

Leveraging Digital Literacy for Indonesian Language Learning: Strategies to Enhance High School Students' Writing Skills—Opportunities and Obstacles

E. Sulyati¹, Kuswara²

¹ Universitas Sebelas April, Sumedang, Indonesia; e_sulyati@unsap.ac.id

² Universitas Sebelas April, Sumedang, Indonesia; kuswara@unsap.ac.id

ARTICLE INFO

Keywords:

digital literacy,
high school students;
Indonesian language learning;
writing skills

Article history:

Received 2024-07-23

Revised 2025-01-30

Accepted 2025-06-28

ABSTRACT

The *Merdeka Belajar* Curriculum in Indonesia prioritizes literacy development, particularly in Indonesian language education, as a means of enhancing students' language proficiency, critical thinking, and sense of national identity. Writing, a key component of this curriculum, requires not only cognitive but also technological competencies. This study employed a descriptive qualitative research design to investigate the role of digital literacy in improving students' writing skills at the high school level. Data were collected through in-depth interviews, participatory observation, and documentation. Findings indicate that digital literacy enhances writing skills by broadening access to information, increasing writing flexibility, and promoting critical thinking. Students showed increased engagement and collaboration when using digital tools. However, implementation challenges persist, including limited technological infrastructure, unequal access to devices, and varying levels of digital competency among educators and learners. Although digital literacy presents a promising avenue for strengthening writing instruction, these benefits can only be fully realized when infrastructural and skill-related barriers are addressed. Digital literacy has significant potential to improve writing skills in Indonesian language education. To ensure its successful integration, a collaborative approach involving schools, educators, and policymakers is essential. This collective effort should focus on creating equitable access to technology and fostering digital competence to support an inclusive and effective digital learning environment.

This is an open access article under the [CC BY-NC-SA](#) license.



Corresponding Author:

E. Sulyati

Universitas Sebelas April, Sumedang, Indonesia; e_sulyati@unsap.ac.id

1. INTRODUCTION

In the 21st century, digital literacy has emerged as a critical element of education, playing a vital role in preparing students for the demands of modern life. This includes not only technological proficiency but also the ability to communicate effectively, think critically, collaborate productively, and demonstrate creativity (Roblek et al., 2020; Ellitan, 2020). The integration of digital skills into educational practices has become essential to equipping students with the competencies required in both academic and

professional environments. Digital literacy enables learners to engage meaningfully with diverse sources of information, synthesize ideas, and express themselves through various digital formats—skills that are increasingly necessary in a rapidly evolving global landscape.

In response to these evolving demands, Indonesia introduced the Kurikulum Merdeka Belajar (Independent Learning Curriculum), which prioritizes the development of student autonomy, creativity, and foundational literacy skills (Nadeak & Puspa Juwita, 2022; Supa'at & Ihsan, 2023). This curriculum represents a significant paradigm shift in Indonesian education by focusing on student-centered learning and emphasizing competencies over rote memorization. A central pillar of this curriculum is literacy development, particularly in the context of Indonesian language education. The teaching of the national language serves not only as a tool for communication but also as a medium for developing cognitive skills, fostering cultural identity, and enhancing critical thinking (Karimah, 2022).

At the high school level, Indonesian language education becomes especially significant. Adolescents are at a developmental stage where their cognitive, emotional, and social capacities are rapidly expanding, making this period ideal for deepening literacy skills. Effective instruction in the Indonesian language can sharpen students' abilities to think analytically, express ideas clearly, and engage with diverse perspectives (Rusydiyah et al., 2020). Among the core language skills—reading, writing, speaking, and listening—writing stands out as both a complex and vital competency. Writing involves synthesizing information, organizing thoughts, articulating arguments, and refining communication strategies in coherent and structured ways (Harmoko, 2021).

Moreover, writing is not merely a technical skill but a cognitive and reflective process that enables students to construct knowledge and respond critically to the world around them (Indah, 2017; Sholihah, 2022). Proficiency in writing is closely linked to academic achievement, personal expression, and readiness for the demands of higher education and the workplace (Akhir, 2021; Hussain, 2017). Thus, cultivating writing abilities is a cornerstone of quality education, particularly in the Indonesian context, where national identity and linguistic integrity are deeply interwoven.

Given the importance of writing in the Indonesian language education, it is essential to explore innovative approaches to teaching this skill. One promising strategy is the integration of digital literacy into language instruction. Digital literacy, as defined in the contemporary context, extends beyond basic computer skills to include the ability to access, evaluate, produce, and communicate information using digital technologies (Arono et al., 2021). It involves media literacy, information literacy, and the ethical use of digital content. When applied to writing instruction, digital literacy allows for new forms of expression and collaboration. Students can use digital platforms to access diverse learning resources, co-author documents, publish writing online, and receive immediate feedback from peers and instructors.

Research supports the idea that integrating digital literacy into writing instruction can lead to increased student engagement, deeper critical thinking, and more authentic learning experiences (Abas & Abd Aziz, 2018). For example, digital writing platforms and collaborative tools enable students to brainstorm ideas collectively, draft and revise texts interactively, and develop multimedia compositions that reflect real-world communication practices. These tools foster a learner-centered environment where students actively participate in the writing process, which in turn promotes agency and motivation.

Despite its promise, the adoption of digital literacy-based strategies in Indonesian language instruction is not without challenges. Several barriers hinder the effective integration of digital tools in the classroom. One significant obstacle is the lack of a comprehensive framework to guide the incorporation of digital literacy into the curriculum (Hardinata et al., 2021). Without clear instructional models, teachers may struggle to align digital tools with pedagogical objectives. Furthermore, disparities in technological infrastructure, especially in rural and underfunded schools, limit students' and teachers' access to devices and internet connectivity (Werdistira, 2023). These inequities exacerbate the digital divide and create gaps in students' learning opportunities.

Another challenge lies in the varying levels of digital competence among educators. While some teachers are adept at using technology in the classroom, others lack the necessary training and support to implement digital literacy strategies effectively. This skill gap underscores the need for professional

development programs that equip teachers with both technical skills and pedagogical knowledge for digital instruction (Atamas, 2023). Without addressing these systemic issues, the benefits of digital literacy in writing education may remain unrealized for many students.

Although there is growing recognition of the importance of digital literacy in general education, there is still a lack of focused research on its role in the specific domain of Indonesian language learning—particularly in enhancing writing skills at the high school level. Previous studies have examined the theoretical benefits of digital tools in language education, but few have provided practical strategies for implementation or examined student outcomes in this context. Consequently, there is a pressing need for empirical studies that investigate how digital literacy can be effectively integrated into Indonesian language instruction and what conditions are necessary for its success.

This study aims to fill that gap by addressing two primary research questions:

1. How can digital literacy-based learning strategies enhance high school students' writing skills in Indonesian language education?
2. What are the opportunities and challenges of integrating digital literacy into Indonesian language learning at the high school level?

Through a qualitative research design, this study will explore the experiences of teachers and students in implementing digital literacy strategies in Indonesian language classes. It seeks to provide a comprehensive analysis of the instructional practices, digital tools used, and perceived impacts on students' writing development. Additionally, it will identify the systemic barriers that hinder implementation and propose practical solutions for overcoming them.

By focusing on the intersection of digital literacy and writing instruction, this research contributes to the ongoing discourse on educational innovation in Indonesia. It aims to inform policy makers, educators, and curriculum developers about effective strategies for integrating digital competencies into national language education. Ultimately, the study advocates for a more inclusive and technologically empowered learning environment where all students can thrive as writers and critical thinkers in the digital age.

2. METHODS

2.1 Research Methodology

This research applies a descriptive qualitative methodology to explore the potential benefits and challenges of implementing digital literacy-based Indonesian language learning strategies to improve students' writing skills. It is guided by two primary research questions: first, it seeks to identify the potential benefits of digital literacy in enhancing students' writing abilities; second, it investigates the challenges faced by educators and students when integrating digital literacy into Indonesian language instruction. According to Moleong (2019), descriptive qualitative research generates descriptive data in written or spoken forms related to individuals and observable behaviors. This approach is particularly suitable for the present study, as it enables a thorough exploration of individual experiences and contextual factors influencing digital literacy practices in educational contexts. By centering on narratives and observational data, the research effectively captures the complexities and nuances of participants' attitudes and behaviors.

2.2 Data Collection Techniques

The data collection techniques employed in this study include in-depth interviews, participant observation, and documentation, with added specificity to ensure replicability.

a. In-depth Interviews

- 1) Participant Sampling: Participants were selected using purposive sampling, targeting 10 high school teachers and 15 students actively involved in Indonesian language learning. The selection criteria for teachers included at least three years of teaching experience and direct involvement in digital literacy-based instruction. For students, the criteria included consistent

participation in writing-focused activities and access to digital tools during lessons. This purposeful selection ensured that participants had relevant and diverse experiences with digital literacy in their education.

- 2) Interview Guide: A semi-structured interview guide was developed, containing open-ended questions categorized into three main sections: (a) experiences with digital tools in writing activities, (b) perceived benefits of digital literacy, and (c) challenges encountered in implementation. Sample questions included:
 - a) "Can you describe how digital tools are used during writing lessons?"
 - b) "What benefits do you see in using digital platforms for improving writing skills?"
 - c) "What difficulties have you encountered in integrating digital tools into your teaching or learning?"
- 3) Interview Process: Interviews were conducted either in person or virtually, depending on participant availability, and each session lasted approximately 45–60 minutes. All interviews were recorded with participants' consent for accurate transcription and analysis.

b. Participant Observation

- 1) Observation Settings: Observations were conducted in six Indonesian language classrooms across three high schools. Each setting included at least three sessions of 90 minutes to capture a range of teaching and learning activities.
- 2) Observation Guide: A structured observation checklist was used to document key aspects, including:
 - a) Teacher and student interactions involving digital tools.
 - b) Frequency and type of digital tools used (e.g., writing apps, collaborative platforms).
 - c) Levels of student engagement and collaboration.
- 3) Recording Observations: Field notes and photographs (with permission) were taken during observations, ensuring a detailed account of classroom activities and interactions.

c. Documentation

- 1) Collected Materials: Materials included lesson plans incorporating digital tools, examples of student-written assignments submitted via digital platforms, and relevant school policies or programs on digital literacy.
- 2) Purpose: These documents provided additional context, allowing triangulation with observational and interview data to strengthen the validity of findings.

2.3 Data Analysis

The data analysis process adhered to the Miles and Huberman interactive model, with additional detail on how themes were identified and synthesized.

- a. Data Collection: Data from interviews, observations, and documentation were systematically gathered and organized.
- b. Data Condensation: Key themes were identified through thematic coding, focusing on recurring patterns across data sources. Codes included categories such as "digital tool utilization," "perceived benefits," and "implementation challenges." NVivo software was utilized to manage and analyze qualitative data efficiently.
- c. Data Presentation: The findings were visualized in thematic matrices and narrative summaries, illustrating the relationships between potential benefits, challenges, and contextual factors of digital literacy in Indonesian language learning.
- d. Conclusion Drawing: The analysis synthesized overarching insights, providing evidence-based recommendations for integrating digital literacy to enhance writing skills effectively.

3. FINDINGS AND DISCUSSION

3.1 The Benefits and Challenges of Digital Literacy in Writing Instruction

This study found that digital literacy significantly enhances writing instruction in Indonesian high schools but also presents several challenges. Table 1 below summarizes the key benefits and challenges identified:

Table 1. Benefits and Challenges of Digital Literacy in Writing Learning

Benefits	Challenge
Broaden students' horizons through access to information	Limited technology infrastructure
Allows students to write anytime and anywhere	Lack of student access to personal devices
Improve digital media usage skills	Technology skills gap
Train critical thinking, creativity, and digital socialization skills	Cultural and psychological barriers

These findings reflect the dual nature of digital literacy integration in writing instruction—while it offers expanded learning opportunities, it also demands systemic support to be effectively implemented.

3.2 Student Satisfaction with Digital Literacy Tools

The survey data revealed varying levels of student satisfaction with digital literacy in writing instruction. As shown in Figure 1, 45% of students reported being very satisfied, 30% were satisfied, 15% moderately satisfied, while 7% and 3% were dissatisfied and very dissatisfied, respectively.

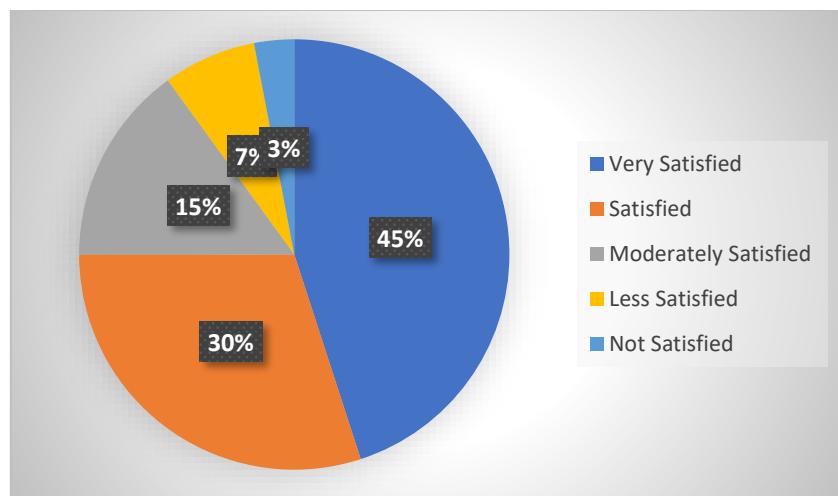


Figure 1. Student Satisfaction with Digital Literacy in Writing Instruction

These results suggest that most students respond positively to digital tools in writing education. The high levels of satisfaction indicate that digital resources not only engage students but also foster greater motivation and ownership in their learning process.

3.3 Digital Literacy as a Catalyst for Writing Skill Development

The integration of digital literacy into Indonesian language learning holds substantial promise in enhancing students' writing skills. As Prastikawati et al. (2022) note, digital literacy is a crucial component of modern pedagogy, especially for fostering critical communication competencies.

Similarly, Al-Qallaf and Al-Mutairi (2016) argue that digital literacy strengthens the ability to navigate, evaluate, and utilize information effectively—key elements in the writing process.

One of the most impactful outcomes observed in this study is students' broadened access to diverse information sources. As one teacher remarked, "Digital literacy provides access to various references that were previously difficult to reach. Students can find examples of good writing and develop their own writing style." This access enabled students to explore multiple writing models, gain inspiration, and enhance their creativity. Purnama et al. (2021) and Cintamulya et al. (2023) similarly highlight that such access empowers students to engage in deeper learning by analyzing various genres and rhetorical strategies.

Moreover, flexibility is another core benefit of digital tools. A student shared, "*With digital tools, I can write anytime and anywhere. No need to wait for a book or paper, I can immediately pour ideas on my phone or laptop.*" Observational data confirmed this trend, with most students opting for digital devices over traditional handwriting methods. This flexibility supports iterative writing processes—drafting, editing, and revising—in a more seamless and time-efficient manner.

The findings are consistent with prior research by Pangrazio et al. (2020) and Silber-Varod et al. (2019), who found that digital literacy enables learners to respond more effectively to dynamic academic demands. Developing digital competence is therefore not only essential for writing but also for overall student preparedness in the 21st-century learning landscape.

3.4 Obstacles to Implementation

Despite these benefits, the study also identified significant barriers. The first is inadequate technological infrastructure. One teacher expressed concern, stating, "*We still face the problem of an unstable internet network, and not all students have adequate devices.*" Observations from classrooms in rural and underfunded schools confirmed that connectivity issues and device shortages disrupt learning continuity.

This infrastructural limitation aligns with findings by Emidar et al. (2023) and Perdana et al. (2019), who emphasize that the digital divide remains a critical issue in educational equity. Although some schools have begun seeking device assistance or infrastructure upgrades, progress remains uneven.

Another pressing issue is the technology skills gap among students. As one student commented, "*Some of my friends are not familiar with technology, so they have difficulty using digital platforms for writing.*" This disparity leads to unequal learning outcomes, where tech-savvy students thrive while others struggle.

Babelyuk et al. (2021) stress that such digital inequalities must be addressed through targeted training programs. In this study, both teachers and students proposed peer-assisted learning models, where more proficient students support their peers. Additionally, formal digital literacy workshops and extracurricular programs were recommended as part of the school strategy to bridge skill gaps.

Teacher preparedness is another challenge. Many educators are not fully equipped to integrate digital technologies into their instruction. Cruzado et al. (2021) and Rusydiyah et al. (2020) note that professional development programs in digital pedagogy are either insufficient or inconsistently delivered across Indonesian schools. This lack of readiness results in ineffective use of technology and missed opportunities to deepen students' learning.

3.5 Collaborative Strategies for Effective Implementation

Addressing these challenges requires coordinated efforts. The study underscores the importance of collaboration among schools, teachers, and policymakers. As Susanty (2024) and Penuel et al. (2020) argue, inclusive planning and shared responsibilities can result in more responsive and adaptive learning environments. When stakeholders work together, resources are more efficiently allocated, and systemic issues are more effectively addressed.

Dhillon and Murray (2021) support this by highlighting the role of community engagement and institutional support in shaping successful digital literacy initiatives. In this study, several school

leaders emphasized the need for government policies that provide financial assistance, equitable infrastructure development, and mandatory training modules for teachers.

3.6 Learning from International Best Practices

To further strengthen Indonesia's approach, it is instructive to examine successful international models. Countries such as Finland, Singapore, and South Korea provide compelling examples of how to integrate digital literacy into education systems effectively.

In Finland, digital education is anchored in comprehensive teacher training and universal student access to devices. Susanty (2024) identifies these factors as essential in minimizing digital gaps and enhancing educational outcomes. These findings mirror Pangrazio et al. (2020), who note that teacher competence directly correlates with student performance in digital literacy.

Singapore and South Korea also exemplify how strong infrastructure and flexible curricula support digital integration. In these contexts, the government has invested heavily in digital infrastructure, allowing for widespread access and curricular innovation. Rinekso et al. (2021) highlight that such environments enable students to engage with writing tasks in more dynamic and collaborative ways.

Indonesia can adapt these practices by localizing them to its educational, cultural, and economic contexts. This includes prioritizing teacher training, enhancing digital infrastructure, and promoting school-based collaborative learning programs. These changes can foster an environment where writing becomes not only a mechanical skill but also a critical and creative exercise.

3.7 Digital Literacy as a Social Practice

A key insight from the research is the importance of understanding digital literacy as a social practice. Wang et al. (2022) emphasize that digital skills are best developed when they are linked to students' lived experiences. By integrating digital writing tasks that reflect real-world communication—such as blogging, collaborative online writing, and multimedia storytelling—students perceive the relevance and practicality of their learning.

This approach also fosters student engagement and ownership. In this study, students reported higher motivation levels when writing tasks involved digital tools and platforms they already used in their daily lives. Teachers noted increased participation and creativity in assignments that involved digital presentations, group writing blogs, or online peer reviews.

Therefore, curriculum designers must move beyond viewing digital literacy as a discrete skill and instead embed it into broader socio-cultural and academic frameworks. This ensures that writing instruction remains relevant, inclusive, and empowering.

3.8 Policy Recommendations and Strategic Steps Forward

To fully leverage digital literacy in writing education, several policy and practice recommendations arise from this study:

- **Strengthen Infrastructure:** The government should prioritize equitable digital access by investing in school infrastructure, particularly in underserved areas.
- **Enhance Teacher Training:** Establish continuous professional development focused on integrating digital tools into writing pedagogy.
- **Promote Collaborative Learning Models:** Encourage peer learning and mentorship programs that support students at varying levels of digital proficiency.
- **Contextualize Curriculum:** Embed digital literacy as a core element of writing instruction, tied to students' real-world experiences and social practices.
- **Foster Multi-Stakeholder Engagement:** Facilitate collaboration between schools, government, parents, and the private sector to build sustainable and inclusive digital education ecosystems.

These recommendations aim to create a learning environment where digital literacy supports not only technical skill development but also critical thinking, collaboration, and creativity—skills essential for academic and life success.

This study affirms that digital literacy holds substantial potential to enhance high school students' writing skills in Indonesian language education. By expanding access to information, allowing flexible writing opportunities, and supporting creative expression, digital tools can transform how writing is taught and learned. However, challenges such as technological infrastructure limitations, unequal access, and gaps in teacher and student digital competencies must be addressed. Drawing from both local findings and global best practices, a collaborative, well-structured, and inclusive approach is vital. By investing in infrastructure, teacher training, and curriculum reform, Indonesia can harness digital literacy as a powerful driver of educational equity and excellence.

4. CONCLUSION

This study concludes that digital literacy has significant potential to enhance high school students' writing skills in Indonesian language education. The key findings indicate that digital literacy promotes broader access to information, increased writing flexibility, and improved digital proficiency, all of which contribute to greater creativity, engagement, and productivity in student writing. However, the study also identified several critical challenges, including limited technological infrastructure, unequal access to digital devices, varying levels of digital competence among students, and a lack of teacher preparedness in integrating digital tools into instruction. These barriers highlight the urgent need for a collaborative approach involving schools, educators, and policymakers to strengthen digital infrastructure, implement targeted training programs, and establish inclusive, technology-supported learning environments. While the research offers valuable insights, its scope is limited by its qualitative nature and focus on a specific educational context, which may not fully represent all regions in Indonesia. Future research should adopt mixed-method or longitudinal designs to explore the long-term effects of digital literacy on writing development across diverse educational settings. Additionally, studies could investigate student engagement and equity issues related to digital access, or evaluate specific digital tools and instructional models to identify the most effective practices for integrating digital literacy into writing education.

REFERENCES

- Abas, I. H., & Abd Aziz, N. H. (2018). Model of the writing process and strategies of EFL proficient student writers: A case study of Indonesian learners. *Pertanika Journal of Social Sciences and Humanities*.
- Ahmad Zuhudy Bahtiar, Ahdar, & Nur Eva Yanti. (2023). Progressive Literacy Task: Design Strategy of digital literacy and competencies in learning outcomes. *Al-Ishlah: Jurnal Pendidikan Islam*. <https://doi.org/10.35905/alishlah.v21i1.5284>
- Akhir, M. (2021). The Use of Digital Book Media to Improve Writing Skills of Explanatory Text. *AL-ISHLAH: Jurnal Pendidikan*. <https://doi.org/10.35445/alishlah.v13i3.582>
- Al-Qallaf, C. L., & Al-Mutairi, A. S. R. (2016). Digital literacy and digital content support learning: The impact of blogs on teaching English as a foreign language. *Electronic Library*. <https://doi.org/10.1108/EL-05-2015-0076>
- Arono, A., Syahriman, S., Nadrah, N., Villia, A., & Susanti, E. (2021). *Comparative Study of Digital literacy in Language Learning among Indonesian Language Education and English Language Education Students in the New Normal Era*. <https://doi.org/10.4108/eai.16-10-2020.2305230>
- Atamas, A. I. (2023). Use Of Chatgpt During The Creation Of Digital Measurement Complexes For Performing Educational Research Of The Stem Center Of The Junior Academy Of Sciences Of Ukraine. *Scientific Notes of Junior Academy of Sciences of Ukraine*. <https://doi.org/10.51707/2618-0529-2023-28-01>
- Babelyuk, O., Koliasa, O., Lopushanskyy, V., Smaglii, V., & Yukhymets, S. (2021). Psychological

- Difficulties during the Covid Lockdown: Video in Blended Digital Teaching Language, Literature, and Culture. *Arab World English Journal*. <https://doi.org/10.24093/awej/covid.13>
- Cintamulya, I., Mawartiningsih, L., & Warli, W. (2023). The effect of optimizing digital and information literacy in writing scientific articles on students' critical thinking skills. *Al-Ishlah Jurnal Pendidikan*, 15(2), 1987-1998. <https://doi.org/10.35445/alishlah.v15i2.3062>
- Cruzado, C., Campión, R., & Compaña, M. (2021). Teacher digital literacy: the indisputable challenge after covid-19. *Sustainability*, 13(4), 1858. <https://doi.org/10.3390/su13041858>
- Dhillon, S., & Murray, N. (2021). An investigation of EAP teachers' views and experiences of E-learning technology. *Education Sciences*. <https://doi.org/10.3390/educsci11020054>
- Ellitan, L. (2020). Competing in the Era of Industrial Revolution 4.0 and Society 5.0. *Jurnal Maksipreneur: Manajemen, Koperasi, Dan Entrepreneurship*. <https://doi.org/10.30588/jmp.v10i1.657>
- Emidar, Indriyani, V., & Gustia Ningsih, A. (2023). The Effect of Digital Literacy and Writing Skills on The Skills of Developing Teaching Materials for Prospective Teacher Students. *JMKSP (Jurnal Manajemen, Kepemimpinan, Dan Supervisi Pendidikan)*. <https://doi.org/10.31851/jmksp.v8i2.11457>
- Hardinata, S., Suchyadi, Y., & Wulandari, D. (2021). Model of Strengthening Technology Literacy for Junior High School Teachers in the Era of the Industrial Revolution 4.0. *Proceedings of the International Conference on Industrial Engineering and Operations Management Monterrey, Mexico*.
- Harmoko, D. D. (2021). Digital Literacy As A Solution To Improve The Quality Of Indonesia's Human Resources. *Research and Development Journal of Education*. <https://doi.org/10.30998/rdje.v7i2.10569>
- Hobbs, R. (2017). Create to Learn: Introduction to Digital Literacy. In *Create to Learn : Introduction to Digital Literacy*.
- Hussain, S. S. (2017). Teaching Writing to Second Language Learners: Bench-marking Strategies for Classroom. *Arab World English Journal*. <https://doi.org/10.24093/awej/vol8no2.15>
- Indah, R. N. (2017). Critical thinking, writing performance and topic familiarity of indonesian efl learners. *Journal of Language Teaching and Research*. <https://doi.org/10.17507/jltr.0802.04>
- Karimah, I. N. (2022). Analysis Of School Literacy Policies In The Face Of The Society Era 5.0. *Ar-Rosikhun: Jurnal Manajemen Pendidikan Islam*. <https://doi.org/10.18860/rosikhun.v2i1.17398>
- Lexy J. Moleong, D. M. A. (2019). Metodologi Penelitian Kualitatif (Edisi Revisi). *PT. Remaja Rosda Karya*. <https://doi.org/10.1016/j.carbpol.2013.02.055>
- Nadeak, B., & Puspa Juwita, C. (2022). Analysis of school preparation as campus partners in implementing the teaching and learning process in the era of society 5.0. *International Journal of Advanced Educational Research* www.educationjournal.org.
- Pangrazio, L., Godhe, A., & Ledesma, A. (2020). What is digital literacy? a comparative review of publications across three language contexts. *E-Learning and Digital Media*, 17(6), 442-459. <https://doi.org/10.1177/2042753020946291>
- Perdana, R., Yani, R., Jumadi, J., & Rosana, D. (2019). Assessing Students' Digital Literacy Skill in Senior High School Yogyakarta. *JPI (Jurnal Pendidikan Indonesia)*. <https://doi.org/10.23887/jpi-undiksha.v8i2.17168>
- Prastikawati, E. F., Wiyaka, W., & Lestari, M. Y. W. (2022). Secondary School Students' Perception on Edmodo as Online Learning Platform in English Learning. *Language Circle: Journal of Language and Literature*. <https://doi.org/10.15294/lc.v16i2.33712>
- Penuel, W., Riedy, R., Barber, M., Peurach, D., LeBouef, W., & Clark, T. (2020). Principles of collaborative education research with stakeholders: toward requirements for a new research and development infrastructure. *Review of Educational Research*, 90(5), 627-674. <https://doi.org/10.3102/0034654320938126>
- Purmayanti, D. (2022). The Challenges of Implementing Digital Literacy in Teaching and Learning Activities for EFL Learners in Indonesia. *BATARA DIDI: English Language Journal*. <https://doi.org/10.56209/badi.v1i2.38>
- Purnama, S., Ulfah, M., Machali, I., Wibowo, A., & Narmaditya, B. (2021). Does digital literacy influence students' online risk? evidence from covid-19. *Heliyon*, 7(6), e07406.

- <https://doi.org/10.1016/j.heliyon.2021.e07406>
- Rinekso, A., Rodliyah, R., & Pertiwi, I. (2021). Digital literacy practices in tertiary education: a case of efl postgraduate students. *Studies in English Language and Education*, 8(2), 622-641. <https://doi.org/10.24815/siele.v8i2.18863>
- Roblek, V., Meško, M., Bach, M. P., Thorpe, O., & Šprajc, P. (2020). The interaction between internet, sustainable development, and emergence of society 5.0. In *Data*. <https://doi.org/10.3390/data5030080>
- Rusydiyah, E. F., Purwati, E., & Prabowo, A. (2020). How to use digital literacy as a learning resource for teacher candidates in Indonesia. *Cakrawala Pendidikan*. <https://doi.org/10.21831/cp.v39i2.30551>
- Silber-Varod, V., Eshet-Alkalai, Y., & Geri, N. (2019). Tracing research trends of 21st-century learning skills. *British Journal of Educational Technology*, 50(6), 3099-3118. <https://doi.org/10.1111/bjet.12753>
- Susanty, L. (2024). Critical analysis of the research on digital literacy. *Education*, 2(1), 12-25. <https://doi.org/10.61194/education.v2i1.149>
- Sholihah, L. (2022). Asynchronous Online Communication Of The Learning Management System For Students' Writing Ability. *Premise: Journal of English Education*. <https://doi.org/10.24127/pj.v11i2.3564>
- Supa'at, S., & Ihsan, I. (2023). The Challenges of Elementary Education in Society 5.0 Era. *International Journal of Social Learning (IJSL)*. <https://doi.org/10.47134/ijsl.v3i3.214>
- Vorobel, O., Voorhees, T., & Gokcra, D. (2021). Language learners' digital literacies: focus on students' information literacy and reading practices online. *Journal of Computer Assisted Learning*, 37(4), 1127-1140. <https://doi.org/10.1111/jcal.12550>
- Wang, J., Liu, C., & Cai, Z. (2022). Digital literacy and subjective happiness of low-income groups: evidence from rural china. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1045187>
- Werdistira, W. A. (2023). Developing Digital Literacy Of Learning Media Innovation Based On Local Wisdom For Online Class To Improve Listening And Writing Skills. *Yavana Bhasha : Journal of English Language Education*. <https://doi.org/10.25078/yb.v6i1.1571>