers' level of psychological readiness for professional and pedagogical activity in the conditions of supplementary professional education. *Perspektivy Nauki i Obrazovania*, *68*(2), 713–733. https://doi.org/10.32744/pse.2024.2.43

Kemdikbud. (2025). *Info Penting PKG Ruang GTK*. https://guru.kemdikbud.go.id/pengelolaan-kinerja

Kurniawan, A., Malinda, L., & Ramadianti, A. A. (2024). Penerapan Aplikasi Platform Merdeka Mengajar Terhadap Guru SDN 104256 Rugemuk. *Tematik: Jurnal Penelitian Pendidikan Dasar*, *3*(2), 121–125. https://doi.org/10.57251/tem.v3i2.1497

Makumane, M., Mataka, T. W., Sengai, W., & Ngcobo, S. (2023). Neutralising the digital divide: is blended learning a viable solution? *International Journal of Research in Business and Social Science (2147- 4478)*, *12*(7), 511–522. https://doi.org/10.20525/ijrbs.v12i7.2740

Mizukoshi, K. (2023). Case Study Research and Applications. *Japan Marketing Journal*, *43*(2), 3–5. https://doi.org/10.7222/marketing.2023.045

OECD. (2023). OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem. In *OECD Digital Education Outlook*. https://www.oecd-ilibrary.org/education/oecd-digital-education-outlook-2023_c74f03de-en

Rahmadani, R. (2022). Pentingnya Literasi Digital Bagi Guru Dan Tenaga Kependidikan Madrasah. *Jurnal Ilmiah Widya Borneo*, *4*(2), 175–183. https://doi.org/10.56266/widyaborneo.v4i2.69

Rayya Adila Sakinah. (2024). Indeks Literasi Digital. *Good Stats*. https://goodstats.id/article/menkomdigi-ajak-pemuda-berperan-aktif-dalam-membangun-literasi-digital-hSKS9

Siagian, M., Zainuddin, Z., Mudjisusatyo, Y., & Pangaribuan, W. (2024). Analisis Kebijakan Pendidikan Program Merdeka Belajar: Studi Kasus Pada Implementasi Aplikasi Platform Merdeka Mengajar (PMM) Dalam Pengelolaan Kinerja Guru Dan Kepala Sekolah. *Jurnal Ekonomi Bisnis, Manajemen Dan Akuntansi (JEBMA)*, *4*(2), 601–611. https://doi.org/10.47709/jebma.v4i2.3812

Thoriq, A., Hidayati, D., & Rina. (2024). Pemanfaatan Platform Merdeka Mengajar dalam Praktik Baik Implementasi Kurikulum Merdeka. *Kelola: Jurnal Manajemen Pendidikan*, *11*(1), 120–128. https://doi.org/10.24246/j.jk.2024.v11.i1.p120-128

UNESA. (2025). *Transformasi Platform Merdeka Mengajar (PMM) menjadi Ruang GTK: Inovasi*

Baru   untuk   Pendidik   Indonesia.   https://pendidikan-sains.fmipa.unesa.ac.id/post/transformasi-platform-merdeka-mengajar-pmm-menjadi-ruang-gtk-inovasi-baru-untuk-pendidik-indonesia

Winarsih, S. (2024). Enhancing Teacher Performance Management in Islamic Schools: A Case Study in Madrasah Aliyah Minat Kesugihan Cilacap. *AL-ISHLAH: Jurnal Pendidikan*, *16*(3), 3170–3178. https://doi.org/10.35445/alishlah.v16i3.5623

Wohlfart, O., & Wagner, I. (2023). Teachers' role in digitalizing education: an umbrella review. *Educational Technology Research and Development*, *71*(2), 339–365. https://doi.org/10.1007/s11423-022-10166-0

Wulandari, H., & Aziz, M. T. (2024). *24132-Article Text-63645-1-10-20240903*. 2437–2444.

Yusanto, Y. (2020). Ragam pendekatan penelitian kualitatif. Journal of scientific communication (jsc), 1(1). *Journal of Scientific Communication (Jsc)*, *1*(1), 1–13.