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Policy and Innovative Learning Approaches for Enhancing Elementary School Teachers' Digital Readiness

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Abstract

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Digital transformation in primary education requires teachers to be prepared to integrate technology into the learning process. This study aims to examine the role of digital education policies and innovative learning strategies in enhancing teachers' digital readiness at the elementary level. Based on a review of scholarly articles, findings indicate that initiatives such as the Independent Learning Program and the Independent Teaching Platform have laid an important groundwork for educational digitalization, though challenges remain in terms of unequal access and varying teacher competencies. Innovative strategies like blended learning, flipped classrooms, and gamification have been shown to effectively enhance student engagement and learning outcomes. Nevertheless, the success of these approaches relies heavily on adequate teacher training, strong school leadership, and sufficient infrastructure. The study emphasizes the need for affirmative policies targeting 3T regions, continuous professional development, and the formation of teacher learning communities as strategic measures to build an inclusive, adaptive, and technology-driven primary education system.

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1. Introduction

Digital transformation has become a central focus in global education, particularly following the COVID-19 pandemic, which compelled educational institutions worldwide to integrate digital technologies into their teaching and learning processes. In Indonesia, the shift toward digital education has highlighted both challenges and opportunities, emphasizing the need for education policy reforms and the adoption of adaptive and innovative learning strategies, especially at the elementary school level. Teachers, as the primary implementers of these policies, play a crucial role in ensuring the effective execution of digital transformation in education. Teacher readiness in digital education encompasses their pedagogical capacity to incorporate technology into instruction, the availability of adequate infrastructure, and sufficient policy support. To support this, the Indonesian Ministry of Education and Culture has launched initiatives such as the Merdeka Learning Program, the Merdeka Teaching Platform, and various online training programs aimed at enhancing teachers' digital competencies. Nevertheless, research indicates that disparities remain in teachers' readiness and implementation, particularly regarding technological skills, infrastructure access, and administrative support (Miftah & Rozi, 2022; Anita & Astuti, 2022).

The implementation of technology-driven learning strategies demands that teachers go beyond simply mastering educational software. They need to possess digital literacy, demonstrate pedagogical creativity, and be capable of tailoring learning approaches to meet the needs of 21st-century students, who are highly familiar with technology (Suryaningsih & Purnomo, 2023). Studies further indicate

that the effectiveness of technology integration in education largely depends on teachers' readiness and attitudes (Bestari et al., 2023). Therefore, digital education policies should be understood as a comprehensive framework that not only sets regulations but also addresses wider aspects of the educational ecosystem, including ongoing professional development, collaboration among institutions, and active involvement of the school community (Havemann et al., 2023). The adoption of digital learning strategies such as blended learning, gamification, project-based online learning, and Learning Management Systems (LMS) requires robust infrastructure and human resources that can adapt efficiently to new demands (Siswanto, 2021).

The gap in digital readiness between teachers in urban and rural areas, along with disparities in access to digital devices, presents a major challenge in implementing digital education policies (Anita & Astuti, 2022). Teachers in remote locations encounter greater difficulties in accessing training, applying technology in their teaching, and receiving sufficient technical support. This highlights the need for a comprehensive and inclusive national strategy to ensure equitable implementation of education digitalization initiatives. Research by Kamila et al. (2022) underscores the critical role of structural support from schools and local policymakers in fostering an environment that promotes the development of teachers' digital competencies. Additionally, enhancing the quality of school leadership in managing digital transitions significantly influences the successful integration of technology in learning (Sutarman et al., 2019). In this context, the present study seeks to assess various digital education policies and explore newly implemented learning strategies in elementary schools, with a particular focus on

how these policies and strategies help prepare teachers with the skills necessary for effective and inclusive digital learning.

2. Literature Review

Recent research indicates that the digital readiness of primary school teachers is strongly shaped by well-designed digital education policies and innovative learning strategies that align with technological advancements. According to Suryaningsih & Purnomo (2023), teachers' levels of digital literacy are closely linked to the effective implementation of the Independent Curriculum, which emphasizes technology-based instruction and differentiated learning. Similarly, Sholeh and Efendi (2023) highlight that incorporating technology into teaching presents both challenges and opportunities, particularly in adopting project-based learning methods and utilizing Learning Management Systems (LMS). Overall, the literature consistently points to the critical role of ongoing training and mentoring in enhancing teachers' preparedness to navigate digital transformation.

Nonetheless, inadequate infrastructure and limited access to technological resources remain major challenges, particularly in the 3T regions (frontier, outermost, and disadvantaged areas) (Miftah & Rozi, 2022). Therefore, policies that ensure the fair allocation of digital education resources are essential. Effective innovative learning approaches identified in the literature include flipped classrooms, blended learning, and gamified content (Moscato & Embre, 2023). These methods enhance interactivity, boost student engagement, and provide teachers with greater flexibility in delivering lessons. Research also indicates that the successful

implementation of these strategies heavily relies on strong institutional support and forward-looking school leadership (Bestari et al., 2023).

3. Methods

This study employs a literature review as the primary method to evaluate and analyze digital education policies and innovative learning strategies that support the digital readiness of elementary school teachers. A literature review was chosen because it enables the conceptual mapping and synthesis of diverse academic findings, providing a solid theoretical and empirical basis for understanding digital transformation in primary education. Data were collected by identifying and examining scientific articles through Google Scholar, using keywords such as "digital education policy," "innovative learning strategies," "teachers' digital readiness," "primary schools," "digital literacy," "learning transformation," and "independent curriculum." Only open-access articles from peer-reviewed journals, national seminar proceedings, and publications by reputable academic institutions were included. In total, 14 articles were selected based on their content relevance and the timeliness of the topic.

The analysis was conducted thematically using coding techniques to identify key insights, including: 1) government policies on digital education, 2) challenges related to teachers' digital readiness, 3) innovative learning strategies implemented in elementary schools, and 4) digital gaps and proposed solutions. Data from each article were organized into a synthesis table to facilitate comparison and integration across multiple sources. A critical assessment of each study was also performed,

evaluating aspects such as research methodology, theoretical framework, and the relevance of findings to the Indonesian educational context, ensuring the validity and credibility of the reviewed literature. The references included employed diverse methodological approaches, such as case studies, surveys, quasi-experiments, and meta-analyses. This approach aims to provide a comprehensive and integrative understanding of how digital education policies and innovative learning strategies influence teacher readiness in elementary schools. Beyond summarizing recent developments, the study also offers guidance for future policy-making and teaching practices that are better aligned with the ongoing digital transformation of education.

4. Results

The literature review findings indicate that the combination of digital education policies and the adoption of innovative learning strategies significantly influences the digital readiness of elementary school teachers. Analysis of scientific articles reveals that teachers' preparedness for the digital era is shaped not only by technical skills but also by factors such as national education policy direction, access to professional training, school leadership, and the prevailing learning culture within their work environment. Government initiatives, including the Merdeka Learning Program and the Merdeka Teaching Platform, have played a key role in creating a more open, flexible, and technology-oriented learning ecosystem. These platforms offer diverse resources, including teaching modules, learning videos, and formative assessments, which teachers can utilize to enhance instructional quality.

Nevertheless, the success of these policies largely depends on the readiness of individual teachers and the level of support provided by their schools.

Sholeh and Efendi (2023) found that the Independent Teaching Platform offers significant opportunities for teachers to engage in self-directed training, but it also presents challenges for those who are not yet familiar with digital platforms. A major barrier to the equitable implementation of digital education policies is the disparity in access and infrastructure, particularly in 3T areas (frontier, outermost, and disadvantaged regions). Teachers in these remote locations often face limited internet connectivity, inadequate supporting devices, and a lack of training tailored to their local context. Similarly, Anita and Astuti (2022) highlighted that while national policies have been rolled out, their impact has not sufficiently addressed the underlying issues in these regions.

The digital readiness of elementary school teachers shows considerable variation, influenced by factors such as educational background, age, teaching experience, and school culture. Younger teachers generally adapt more quickly to technology, whereas more experienced teachers may need additional time and tailored approaches to develop their digital competencies. According to Suryaningsih and Purnomo (2023), although many teachers recognize the importance of digitalization, a number of them struggle to design effective plans for technology-based learning. Digital literacy extends beyond technical skills to include pedagogical understanding of how technology can enhance learning effectiveness and interactivity. Often, teachers perceive that the training they receive is one-directional

and does not adequately address the practical challenges encountered in the classroom.

Several digital learning strategies have been implemented in elementary schools, including blended learning, flipped classrooms, online project-based learning, and gamification. Blended learning enables teachers to integrate face-to-face instruction with digital tools such as videos, interactive quizzes, and discussion forums. Moscato and Embre (2023) found that blended learning can enhance student engagement and deepen conceptual understanding, particularly when teachers design activities that are both contextual and interactive. Flipped classrooms have also been adopted in some schools, where students study instructional materials via videos or readings before class, using classroom time for discussions and hands-on activities. However, the success of this approach largely depends on students having access to devices and the ability to learn independently at home (Haq et al., 2023).

Gamification, which involves incorporating game elements into the learning process, has gained popularity among elementary school teachers. By using points, challenges, and rewards, teachers can create an engaging and healthy competitive learning environment. According to Prihatini (2023), gamification can significantly enhance students' motivation and focus. However, its broader adoption is hindered by technical limitations and teachers' limited knowledge of effective gamification design. Consequently, teacher training should address not only the technical use of digital tools but also the design of digital-based instructional strategies that align with the developmental needs of elementary school students.

The implementation of digital learning strategies faces challenges not only at the individual teacher level but also within the broader school system. Many teachers continue to feel overwhelmed by administrative tasks, leaving limited opportunities to explore creative teaching approaches. The transformational leadership of school principals plays a crucial role in the successful adoption of digital policies. Schools headed by principals who possess a clear digital vision and strong managerial abilities are generally more adaptable and receptive to innovative learning practices. Leadership that encourages teachers to experiment and utilize digital resources fosters a collaborative and innovative learning culture.

The digital divide between urban and rural schools represents a structural issue that requires serious attention. Studies, including those by Miftah and Rozi (2022), reveal that teachers in urban areas benefit from greater access to training, digital tools, and collaborative networks compared to those in disadvantaged regions. This disparity leads to variations in learning quality and student experiences. In remote areas, efforts to implement educational innovations are frequently constrained by limited funding, insufficient support from education authorities, and geographic isolation. Hence, affirmative policies from the central government are essential to guarantee the fair and equitable distribution of digital resources.

Meanwhile, contextual alternative solutions are beginning to emerge within school communities. One strategic effort is the establishment of teacher learning communities or communities of practice aimed at enhancing collective competence. Kamila et al. (2022) highlight that such communities, conducted both online and offline, serve as effective platforms for sharing best practices, engaging in

pedagogical discussions, and building professional capacity. They also help reduce teachers' anxiety about change while fostering confidence in using technology. In addition, several schools have developed partnerships with universities, NGOs, and the private sector to gain access to training and technical support for digital learning development. Some teachers have also adopted creative low-tech solutions to facilitate learning. For instance, Putri et al. (2023) found that teachers in certain areas effectively used WhatsApp, homemade videos, and simple digital worksheets as teaching media. This demonstrates that digital transformation does not always require sophisticated tools, but rather the innovative and contextual use of available technologies. The effectiveness of these practices supports the notion that new learning strategies must be tailored to local conditions and specific needs.

The evaluation of digital learning remains an area that demands greater attention. Technology-based assessments have not yet been effectively implemented at the elementary school level. Although many teachers use digital devices in their teaching, they still tend to rely on manual assessment methods. This situation is largely caused by limited understanding of digital formative assessment concepts and the lack of accessible, user-friendly platforms. Therefore, it is important to strengthen teacher training on digital assessments and enhance the integration of evaluation features within LMS platforms, enabling teachers to monitor students' learning progress more accurately and continuously.

This study reveals that the success of digital transformation in elementary schools largely depends on the synergy between policy frameworks, teacher competence, institutional support, and adequate infrastructure. Digital education

policies alone are insufficient without being supported by strong and sustainable implementation strategies. Building a culture of innovation and continuous learning at the school level is essential to ensure that technology genuinely contributes to improving educational quality. Teachers need opportunities to explore, experiment, make mistakes, and develop. Through a more holistic approach that considers local contexts, the digital transformation of primary education in Indonesia can be realized in a more inclusive and effective manner.

5. Conclusion

This literature review concludes that digital education policies and innovative learning strategies play a crucial role in strengthening the digital readiness of primary school teachers. Initiatives such as the Merdeka Learning Program and the development of digital learning platforms have initiated systemic changes in basic education, though their implementation remains uneven. Many teachers continue to struggle with limited infrastructure, insufficient technical skills, and a lack of administrative support, which hampers the effective integration of technology in teaching. Digital readiness extends beyond the ability to operate technology; it also encompasses pedagogical insight and the capacity to design adaptive and innovative learning strategies. Approaches like blended learning, gamification, and flipped classrooms have demonstrated potential to enhance student engagement and outcomes, provided that teachers receive appropriate training and strong institutional support.

The gap in readiness between urban and rural schools, along with the broader digital divide, highlights the urgent need for affirmative policies and stronger support for disadvantaged regions. Equally important are inter-institutional collaboration, the leadership of school principals as digital change agents, and the development of teacher learning communities as key enablers. Through the integration of inclusive education policies and innovative, technology-based learning strategies, the primary education system can become more equipped to face the demands of the 21st century. Ensuring comprehensive teacher capacity development should remain the central focus in achieving a sustainable and equitable digital transformation of education.

References

Anita, A., & Astuti, S. I. (2022). Digitalisasi dan ketimpangan pendidikan: studi kasus terhadap guru sekolah dasar di Kecamatan Baraka. *Jurnal Pendidikan Dan Kebudayaan*, *7*(1), 1-12.

Bestari, P., Awam, R., Sucipto, E., Marsidin, S., & Rifma, R. (2023). Peran supervisi pendidikan dalam meningkatkan kualitas pembelajaran di era digital. *Jurnal Papeda: Jurnal Publikasi Pendidikan Dasar*, *5*(2), 133-140.

Haq, A. K., Rizkiah, S. N., & Andara, Y. (2023). Tantangan dan dampak transformasi pendidikan berbasis digital terhadap kualitas pembelajaran di sekolah dasar. *Jurnal Pengajaran Sekolah Dasar*, *2*(2), 168-177.

Havemann, L., Corti, P., Atenas, J., Nerantzi, C., & Martínez-Arboleda, A. (2023). Making the case: Opening education through collaboration. *Rivista di Digital Politics*, *3*(2), 305-326.

Kamila, J. T., Nurnazhiifa, K., Sati, L., & Setiawati, R. (2022). Pengembangan guru dalam menghadapi tantangan kebijakan pendidikan di era revolusi industri 4.0. *Jurnal Pendidikan Tambusai*, *6*(2), 10013-10018.

Miftah, Z., & Rozi, F. (2022). Digitalisasi dan Disparitas Pendidikan di Sekolah Dasar. *IBTIDA'*, *3*(02), 149-163.

Moscato, J., & Embre, C. (2023). Strategi Pendidikan Dasar untuk Menghadapi Tantangan Era Kurikulum Digital Dengan Studi Empiris. *Jurnal MENTARI: Manajemen, Pendidikan Dan Teknologi Informasi*, *2*(1), 43-53.

Prihatini, A. (2023). Perkembangan penelitian pembelajaran bahasa Indonesia sebagai bahasa kedua: Analisis bibliometrik. *KEMBARA: Jurnal Keilmuan Bahasa, Sastra, Dan Pengajarannya*, *9*(1), 56-75.

Putri, A. N., Melani, A. R., & Nabila, S. R. (2023). Peran Managemen Agar Meningkatkan Pendidikan Bermutu di Era Digital. *Protasis: Jurnal Bahasa, Sastra, Budaya, Dan Pengajarannya*, *2*(1), 149-161.

Sholeh, M. I., & Efendi, N. (2023). Integrasi teknologi dalam manajemen pendidikan islam: meningkatkan kinerja guru di era digital. *Jurnal Tinta*, *5*(2), 104-126.

Siswanto, E. (2021). Tantangan dan Kesiapan Guru Dalam Menghadapi Era Society 5.0. *International Journal of Disabilities and Social Inclusion*, *1*(02), 26-34.

Suryaningsih, H. A., & Purnomo, H. (2023). Kesiapan Guru Terhadap Literasi Digital pada Implementasi Kurikulum Merdeka di SD Negeri Sembungan. *Renjana Pendidikan Dasar*, *3*(4), 247-253.

Sutarman, A., Wardipa, I. G. P., & Mahri, M. (2019). Penguatan peran guru di era digital melalui program pembelajaran inspiratif. *Tarbawi: Jurnal Keilmuan Manajemen Pendidikan*, *5*(02), 229-238.