

The Role of Artificial Intelligence in Enhancing Students' Digital Literacy: A Systematic Literature Review

Manganju Manik^{1*}, Zelhendri Zen², Sri Sa'adah Mardiah³, Vinenda Paramita Sirait⁴, Epi Suryani⁵, Win Siti Suciati⁶

Department of Educational Technology, Graduate School, Universitas Negeri Padang, Kota Padang, Sumatera Barat, Indonesia^{1,2,3,4,5,6}

manikjuju@gmail.com^{1*}, zelhendrizen@fip.unp.ac.id², srisaadah29@gmail.com³,
vinendasirait18@guru.sma.belajar.id⁴, episuryani32@guru.sma.belajar.id⁵,
winsitisuciati89@gmail.com⁶

Abstract: This study aims to systematically examine the role of artificial intelligence (AI) in supporting learning processes and strengthening digital literacy in secondary education. A Systematic Literature Review (SLR) was conducted using the PRISMA protocol, with articles retrieved from the Scopus database as the main data source. The selection process involved identification, screening, eligibility, and inclusion stages to ensure the quality and relevance of the selected studies. The findings indicate that AI plays a significant role in enhancing learning effectiveness, personalized instruction, adaptive assessment, and the development of students' critical thinking and digital literacy skills. However, several major challenges remain, including limited infrastructure, unequal access to technology, teachers' readiness, and issues related to ethics and data security. These results emphasize that the successful implementation of AI in education depends not only on technological advancement but also on human resource readiness and supportive educational policies. This study provides practical implications for educators and policymakers and serves as a foundation for future theoretical development and further research on AI integration in education.

Keywords: artificial intelligence; digital literacy; personalized learning; educational Technology

Peran Kecerdasan Buatan dalam Meningkatkan Literasi Digital Siswa Sekolah Menengah: Suatu Tinjauan Literatur Sistematis

Abstrak: Penelitian ini bertujuan untuk mengkaji secara sistematis peran kecerdasan buatan (Artificial Intelligence/AI) dalam mendukung proses pembelajaran dan penguatan literasi digital di pendidikan menengah. Metode yang digunakan adalah Systematic Literature Review (SLR) dengan mengacu pada protokol PRISMA, menggunakan basis data Scopus sebagai sumber utama artikel. Proses seleksi dilakukan melalui tahapan identifikasi, penyaringan, kelayakan, dan inklusi terhadap artikel yang relevan dan bereputasi. Hasil telaah menunjukkan bahwa AI berperan signifikan dalam meningkatkan efektivitas pembelajaran, personalisasi materi, asesmen adaptif, serta pengembangan keterampilan berpikir kritis dan literasi digital siswa. Namun, terdapat tantangan yang masih dominan, seperti keterbatasan infrastruktur, kesenjangan akses teknologi, kesiapan guru, serta isu etika dan keamanan data. Temuan ini menegaskan bahwa keberhasilan implementasi AI tidak hanya ditentukan oleh teknologi, tetapi juga oleh kesiapan sumber daya manusia dan kebijakan pendidikan yang mendukung. Penelitian ini memberikan implikasi praktis bagi sekolah dan pembuat kebijakan, serta menjadi dasar pengembangan teori dan penelitian lanjutan terkait integrasi AI dalam pendidikan.

Kata kunci: kecerdasan buatan; literasi digital; pembelajaran personalisasi; teknologi pendidikan.

1. Introduction

The rapid growth of digital technology has reshaped the way young people interact, learn, and access information. For students at the secondary level, the ability to use technology with confidence and responsibility is no longer an optional skill but a fundamental prerequisite for

learning in the twenty-first century. Digital literacy today extends far beyond operating a computer or navigating basic applications. It involves a broader set of abilities such as examining the credibility of online content, participating in communication across digital platforms, and applying information and

communication technologies (ICT) in ways that are ethical, safe, and purposeful (Tomczyk & Eger, 2020; Ng, 2012; UNESCO, 2018). These abilities are vital for helping students make sense of the overwhelming amount of information they encounter daily. As more schools adopt technology-driven learning environments and integrate digital tools into classroom practice, the need for students to develop strong digital literacy skills becomes even more pressing.

At the same time, developments in Artificial Intelligence (AI) are bringing new possibilities to the education sector. AI-based systems are influencing how teachers plan instruction and how students engage with learning materials. Through adaptive algorithms and data-driven feedback, AI can offer learning routes that adjust to each student's pace and level of understanding (Makarenko et al., 2024; Sabharwal & Mitra, 2024; Satone et al., 2024; Holmes et al., 2019). These systems provide immediate feedback, suggest alternative explanations, and support students who require additional guidance. For teachers, AI tools help streamline tasks such as evaluating student work, tracking progress, and identifying learners who may need targeted support (D'Ambrosio, 2025; Rodriguez Pereda et al., 2025; Luckin et al., 2016). When used thoughtfully, AI has the potential to nurture important competencies critical thinking, creativity, digital communication, and problem-solving that are increasingly necessary for students to participate effectively in today's interconnected world (OECD, 2021).

However, the integration of AI into schools is not without difficulties. Concerns continue to arise regarding data privacy, transparency in algorithmic decision-making, and the possibility of bias embedded within AI systems (Williamson & Eynon, 2020; Zawacki-Richter et al., 2019). Teachers' readiness to make use of AI tools varies widely, often depending on their access to training, the support they receive from their institutions, and the reliability of available digital infrastructure (Kong et al., 2021). In many schools particularly those in rural or underserved areas limited resources make it challenging to introduce AI-based learning tools equitably (UNESCO, 2023).

Although interest in the use of AI for education is increasing, research findings on its ability to strengthen students' digital literacy remain mixed. Much of the existing evidence is scattered across different contexts, focuses on small-scale implementations, or employs methods that make it difficult to judge long-term impact (Crompton et al., 2020; Chen et al.,

2022). These conditions point to the need for a more systematic and careful examination of what current studies actually show.

For these reasons, a systematic literature review is both relevant and necessary. This review compiles and analyzes research published from 2018 to 2025 that investigates how AI contributes to the development of digital literacy among secondary school students. The review highlights the dominant themes emerging from the literature, the advantages and potential drawbacks of AI integration, and the methodological tendencies that researchers have adopted when studying this topic (Kitchenham & Charters, 2007; Petticrew & Roberts, 2008). By synthesizing these findings, the review offers a clearer picture of what is currently known and underscores where additional, more rigorous research is still required.

Although scholarly interest in AI-supported education has grown rapidly, empirical evidence regarding its specific role in enhancing digital literacy among secondary school students remains fragmented and inconclusive (Bond et al., 2021). Many existing studies focus on isolated tools, short-term interventions, or general learning outcomes, rather than examining digital literacy as a central competency (Hatlevik et al., 2018). Moreover, prior reviews tend to discuss AI in education broadly, with limited attention to secondary education contexts (Zawacki-Richter et al., 2019). This gap highlights the novelty of the present study, which systematically synthesizes recent research to clarify how AI contributes to digital literacy development at the secondary school level. Given the accelerating integration of AI into classroom practices and the increasing digital demands placed on students, a focused and up-to-date synthesis of evidence is urgently needed.

In sum, this introduction frames the need to understand how AI can support digital literacy development within secondary education. It explains why digital literacy has become an essential skill, outlines the opportunities that AI brings to the learning process, and acknowledges the challenges that require careful attention from educators and policymakers (OECD, 2021; UNESCO, 2023). Through this review, readers are provided with an evidence-based foundation for considering how AI may enrich students' learning experiences and help prepare them for the digital demands of the future.

Based on these considerations, this study addresses the following research questions: (1) How is Artificial Intelligence utilized to support digital literacy development among secondary

school students? (2) What benefits and challenges are reported in the literature regarding the use of AI to enhance students' digital literacy? and (3) What research trends and methodological approaches characterize recent studies in this area? These questions align with prior recommendations for research synthesis in educational technology and AI studies (Bond et al., 2021; Crompton et al., 2020).

Accordingly, the purpose of this systematic literature review is to synthesize empirical findings on the role of Artificial Intelligence in enhancing students' digital literacy, to identify reported advantages and limitations, and to reveal gaps that require further investigation. The findings of this review are expected to benefit researchers by providing a consolidated evidence base and directions for future studies, educators by offering insights to inform instructional practices and professional development, and policymakers by supporting evidence-based decisions regarding the responsible integration of AI in secondary education (OECD, 2021; UNESCO, 2018).

2. Methods

This study employed a systematic literature review (SLR) approach guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework to examine the role of artificial intelligence in enhancing digital literacy among secondary school students. The literature search was conducted using the Scopus database, with the assistance of the Scopus AI search feature to efficiently identify relevant peer-reviewed publications. Scopus was selected due to its wide international coverage and high indexing standards.

The search process was carried out using combinations of the following keywords: artificial intelligence, AI in education, digital literacy, secondary school students, adaptive learning, and intelligent tutoring systems. The publication period was limited to 2018–2025 in order to capture recent and relevant developments in AI-supported education. Only English-language publications were considered.

The inclusion criteria were: (1) empirical studies focusing on the application of AI in secondary education, (2) studies reporting outcomes related to digital literacy, critical thinking, problem-solving, engagement, or learning motivation, and (3) articles published in peer-reviewed journals or international conference proceedings indexed in Scopus. The exclusion criteria included: (1) studies

conducted at primary or higher education levels, (2) conceptual or policy-based papers without empirical data, and (3) studies that discussed AI without a clear connection to learning outcomes or digital literacy development.

The selection process followed the PRISMA stages of identification, screening, eligibility, and inclusion. Titles and abstracts were first screened for relevance, followed by full-text assessment. After applying all selection criteria, 17 studies were retained for final analysis.

Data extraction focused on each study's objectives, type of AI technology used, research design, learning context, and key findings related to digital literacy, engagement, motivation, ethical issues, and teacher readiness. A thematic analysis was then employed to synthesize the findings. Through iterative coding and comparison, four major themes emerged: (1) AI for enhancing digital literacy, (2) challenges and ethical considerations, (3) teacher training and support, and (4) impact on student engagement and motivation.

This review is limited by its reliance on a single database (Scopus), which may exclude relevant studies indexed elsewhere. Nevertheless, the selected studies provide a strong and reliable basis for understanding current trends and issues related to the integration of AI in secondary education.

3. Result and Discussion

The findings from the reviewed studies show that artificial intelligence has become increasingly influential in shaping how students build their digital literacy skills. One of the clearest advantages of AI in the classroom is its ability to tailor learning experiences to individual needs. Instead of delivering a uniform approach for all students, AI tools pay attention to how each learner progresses, where they struggle, and what kinds of materials they respond to best. By adjusting the difficulty level, the presentation style, and even the pace of instruction, AI creates a learning atmosphere that feels more personal and supportive. This kind of responsiveness is difficult to achieve through conventional teaching methods alone. Previous research consistently reports that personalized feedback from intelligent tutoring systems and adaptive platforms contributes to higher motivation and better learning outcomes, especially when students receive guidance at the moment they need it most (Adiyono et al., 2025; Rodriguez Pereda et al., 2025; Saddhono et al., 2024). In addition to improving comprehension, these systems help students explore resources that align with their interests and skill levels, making the

learning process more engaging and less overwhelming (Benabid et al., 2025; Shukla et al., 2025).

Beyond personalization, AI also plays an important role in helping students develop the type of analytical thinking required to navigate today's digital world. When students work with AI-supported simulations or digital dashboards, they are prompted to interpret information rather than simply memorize it. These tools encourage students to compare data, recognize patterns, and draw conclusions based on evidence. This kind of cognitive activity is at the heart of digital literacy, which increasingly demands that learners evaluate online information critically and distinguish reliable content from misleading or inaccurate sources. Several studies highlight that students who repeatedly engage with AI-based tools become more comfortable questioning information, experimenting with solutions, and reflecting on the reasoning behind their choices (Kabeer et al., 2025; Rios et al., 2025; Rodriguez Pereda et al., 2025). These habits are particularly important at a time when students face an overwhelming amount of digital content every day.

Another trend that emerges from the literature is the growing use of project-based learning models that integrate AI. Approaches such as blended project-based learning (BPBL) give students the chance to apply AI tools to real-world contexts, making the technology feel more relevant and accessible. Rather than learning about AI in isolation, students work on projects that require them to solve authentic problems, analyze data, or develop digital products. This combination of hands-on practice and conceptual understanding helps students build confidence in using technology while also deepening their awareness of its broader implications. In these settings, students not only strengthen their digital literacy but also develop AI literacy—an understanding of what AI can and cannot do, and how it affects everyday decision-making (Samsudin & Singh Gill, 2024).

Overall, the evidence suggests that AI is more than a supplementary classroom tool; it has the capacity to reshape learning in ways that directly support the growth of digital literacy. Through more responsive instruction, richer cognitive engagement, and meaningful real-world applications, AI helps students acquire the skills they need to navigate an increasingly digital society. The findings collectively show that, when implemented thoughtfully, AI can play a key role in preparing students to become capable, critical, and confident users of digital technologies.

Although AI presents promising opportunities for improving students' digital literacy, its implementation in educational contexts also brings a number of challenges that require careful and ongoing attention. One of the most frequently noted concerns relates to unequal access to technology. While schools with strong financial resources and stable digital infrastructure can readily adopt AI-assisted learning tools, students in remote, low-income, or underserved communities often do not have the same level of access. This imbalance may lead to a situation where AI further benefits those who are already advantaged, while students facing resource limitations fall even further behind. If these disparities are not addressed through inclusive policies and equitable resource distribution, AI-enabled learning could unintentionally deepen existing inequalities in educational participation and achievement (Arnedillo Sánchez, 2025; Jackaria et al., 2024). For this reason, ensuring that all students—regardless of geographical location or socioeconomic status—have opportunities to benefit from AI becomes a central responsibility of both schools and policymakers.

In addition to access-related issues, the ethical implications surrounding AI use in classrooms continue to raise significant questions. AI platforms typically operate by collecting and analyzing considerable amounts of student data, including learning behaviors, performance records, and personal identifiers. This reliance on data collection introduces concerns about how securely the information is stored, who has the authority to access it, and how transparently the data are used. Without robust protection measures, students' personal information may be exposed to misuse or breaches, potentially compromising their privacy and safety. Moreover, algorithmic systems can unintentionally reproduce or amplify biases embedded in their training data. Such biases may influence automated recommendations, feedback, or assessment processes in ways that disadvantage certain groups of learners. These risks demonstrate why the integration of AI in education must be guided by clear ethical guidelines, responsible data practices, and transparent decision-making processes that place student welfare at the forefront (Arnedillo Sánchez, 2025; Darekar & Shintre, 2025; Rios et al., 2025).

Taken together, these challenges highlight that the use of AI in education cannot be separated from strong governance and continuous ethical oversight. Implementing AI tools without

addressing access disparities, privacy concerns, or algorithmic fairness can undermine the very goals the technology aims to support. The long-term success of AI-driven learning therefore depends not only on technological innovation but also on the commitment of educational institutions to monitor, evaluate, and refine their practices. Ensuring that AI is used responsibly will help maintain trust among students, teachers, and communities, and will allow the technology to contribute meaningfully to the development of digital literacy rather than becoming a source of new inequities.

The successful integration of AI in education rests not only on the sophistication of the technology but also on the readiness of teachers to engage with it in meaningful ways. Evidence from various studies consistently shows that educators require ongoing professional development to fully understand how AI can be incorporated into their teaching practices. Without sufficient support, even the most advanced AI tools risk becoming underused or applied in ways that do little to enhance learning. This situation highlights that technology alone cannot transform classroom practices; teachers' knowledge, confidence, and pedagogical judgment remain central to realizing AI's educational potential.

Sustained and high-quality professional development is therefore essential for equipping teachers with both the technical and pedagogical competencies needed to navigate AI tools effectively. Such programs typically introduce educators to emerging AI applications and demonstrate how these tools can enrich instruction, facilitate assessment, or help personalize the learning experience. Importantly, professional development also offers teachers the chance to experiment with AI in safe, guided environments where they can reflect on its classroom implications, explore best-practice examples, and ask practical questions about implementation. Studies further show that educators benefit greatly from explicit support in aligning AI use with curriculum expectations and learning goals, ensuring that technology complements existing instructional approaches rather than overshadowing or replacing them (Arnedillo Sánchez, 2025; Martínez-Comesaña et al., 2023).

In this regard, investment in teacher capacity-building becomes a critical pillar of responsible AI adoption in education. When teachers are adequately trained and feel supported by their institutions, they are more

capable of designing learning experiences that leverage AI to strengthen students' digital literacy while upholding ethical considerations and sound pedagogical principles. Ultimately, empowering educators is fundamental to ensuring that AI serves as an effective tool for learning rather than a technological novelty. Teachers who understand both the opportunities and the limitations of AI are better positioned to guide students toward meaningful, informed, and critical engagement with digital technologies.

Beyond its contribution to digital literacy, the integration of artificial intelligence in education also influences students' engagement and learning motivation in meaningful ways. A growing body of research shows that when learners interact with AI-supported tools—whether through adaptive learning systems, gamified applications, or automated feedback mechanisms—they tend to demonstrate higher levels of interest and persistence in completing academic tasks. This increase in engagement is closely tied to the ability of AI to tailor learning pathways, allowing students to track their progress more clearly and experience small, incremental achievements along the way. As highlighted by Adiyono et al. (2025), adaptive and gamified approaches can create more engaging learning environments that encourage students to participate actively and sustain their focus.

Furthermore, the multimodal features offered by many AI-driven platforms enable students to access information in formats that better align with their learning preferences. Learners who struggle with traditional text-based explanations, for instance, may benefit from visual simulations, interactive models, or voice-guided support when exploring complex concepts. This flexibility not only accommodates diverse learning styles but also helps students approach challenging material with greater confidence. In line with this, Benabid et al. (2025) emphasize that intelligent tutoring systems and adaptive platforms equip students with opportunities to engage with content in more intuitive and personalized ways, ultimately strengthening their intrinsic motivation.

However, the motivational benefits of AI should not be viewed as automatic. The literature consistently notes that these gains depend heavily on the quality of pedagogical integration. When AI is introduced merely as a supplementary tool without a clear instructional purpose, its initial novelty tends to fade quickly, limiting its long-term impact on motivation. Conversely, when

teachers embed AI tools within thoughtfully structured learning activities—such as collaborative tasks, reflective exercises, or goal-oriented learning sequences—students are more likely to engage deeply and develop a stronger sense of ownership over their learning process. Sabharwal and Mitra (2024) stress that intentional instructional design is a central determinant of effective AI implementation in the classroom.

In addition to boosting engagement, responsive and adaptive learning experiences shape students' broader attitudes toward technology use. Makarenko et al. (2024) observe that AI-enhanced learning environments can foster supportive, appropriately challenging conditions that make students feel recognized as individual learners. Over time, these experiences not only strengthen digital literacy but also cultivate self-directed learning habits that are essential for navigating the digital era.

Taken together, these findings illustrate that AI can significantly enhance student engagement and motivation when used with pedagogical intention and thoughtful alignment. By making learning more interactive, adaptive, and responsive to individual needs, AI contributes to classroom environments where students feel supported, challenged, and inspired—conditions that play a crucial role in nurturing sustained digital literacy and positive technology practices.

4. Conclusion and Suggestions

This systematic literature review was conducted to examine the role of artificial intelligence in enhancing digital literacy among secondary school students. The findings of this review clearly answer the research focus by demonstrating that artificial intelligence plays a significant and multifaceted role in strengthening students' digital literacy skills.

The reviewed studies consistently indicate that AI-based learning systems contribute to the development of digital literacy through personalized learning, adaptive feedback, and access to multimodal learning resources. These features support students in understanding, analyzing, and evaluating digital information more effectively. In addition, the integration of AI in project-based and adaptive learning environments fosters higher-order thinking skills such as critical thinking, problem-solving, and reflective decision-making, which are central components of digital literacy in the digital era.

From a broader perspective, the findings can be generalized to show that AI has the potential

to serve as a transformative educational tool in secondary education when it is implemented with clear pedagogical objectives. However, the impact of AI is not automatic. Its effectiveness is shaped by several critical conditions, including equitable access to technology, ethical governance, and strong institutional and teacher support. Without these supporting factors, the benefits of AI may be unevenly distributed and could even reinforce existing educational inequalities.

Another key conclusion is that teacher readiness is a decisive factor in the successful integration of AI. Teachers who receive continuous professional development and institutional support are better positioned to utilize AI in ways that meaningfully enhance learning rather than merely introduce new technology into the classroom. Furthermore, the evidence shows that AI can also increase student engagement and intrinsic motivation when it is embedded in well-designed learning activities that promote interaction, autonomy, and goal-oriented learning.

Overall, this review concludes that artificial intelligence holds substantial potential for strengthening digital literacy in secondary education, but its success depends on the balanced integration of technological innovation, ethical responsibility, pedagogical quality, and equitable access. Based on the findings of this systematic literature review, several important suggestions are proposed to support the effective and responsible integration of artificial intelligence in secondary education.

Schools and education authorities are encouraged to integrate AI into learning activities in a planned, ethical, and pedagogically meaningful manner. Equal access to digital infrastructure must be a priority so that students from disadvantaged or remote areas are not left behind. Clear policies related to data privacy, cybersecurity, and ethical use of AI should be established and consistently enforced.

In addition, continuous professional development programs should be provided for teachers to strengthen both their technical skills and pedagogical strategies in using AI to support digital literacy and student engagement.

Future theoretical development should consider expanding existing digital literacy frameworks by explicitly incorporating AI literacy, data ethics, and algorithmic awareness. As digital environments increasingly rely on intelligent systems, theoretical models must reflect the changing nature of how learners

interact with information and technology. This integration will help ensure that digital literacy remains relevant to current and future technological realities.

Further studies are recommended to investigate the long-term effects of AI-supported learning on students' digital literacy and learning behavior through longitudinal and experimental research designs. Future research should also explore teachers' and students' perceptions, readiness, and ethical awareness related to AI use in classrooms. Comparative studies across different geographical regions and socioeconomic contexts, particularly in low-resource and rural settings, are needed to better understand contextual challenges and opportunities. Such research will strengthen the empirical foundation for policy and instructional decision-making related to AI in education.

References

- Adiyono, A., Rahayu, A. P., Besari, A., Wahib, A., Arianti, S., & Kojin, K. (2025). AI-Driven Personalized Learning Paths: Enhancing Student Engagement Through Gamification and Interdisciplinary Integration. 2025 5th International Conference on Artificial Intelligence and Education (ICAIE), 604–612.
<https://doi.org/10.1109/ICAIE64856.2025.11158040>
- Arnedillo Sánchez, I. (Ed.). (2025). Proceedings of the international conferences on mobile learning 2025 and educational technologies 2025 1-3 March 2025, Madeira island, Portugal. s. n.]. Benabid, A., El Imadi, I., & Chems, G. (Eds.). (2025). Personalized Learning Through Adaptive Systems and Intelligent Tutoring: IGI Global.
<https://doi.org/10.4018/979-8-3373-0740-4>
- Bond, M., et al. (2021). *Standards of teacher digital competence in higher education: A systematic literature review*. *Sustainability*, 14(21), 13983.
<https://www.mdpi.com/20711050/14/21/13983>
- Chiu, T.-K. F., & Chai, C. S. (2020). *AI literacy in K-12: A systematic literature review*. *International Journal of STEM Education*, 10, Article 23.
<https://link.springer.com/article/10.1186/s40594-023-00418-7>
- D'Ambrosio, F. (2025). Intelligenza artificiale e istruzione: Tra sperimentazione e prospettive evolutive. *Journal of Educational, Cultural and Psychological Studies (ECPS Journal)*, 30, 4.
<https://doi.org/10.7358/ecps-2024-030-ambf>
- Darekar, P., & Shintre, P. (2025). AI in Education: Transforming Communication, Security, and Management in Smart EdTech Ecosystems. 2025 3rd International Conference on Communication, Security, and Artificial Intelligence (ICCSAI), 598–603.
<https://doi.org/10.1109/ICCSAI64074.2025.11064614>
- Jackaria, P. M., Hajan, B. H., Mastul, A.-R. H., & Sali, F. Z. (2024). Generation AI in a Reimagined Classroom: Challenges, Opportunities and Implications to Education. In Z. Zaremohzzabieh, R. Abdullah, & S. Ahrari (Eds.), *Advances in Human and Social Aspects of Technology* (pp. 181–192). IGI Global.
<https://doi.org/10.4018/979-8-3693-3350-ch009>
- Gilster, P. (1997). *Digital literacy*. Wiley. (classic foundational definition of digital literacy)
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
https://curriculumredesign.org/wp-content/uploads/CCR_AI-in-Education_PDF_v1.0.pdf
- Kabeer, A., Bhat, R. A., Antony, S., & Trambo, I. A. (2025). Enhancing Creative Writing Skills in Secondary School Students through Prompt Engineering and Artificial Intelligence. *Forum for Linguistic Studies*.
<https://doi.org/10.30564/fls.v7i3.8511>
- Kitchenham, B., & Charters, S. (2007). *Guidelines for performing systematic literature reviews in software engineering*. Technical Report, EBSE. (Standard SLR methodology reference)
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson Education.
<https://www.pearson.com/content/dam/corporate/global/pearson-dotcom/files/innovation/Intelligence-Unleashed-Publication.pdf>
- Makarenko, O., Borysenko, O., Horokhivska, T., Kozub, V., & Yaremenko, D. (2024). Embracing Artificial Intelligence in Education: Shaping the Learning Path for Future Professionals. *Multidisciplinary Science Journal*, 6, 2024ss0720.

<https://doi.org/10.31893/multiscience.2024ss0720>

Martínez-Comesaña, M., Rigueira-Díaz, X., Larrañaga-Janeiro, A., Martínez-Torres, J., Ocarranza-Prado, I., & Kreibel, D. (2023). Impacto de la inteligencia artificial en los métodos de evaluación en la educación primaria y secundaria: Revisión sistemática de la literatura. *Revista de Psicodidáctica*, 28(2), 93–103.

<https://doi.org/10.1016/j.psicod.2023.06.001>

Ng, W. (2012). *Can we teach digital natives digital literacy?* *Computers & Education*, 59(3), 1065–1078.

<https://doi.org/10.1016/j.compedu.2012.04.016>

OECD. (2023). *Shaping digital education: Enabling factors for quality, equity and efficiency*. OECD Publishing.

<https://doi.org/10.1787/bac4dc9f-en>

Petticrew, M., & Roberts, H. (2008). *Systematic reviews in the social sciences: A practical guide*. Blackwell Publishing

Rios, T. C.-D. L., Solis-Trujillo, B., Perez-Ruiz, J., & Aquije-Mansilla, M. (2025). Systematic review of critical thinking using artificial intelligence. *Edelweiss Applied Science and Technology*, 9(3), 990–1001.

<https://doi.org/10.55214/25768484.v9 i3.5405>

Rodríguez Pereda, A. E., Ramírez Vigo, O. A., Linares Grijalva, K. D., & Rodríguez Santos, M. (2025). ARTIFICIAL INTELLIGENCE: PROMOTING SKILLS IN SECONDARY EDUCATION.

Proceedings of the 23rd LACCEI International Multi-Conference for Engineering, Education and Technology (LACCEI): “Engineering, Artificial Intelligence, and Sustainable Technologies in Service of Society.” 23rd LACCEI International Multi-Conference for Engineering, Education and Technology (LACCEI): “Engineering, Artificial Intelligence, and Sustainable Technologies in service of society.”

<https://doi.org/10.18687/LACCEI2025.1.1.1329>

Sabharwal, D., & Mitra, A. (2024). Impact of AI on Student Learning and Teacher Outcomes in Education 5.0: In F. D. Mobo (Ed.), *Advances in Educational Technologies and Instructional Design* (pp. 293–316). IGI Global.

<https://doi.org/10.4018/979-8-3693-81915.ch012>

Saddhono, K., Suhita, R., Istanti, W., Kusmiatun, A., Kusumaningsih, D., & Sukmono, I. K. (2024). AI-Powered Language Learning:

Enhancing Literacy in the Digital Age. 2024 4th International Conference on Advancement in Electronics & Communication Engineering (AECE), 856–861.

<https://doi.org/10.1109/AECE62803.2024.10911149>

Samsudin, M. A., & Singh Gill, H. R. (2024). “AI for Good” Programme for Enhancing AI Literacy. In H. Crompton & D. Burke, *Artificial Intelligence Applications in K-12* (1st ed., pp. 171–192). Routledge.

<https://doi.org/10.4324/9781003440192-11>

Satone, K. N., Ulhe, P. B., Deshmukh, A. S., & Mandurkar, L. (2024). Handling the AI Employment Landscape: Gearing Up Students for Future Professions. In F. D. Mobo (Ed.), *Advances in Educational Technologies and Instructional Design* (pp. 271–292). IGI Global.

<https://doi.org/10.4018/979-8-3693-8191-ch011>

Shukla, A., Meeprom, B., Khunasathitchai, K., & Yadav, N. (Eds.). (2025). *AI-Powered English Teaching*: IGI Global.

<https://doi.org/10.4018/979-8-3373-1952-0>

Tomczyk, Ł. (2020). Skills in the area of digital safety as a key component of digital literacy among teachers. *Education and Information Technologies*, 25, 471–486.

<https://doi.org/10.1007/s10639-019-09980-6>

Tomczyk, Ł., & Eger, L. (2020). Online Safety as a New Component of Digital Literacy for Young People. *Integration of Education*, 24(2), 172–184.

<https://doi.org/10.15507/19919468.099.024.202002.172-184>

UNESCO. (2018). *ICT competency framework for teachers, version 3*. UNESCO.

<https://unesdoc.unesco.org/ark:/4822/pf0000265721>

Zawacki-Richter, O., et al. (2019). A systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 39.

<https://link.springer.com/article/10.1186/s41239-019-0171-0>