Al-Hashif:
Jurnal Pendidikan dan Pendidikan Islam
https://jurnal.staiyastispadang.ac.id/index.php/AL-HASHIF/index

Teachers' Perceptions of Artificial Intelligence Integration in Elementary School Learning: A Phenomenological Study

Foesti Nafasya[1], Fauzia Rahma Suci[1], Febriyanto[1], Safrizal[1], Ratmiati[1]
[1]Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia
fstnfsy@gmail.com*

Article Information:
Received January 25, 2026
Revised February 22, 2026
Accepted March 31, 2026

Keywords: *Artificial Intelligence, phenomenological study, Elementary School*

Abstract

The development of Artificial Intelligence (AI) has brought significant changes to the world of education, including at the elementary school level. This study aims to describe and understand in-depth teachers' responses to the implementation of AI in the learning process in elementary schools, including their perceptions, experiences, challenges, and opportunities in utilizing AI technology. This study uses a qualitative approach with a phenomenological method, focusing on the subjective experiences of teachers as the main actors in the implementation of AI-based learning. The research subjects consisted of elementary school teachers who have used or are familiar with AI technology in learning activities. Data collection techniques were carried out through in-depth interviews, observation, and documentation. Data were analyzed using the stages of data reduction, data presentation, and conclusion to obtain the essential meaning of the teachers' experiences. The results show that most teachers responded positively to the implementation of Artificial Intelligence because it is considered to increase learning efficiency, help personalize materials, and foster student interest and motivation in learning. However, this study also found obstacles such as limited digital competence of teachers, lack of specialized training, and concerns about technological dependency and the ethical aspects of AI use in early childhood learners. The implications of this research indicate the need for policy support, improving teachers' digital literacy, and developing ethical and pedagogical guidelines for implementing AI in elementary schools to ensure its optimal use and alignment with educational goals.

INTRODUCTION

The development of digital technology over the past two decades has experienced significant acceleration, particularly with the advent of Artificial Intelligence (AI). Artificial Intelligence is no longer limited to the industrial and economic sectors but has penetrated various areas of life, including primary education. The use of AI in learning includes the use of adaptive learning systems, virtual assistants, learning data

How to cite: Nafasya, F., Suci, F. R., Febriyanto, F., Safrizal. S., & Ratmiati, R. (2026). Teachers' Perceptions of Artificial Intelligence Integration in Elementary School Learning: A Phenomenological Study. *Al-Hashif: Jurnal Pendidikan dan Pendidikan Islam, 4*(1), 12-22.

E-ISSN: 2988-5671
Published by: STAI Yayasan Tarbiyah Islamiyah (YASTIS) Lubuk Bagalung Padang, Indonesia

analysis, and the automatic creation of teaching materials tailored to student needs (Giray, 2024; Mahendra et al., 2024). This situation marks a paradigm shift in education from conventional approaches to more personalized and efficient intelligent technology-based learning.

In the context of elementary education, the implementation of AI has great potential to support student-centered learning processes. AI can help teachers identify students' learning styles, monitor academic progress in real time, and provide rapid and accurate feedback (Holmes & Tuomi, 2022; Wati et al., 2025). However, the success of AI implementation in elementary schools is not solely determined by technological sophistication but also depends heavily on teachers' readiness and responsiveness as key actors in the learning process. Teachers have a strategic role in determining how technology is used pedagogically, ethically, and in accordance with the developmental characteristics of early childhood learners (Fathurrachman & Saputri, 2025; Noviani et al., 2025).

The urgency of this research is growing as Indonesia's digital education policy intensifies. The government's digital transformation program for education encourages schools, including elementary schools, to utilize AI-based technology in learning (Kemendikbudristek, 2023). However, the reality on the ground shows a gap between policy and practice. Many teachers still face limited digital literacy, a lack of specific AI training, and concerns about the negative impact of technology on student character development and independent learning (Mulyani et al., 2026). Therefore, scientific studies that explore teachers' responses to AI implementation are crucial for a comprehensive understanding of these dynamics.

Previous research has generally focused more on the effectiveness of AI use on student learning outcomes or the development of technology-based learning systems. Meanwhile, studies specifically examining the subjective experiences, perceptions, and attitudes of elementary school teachers toward AI remain relatively limited, particularly in the context of Indonesian education. Yet, understanding teachers' experiences is crucial to ensuring that AI implementation is not merely technological but also aligned with pedagogical and humanitarian values in education (Holmes & Tuomi, 2022; Zawacki-Richter et al., 2019).

From a theoretical perspective, this research contributes to strengthening theories of technology adoption in education, particularly the Technology Acceptance Model (TAM) and social constructivism theory. Teachers' responses to AI can be understood through perceived usefulness and perceived ease of use, which influence technology acceptance in learning practices (Davis, 1989; Zhai et al., 2021). Furthermore, the phenomenological approach in this study provides a new perspective by positioning teachers' lived experiences as the primary source of meaning-making in the process of adopting educational technology (Sefrinal et al., 2025).

The contribution of this research is not only theoretical but also practical. Practically, the results are expected to serve as a basis for policymakers and education administrators in designing more contextual and sustainable teacher training programs related to the use of AI. The findings of this study can also serve as a reference for elementary schools in developing AI implementation strategies oriented to the real needs of teachers and students. In the future, this study will make an important contribution to building an inclusive, ethical, and sustainable AI-based education ecosystem, so that technology does not replace the role of teachers, but rather strengthens their professional function as educators and learning guides (Nirmala, 2025).

Thus, research on teachers' responses to the implementation of AI in elementary school learning is relevant and urgent. This study is expected to bridge the gap between AI technology development and the readiness of educational human resources, while also enriching the body of educational knowledge in addressing the challenges of learning in the current and future digital era.

METHOD

This study uses a qualitative approach with a phenomenological method to deeply understand teachers' responses to the implementation of Artificial Intelligence (AI) in elementary school learning based on their real-life experiences. The research subjects consisted of three elementary school teachers who were familiar with and used AI in their learning activities, selected through a purposive sampling technique considering their experience and active involvement in AI use. Research data were collected through in-depth interviews, observation, and documentation to obtain comprehensive information. The researcher acted as the main instrument supported by a semi-structured interview guide, a recording device, and field notes. Data analysis was conducted interactively using the Miles et al., (2019) model, which includes data reduction, data presentation, and concluding to obtain the essential meaning of the informants' experiences. Data validity was maintained through source and technique triangulation techniques, as well as member checking, to ensure the credibility and accuracy of the research data (Engkizar et al., 2026; Inayah et al., 2025; Murniyetti et al., 2016; Pilarska, 2021).

RESULT AND DISCUSSION

The results of this study were obtained through in-depth interviews with three elementary school teachers with varying backgrounds and experiences in recognizing and utilizing artificial intelligence (AI) in learning. Data analysis was conducted thematically and yielded four main themes representing teachers' responses to AI implementation: *(1)* teachers' introduction to and initial experiences with AI, *(2)* forms of AI utilization in learning, *(3)* benefits of AI for teachers in professional practice, and *(4)* negative impacts and concerns regarding the use of AI in elementary schools.

Table 2: Interview Results

Theme	Informant	Interview Excerpts
Teachers' Introduction to and Initial Experiences with AI	5	*I was introduced to several learning platforms, such as Quizizz, Wordwall, and Educaplay, around 2023 by colleagues.*
	3	*Since 2022, when ChatGPT started to gain widespread discussion, I've been experimenting with using AI to create quizzes and learning materials.*
	6	*…in 2021, during the COVID-19 pandemic, when learning was conducted through Google Classroom. Furthermore, I actively participated in various trainings that introduced the use of technology-based educational games. Through these trainings, I became more familiar with various AI applications, such as ChatGPT, Gemini AI, and other interactive learning media.*
Forms of AI Utilization in Learning	1	*To attract students' interest in learning, I use learning videos followed by AI-based educational games, so that students become more focused and interested.*

	12	*AI is very helpful in terms of time efficiency because creating materials, quizzes, and administering learning can be done more quickly.*
	10	*With AI like ChatGPT, various learning needs can be easily met, although they still need to be tailored to the material being taught.*
Benefits of AI for Teachers in Professional Practice	7	*AI is very helpful as it provides various ideas and instructional solutions tailored to the conditions of students and the classroom I teach.*
	9	*Initially, I was concerned that AI would replace the role of teachers. However, after using it, I found that AI actually serves as an assistant that generates creative ideas quickly.*
	2	*AI greatly facilitates teachers' work by helping complete various tasks in a short amount of time.*
Negative Impacts and Concerns Regarding the Use of AI	11	*Students become less motivated because assignments can be completed quickly using AI without any in-depth thought.*
	8	*If unsupervised, students can become dependent on AI and develop fewer critical thinking skills.*
	4	*The use of AI without analysis can lead teachers to become less critical because they immediately use the results without first filtering them.*

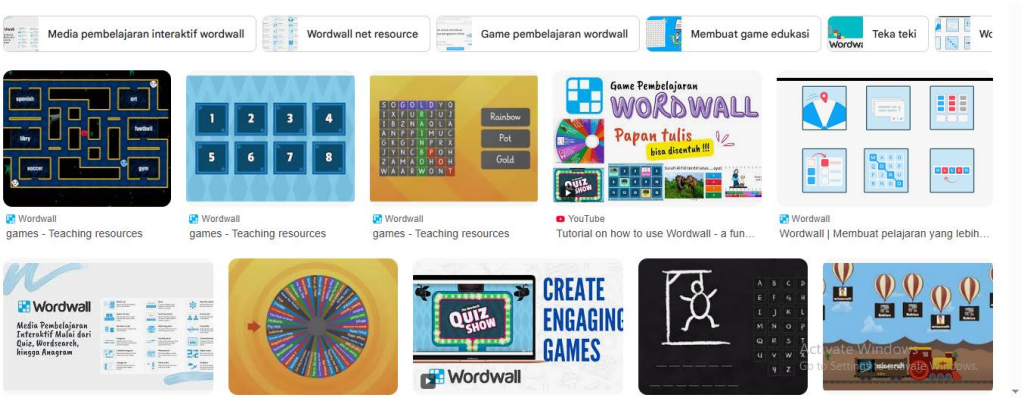

Figure 1: Using Wordwall, Educational Game

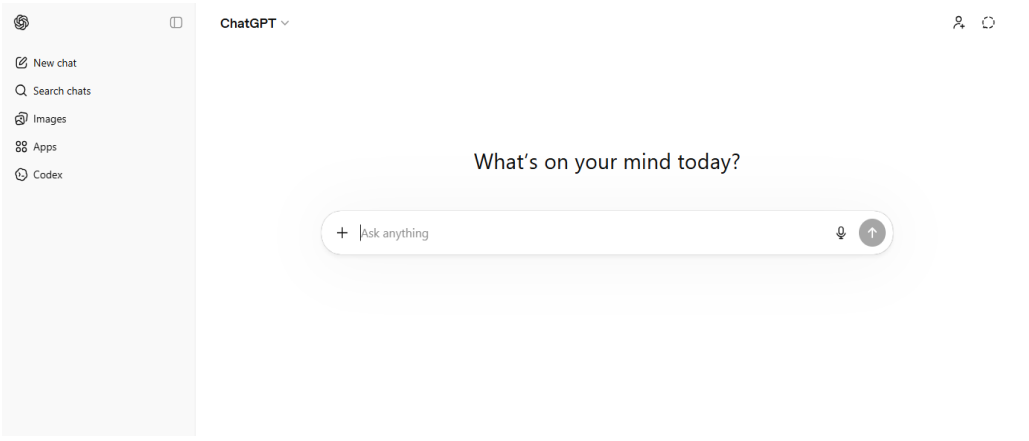

Figure 2: ChatGPT

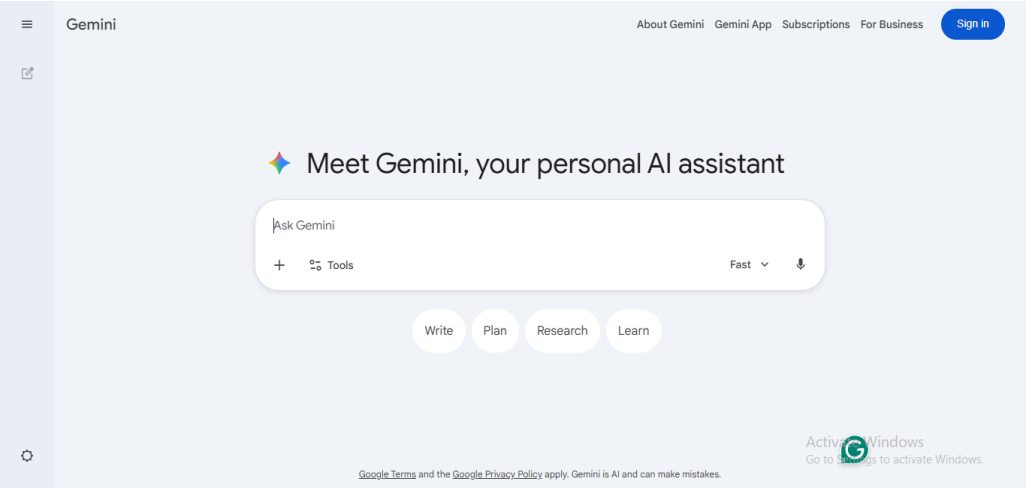

Figure 3: Gemini AI

This research shows that teachers' responses to the implementation of AI in learning are varied and influenced by individual and contextual factors. In general, teachers show a positive attitude towards the use of AI as a learning tool, especially in supporting learning planning, preparing assessments, and providing more varied and adaptive learning resources. This finding is in line with the research results of Ana et al., (2023) and Iskandar et al., (2023), which states that teacher readiness in facing educational innovation is closely related to understanding supporting policies and technology, including in the context of the Independent Curriculum. Apart from individual factors, school environmental support also plays an important role in shaping teacher responses. The availability of infrastructure, school policies, and leadership support are external factors that influence teachers' acceptance of AI. Likewise, ongoing training has proven to be an important strategy in increasing teacher confidence in utilizing new technology (Movitaria & Shandra, 2020).

From a utility perspective, teachers view AI as a technology that can improve work efficiency and learning quality. The use of AI in creating teaching modules, interactive media, and learning evaluation is considered to be in line with the demands of the Independent Curriculum, which emphasizes differentiated and learner-centered learning (Maulida, 2022; Setiawan et al., 2022; Ullah et al., 2025). This strengthens the findings. Safrizal et al., (2020), that learning innovation, including the use of technology, contributes positively to the activities and learning outcomes of elementary school students.

However, this research also found that there were challenges faced by teachers in implementing AI. These challenges include limited digital competence, a lack of special training related to AI, and concerns about technology dependence in the learning process (Wijiati et al., 2024). This finding is in line with Fithriyah et al., (2022) and Lasari (2021), who revealed that digital transformation in education requires teacher competency readiness, both pedagogically and technologically. In this context, AI is not yet fully understood as a pedagogical tool, but is still perceived as a complex technical technology.

The teacher's adaptation strategy for AI in learning is carried out gradually and contextually. Teachers tend to use AI for practical needs, such as searching for material references, creating questions, and enriching learning, compared to using AI comprehensively in learning design. This pattern shows that the AI adoption process is still at an early stage, as explained in research by Suttrisno et al., (2022), regarding teacher competency in the *Merdeka Belajar* era. Teachers who have experience

participating in training or learning communities, such as the Mobilizing Teacher Program, show a more open and reflective response to the use of AI (Medina Vargas et al., 2025).

School environmental support and institutional policies also influence teachers' responses to AI. Schools that have a collaborative culture and leadership support tend to encourage teachers to experiment with learning technology, including AI. This finding is in line with Safrizal et al., (2020), who emphasize the importance of the school ecosystem in supporting innovation and the integration of science and technology in learning.

From the perspective of technology acceptance theory, the findings of this research expand the understanding that perceptions of the ease and usefulness of AI do not stand alone, but are influenced by external factors such as training, curriculum policies, and professional support. This is in line with the research results of Amini et al., (2022) and Anastasha et al., (2021), which show that the success of learning innovation is largely determined by the suitability between approach, teacher competence, and learning context.

Overall, teachers' responses to the implementation of AI in learning show a dynamic between opportunities and challenges. Artificial Intelligence is seen as having great potential to support meaningful and adaptive learning, but its implementation requires strengthening teacher competence, continuous mentoring, and educational policies that are responsive to technological developments. Therefore, teacher professional development that is integrated with AI literacy is an urgent need so that the use of AI is not only technical, but also pedagogical and ethical in supporting basic education goals (Jamilah et al., 2025; Lustani et al., 2025).

Substantively, the majority of teachers showed a positive response to the potential of AI in supporting the learning process. AI is seen as capable of providing better personalization of learning, ease of learning evaluation, and access to broader and more effective learning resources. This finding is in line with previous research, which states that digital technology can enrich learning experiences and help teachers in designing contextual teaching materials (Burhanuddin et al., 2025; Hanan et al., 2025). Apart from that, the integration of AI is in line with the development of digital literacy which is a demand of the modern era where literacy skills are an important factor in facilitating meaningful learning for students (Fathia et al., 2022).

The results of this research show that elementary school teachers' responses to the implementation of AI in learning are positive but accompanied by a critical and careful attitude. Teachers view AI as a technological innovation that is able to support the learning process, especially in increasing work efficiency, enriching learning media, and increasing student engagement and focus (Alam & Mohanty, 2023; Atmojo et al., 2025). These findings confirm that the success of implementing AI in basic education is largely determined by the perception, experience, and readiness of teachers as the main actors in learning (Wilia, 2020).

The gradual introduction of AI that teachers experience shows that the adoption of educational technology does not happen instantly. Training factors, academic experience, and the demands of learning situations, such as the Covid-19 pandemic, are the main triggers for teachers to start utilizing AI. This finding is in line with research by Zhai et al., (2021), which states that the adoption of AI in education is strongly influenced by the context and practical needs of teachers. Within the Technology Acceptance Model framework, teachers tend to accept AI when the technology is felt to be useful and relevant to their learning tasks (Afifah et al., 2024; Judijanto et al., 2025).

The use of AI in learning found in this research shows that AI functions as a pedagogical tool to increase student focus, engagement, and understanding. The use of interactive videos, educational games, and AI-based visual media supports constructivist learning principles, where students build knowledge through active and meaningful learning experiences (Andari et al., 2025; Jamilah et al., 2025). This is in line with the findings of Holmes & Tuomi, (2022), which emphasize that AI has great potential in creating adaptive and learner-centered learning. In the elementary school context, this approach is very relevant because of the characteristics of students who need visual stimuli and interesting activities.

Apart from having an impact on students, AI also provides significant benefits for teachers, especially in terms of time efficiency and reduced administrative burden. Teachers in this research view AI as a "professional assistant" who helps in lesson planning, searching for creative ideas, and preparing teaching materials (Iftitah et al., 2025; Rifky, 2024). These findings strengthen the research results of Luckin et al., (2022) who stated that AI can increase teachers' professional capacity by automating routine tasks, so that teachers have more time for meaningful pedagogical interactions with students. Thus, AI does not replace the role of the teacher, but rather strengthens the teacher's function as a facilitator and learning guide.

However, the results of this research also reveal teachers' concerns about the negative impacts of using AI, especially regarding the decline in students' critical thinking abilities and fighting power. Students' reliance on AI to complete tasks without a thought process is a major concern for teachers (Oktafia et al., 2025). This finding is in line with research by Sari & Nugroho (2022), which states that unsupervised use of digital technology can hinder the development of high-level thinking skills in students. In this context, teachers play an important role as controllers and directors of the use of AI so that it remains aligned with learning objectives.

Teachers' concerns about teachers' own dependence on AI are also an important finding in this research. Some teachers believe that excessive use of AI can weaken teachers' pedagogical reflection and critical analysis abilities. This is in line with the views of Holmes & Tuomi (2022), who emphasize the importance of AI literacy and ethical awareness in education. Teachers need to have the ability to filter, evaluate, and adjust the information produced by AI so that it does not conflict with the learning context and educational values (Fradana & Suwarta, 2025; Kim et al., 2022).

Overall, the results of this research show that the implementation of AI in learning in elementary schools can answer the research objectives, namely, understanding teacher responses to the real use of AI in the field. Teachers are not resistant to AI, but expect pedagogical guidance, ongoing training, and policies that support the wise and responsible use of AI. These findings provide an important contribution to the development of AI-based education policies that place teachers as the main subject, not just technology users (Nirmala, 2025).

In the current and future context, this research strengthens the scientific discourse on the integration of AI in basic education. AI needs to be positioned as a means to improve the quality of learning, not as an instant solution that replaces the role of humans. Therefore, the development of an AI-based education ecosystem must be accompanied by strengthening teachers' pedagogical, ethical, and digital literacy competencies so that technology truly has a positive impact on the world of education (Ikhwan & Aan, 2025; Shirzad & Darazi, 2025).

CONSLUSSION

Based on the findings of this study, it can be concluded that media literacy plays a very important role in fostering social awareness among the community, particularly in relation to the handling of the deceased in the modern era. People with media literacy skills tend to be better able to understand and sort through digital information appropriately, so that funeral practices can be adapted to correct social norms and religious values. Media literacy not only increases technical knowledge but also shapes attitudes of empathy, motivation, and active participation in social activities. In addition, well-presented digital media serves to strengthen the values of solidarity and social responsibility within the community. Based on these findings, it is recommended that the community improve their media literacy skills to be able to use digital information wisely and play an active role in socio-religious activities. Religious leaders and funeral directors are encouraged to use digital media not only to convey technical information, but also to instill moral and social values so that social awareness can grow more widely. Future researchers can develop this study by expanding the scope of participants or using mixed methods to measure the impact of media literacy on social participation in greater depth. In addition, educational institutions and policymakers can design community-based media literacy training programs to ensure that social-religious practices are effective, safe, and in accordance with norms.

REFERENCES

Afifah, H., Ibrahim, T., & Arifudin, O. (2024). Implementasi Technology Acceptance Model (TAM) Pada Penerimaan Aplikasi Sistem Manajemen Pendidikan di Lingkungan Madrasah. *Jurnal Tahsinia*, *5*(9), 1353–1369. https://doi.org/10.57171/jt.v5i9.665

Alam, A., & Mohanty, A. (2023). Educational Technology: Exploring the Convergence of Technology and Pedagogy Through Mobility, Interactivity, AI, and Learning Tools. *Cogent Engineering*, *10*(2), 2283282.

Amini, F., Munir, S., & Lasari, Y. L. (2022). Studens Mathematical Problem Solving Ability in Elementary School: The Effect of Guided Discovery Learning. *Journal of Islamic Education Students*, *2*(2), 49–57. https://doi.org/10.31958/jies.v2i2.5592

Ana, N. . F., Safrizal, S., & Sunarti, S. (2023). Analisis Menggunakan Guru dalam Mengimplementasikan Kurikulum Merdeka. *MUBTADI: Jurnal Pendidikan Ibtidaiyah*, *4*(2), 96–110. https://doi.org/10.19105/mubtadi.v4i2.8043

Anastasha, D. A., Movitaria, M. A., & Safrizal, S. (2021). Peningkatan Aktivitas dan Hasil Belajar Matematika Menggunakan Model Kooperatif Tipe Student Teams Achievement Division di Madrasah Ibtidaiyah. *Jurnal Basicedu*, *5*(4), 2626–2634. https://doi.org/10.31004/basicedu.v5i4.1248

Andari, A., Warisno, A., & Anshori, M. A. (2025). Pemanfaatan Artificial Intelligence (AI) dalam peningkatan mutu pembelajaran Pendidikan Agama Islam di SMA dan SMK. *Tawazun: Jurnal Pendidikan Islam*, *18*(3), 523–540. https://doi.org/10.32832/tawazun.v18i3.20893

Atmojo, I. R. W., Saputri, R. A. D. Y., & Fadhil, P. A. (2025). Integrasi Kecerdasan Buatan dalam Mewujudkan Pembelajaran Mendalam di Sekolah Dasar. *Didaktika Dwija Indria*, *13*(5), 782–793. https://doi.org/10.20961/ddi.v13i5.106422

Burhanuddin, B., Febriani, A., Hoktaviandri, H., Simbolon, M. K., & Vanessa, A. D. (2025). Utilizing the Canva Application in Teaching Fiqh. *Al-Hashif: Jurnal Pendidikan Dan Pendidikan Islam*, *3*(2), 76–84.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319–340.

Engkizar, E., Jaafar, A., Hamzah, M. I., Syafril, S., Oktavia, G., Febriani, A., & Albizar, A. (2026). Tartil Method as an Effective Strategy for Transforming Students' Positive Attitudes in Learning the Qur'an. *Journal of Quranic Teaching and Learning*, *2*(1), 50–63.

Fathia, W., Ratmiati, R., Habibra, M., Indriyani, V., & Putri, H. (2022). Student Digital Literacy Competence in the Era of the Covid-19 Pandemic. *BIC 2021: Proceedings of the 6th Batusangkar International Conference, BIC 2021, 11-12 October, 2021, Batusangkar-West Sumatra, Indonesia*, 290.

Fathurrachman, S., & Saputri, N. E. (2025). Teacher's Perceptions and Institutional Preparedness For Implementing AI in Learning Assessment at The Elementary School Level. *IQRO: Journal of Islamic Education*, *8*(1), 49–60. https://doi.org/10.24256/iqro.v8i1.6484

Fithriyah, D. N., Yulia, N. M., & Aula, F. D. (2022). Dampak Pembelajaran Daring Selama Pandemic Terhadap Kemampuan Kognitif Peserta Didik. *Jurnal Riset Madrasah Ibtidaiyah (JURMIA)*, *2*(1), 173–180. https://doi.org/10.32665/jurmia.v2i1.275

Fradana, A. N., & Suwarta, N. (2025). Artificial Intelligence Driven Literacy Practices in Early Language Education: Praktik Literasi yang Didorong oleh Kecerdasan Buatan dalam Pendidikan Bahasa Awal. *Academia Open*, *10*(1), 10.21070.

Giray, L. (2024). Ten Myths about Artificial Intelligence in Education. *Higher Learning Research Communications*, *14*(2), 1–12.

Hanan, A. A., Virskya, A. F., Cahyaningrum, E. N., & Setiadi, H. W. (2025). Peran Canva sebagai Media Kreatif dalam Pengembangan Bahan Ajar Digital di Sekolah Dasar. *Jurnal Penelitian Ilmiah Multidisipliner*, *2*(3), 2533–2541.

Holmes, W., & Tuomi, I. (2022). State of the Art and Practice in AI in Education. *European Journal of Education*, *57*(4), 542–570. https://doi.org/10.1111/ejed.12533

Iftitah, K. N., Chaeruman, U. A., & Khaerudin, K. (2025). Generative Artificial Intelligence in Teacher-Driven Personalized Learning for K-12 Education: A Systematic Literature Review. *Proceedings International Conference on Education Innovation and Social Science*, 86–96.

Ikhwan, S., & Aan, M. (2025). *Artificial Intelligence (AI) dan Pendidikan Bahasa Arab: Sebuah Revolusi Pembelajaran Bahasa Arab*. Penerbit Abdi Fama.

Inayah, P., Habsy, B. A., & Nursalim, M. (2025). Kajian Literatur Metodologi Penelitian Fenomenologi. *Jurnal Pendidikan Integratif*, *6*(2), 760–770.

Iskandar, S., Rosmana, P. S., Farhatunnisa, G., Mayanti, I., Apriliya, M., & Gustavisiana, T. S. (2023). Implementasi Kurikulum Merdeka di Sekolah Dasar. *INNOVATIVE: Journal Of Social Science Research*, *3*(2), 2322–2336.

Jamilah, W. S. N., Halimah, L., & Puspita, N. T. (2025). Pemanfaatan Artificial Intelligence terhadap Kompetensi Pedagogik Guru. *IQRO: Journal of Islamic Education*, *8*(1), 388–404. https://doi.org/10.24256/iqro.v8i1.6857

Judijanto, L., Santika, T., Nurjanah, N., Suwandi, W., Sulaeman, S., & Rais, R. D. A. (2025). *Transformasi Pendidikan: Menghadapi Era Digital Di Ruang Belajar*. PT. Sonpedia Publishing Indonesia.

Kemendikbudristek, K. (2023). *Peta Jalan Transformasi Digital Pendidikan Indonesia*. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.

Kim, J., Lee, H., & Cho, Y. H. (2022). Learning Design to Support Student-AI Collaboration: Perspectives of Leading Teachers for AI in Education. *Education*

and Information Technologies, *27*(5), 6069–6104. https://doi.org/10.1007/s10639-021-10831-6

Lasari, Y. L. (2021). Online Learning Classroom Management During the COVID-19 Period at PGMI IAIN Batusangkar. *Jurnal Kepemimpinan Dan Pengurusan Sekolah*, *6*(1), 49–62. https://doi.org/10.34125/kp.v4i2.395

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2022). *Intelligence Unleashed: An Argument for AI in Education*. Pearson Education.

Lustani, A. D., Fadil, A., Soraya, S., & Pratama, A. F. (2025). Pemanfaatan Media Pembelajaran Berbasis AI: Solusi Cerdas Untuk Pendidikan Masa Kini. *Jurnal Pemikiran Pendidikan Dan Keguruan*, *1*(1), 70–76. https://doi.org/10.59966/0cw1e858

Mahendra, G. S., Ohyver, D. A., Umar, N., Judijanto, L., Abadi, A., Harto, B., & Sutarwiyasa, I. K. (2024). *Tren Teknologi AI: Pengantar, Teori, dan Contoh Penerapan Artificial Intelligence di Berbagai Bidang*. PT. Sonpedia Publishing Indonesia.

Maulida, U. (2022). Pengembangan Modul Ajar Berbasis Kurikulum Merdeka. *Tarbawi*, *5*(2), 130–138.

Medina Vargas, C. Y., Chiappe, A., & Sepúlveda, F. (2025). Communities of Practice and Teacher Education in the Era of Artificial Intelligence: A Review. *Journal of Social Studies Education Research/Sosyal Bilgiler Eğitimi Araştırmaları Dergisi*, *16*(4), 109.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2019). Qualitative Data Analysis: A Methods Sourcebook. In *4*. Thousand Oaks, CA: SAGE Publications.

Movitaria, M. A., & Shandra, Y. (2020). Improving Teachers' Abilities In Video Based Learning By Using Microsoft Powerpoint Application Through Workshop. *Jurnal Basicedu*, *4*(4), 1423–1428.

Mulyani, S., Suriansyah, A., & Harsono, A. M. B. (2026). Dampak dan Tantang Implementasi AI dalam Pembelajaran di Sekolah Dasar. *Jurnal Penelitian Ilmiah Multidisipliner*, *2*(4), 2376–2385.

Murniyetti, M., Engkizar, E., & Anwar, F. (2016). Pola Pelaksanaan Pendidikan Karakter Terhadap Siswa Sekolah Dasar. *Jurnal Pendidikan Karakter*, *7*(2). https://doi.org/https://doi.org/10.21831/jpk.v6i2.12045

Nirmala, H. (2025). *AI dan Pendidikan: Peluang, Risiko, dan Strategi Implementasi untuk Guru dan Pendidikan*. PT Indonesia Delapan Kreasi Nusa.

Noviani, N., Cahyani, D., & Ali, M. (2025). Studi Literatur Tentang Peran Guru dalam Perkembangan Peserta Didik. *Jurnal Manajemen Pendidikan*, *13*(2), 664–671. https://doi.org/10.33751/jmp.v13i2.13109

Oktafia, N., Latifah, A. M., El Haris, A. D., Andrianie, S., & Krismona, E. B. (2025). Mahasiswa dan AI: Transformasi Cara Berpikir Kritis dan Penyelesaian Masalah di Era Digital. *Prosiding Konseling Kearifan Nusantara (KKN)*, *4*, 10–33.

Pilarska, J. (2021). Phenomenological Qualitative Research Design. In *Research Paradigm Considerations for Emerging Scholars* (Vol. 33). Channel View Publications Bristol, UK.

Rifky, S. (2024). Dampak Penggunaan Artificial Intelligence bagi Pendidikan Tinggi. *Indonesian Journal of Multidisciplinary on Social and Technology*, *2*(1), 37–42. https://doi.org/10.31004/ijmst.v2i1.287

Safrizal, S., Zaroha, L., & Yulia, R. (2020). Kemampuan Literasi Sains Siswa Sekolah Dasar di Sekolah Adiwiyata (Studi Deksriptif di SD Adiwiyata X Kota Padang). *Journal of Natural Science and Integration*, *3*(2), 215–223. https://doi.org/10.24014/jnsi.v3i2.9987

Sari, D. P., & Nugroho, A. (2022). Tantangan Pemanfaatan Teknologi Digital dalam

Pembelajaran Sekolah Dasar. *Jurnal Pendidikan Dasar Indonesia*, *7*(2), 85–97.

Sefrinal, S., Zen, Z., Jasrial, J., Handayani, R., & Sari, F. A. (2025). Fenomenologi Pengalaman Guru dalam Mengimplementasikan Kurikulum Merdeka di SMAN 2 Sutera. *Jurnal Manajemen Pendidikan*, *10*(4), 2015–2023. https://doi.org/10.34125/jmp.v10i4.1035

Setiawan, R., Syahria, N., Andanty, F. D., & Nabhan, S. (2022). Pengembangan Modul Ajar Kurikulum Merdeka Mata Pelajaran Bahasa Inggris SMK Kota Surabaya. *Jurnal Gramaswara: Jurnal Pengabdian Kepada Masyarakat*, *2*(2), 49–62.

Shirzad, S., & Darazi, M. A. (2025). AI Literacy in Education: Balancing Innovation, Ethics, and Equity in the Digital Age. *Journal of New Trends in English Language Learning (JNTELL)*, *4*. https://doi.org/10.57647/JNTELL.2025.si-02

Suttrisno, S., Yulia, N. M., & Fithriyah, D. N. (2022). Mengembangkan Kompetensi Guru dalam Melaksanakan Evaluasi Pembelajaran di Era Merdeka Belajar. *ZAHRA: Research and Tought Elementary School of Islam Journal*, *3*(1), 52–60. https://doi.org/10.37812/zahra.v3i1.409

Ullah, R. S., Hashim, F., Bandeali, M. M., & Akbar, A. (2025). Artificial Intelligence in Curriculum Design a Roadmap for Adaptive and Personalized Learning in Higher Education. *The Critical Review of Social Sciences Studies*, *3*(3), 304–322. https://doi.org/10.59075/8j71b437

Wati, A., Anggun, R., Hidayat, A., & Farhurohman, O. (2025). Implementasi Pembelajaran yang Dipersonalisasi Berbasis AI (Artificial Intelligence) dalam Meningkatkan Hasil Belajar Siswa. *Jurnal Ilmiah Pendidikan Dasar (JIPDAS)*, *5*(2), 1816–1823. https://doi.org/10.37081/jipdas.v5i2.3028

Wijiati, W., Ifani, S. D., Damayanti, S., & Argadinata, H. (2024). Penggunaan Teknologi Artificial Intelligence (AI) dalam Manajemen Pendidikan: Meningkatkan Efisiensi Tantangan di Satuan Pendidikan. *Proceedings Series of Educational Studies*, *3*, 34–42.

Wilia, W. (2020). Peran Guru dalam Menghadapi Tantangan Teknologi Pendidikan Abad ke-21. *Jurnal Ilmu Pendidikan*, *5*(1), 45–56.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). 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.

Zhai, X., Chu, X., Chai, C. S., Jong, M. S. Y., Istenic, A., Spector, M., Liu, J., Yuan, J., & Li, Y. (2021). A Review of Artificial Intelligence (AI) in Education from 2010 to 2020. *Complexity*, *2021*(1), 8812542.