

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society" July 30th, 2026

PRIMARY SCHOOL TEACHERS' PERCEPTIONS OF ARTIFICIAL INTELLIGENCE TO SUPPORT DEEP LEARNING: A DESCRIPTIVE SURVEY

Oktiana Handini^{1*}, Ema Butsi Prihastari¹, Hartini Binti Ismail²

¹Slamet Riyadi University, Surakarta

²Sultan Idris Education University, Perak, Malaysia

*Corresponding author: handinioktiana7@gmail.com
<https://orcid.org/0009-0000-9769-0009>

ABSTRACT

The use of Artificial Intelligence (AI) in elementary education is emerging as an alternative to support more in-depth, adaptive, and student-centered learning. However, the implementation of AI in elementary schools is closely related to teachers' perceptions, experiences, digital competencies, and supporting conditions. This study aims to describe elementary school teachers' perceptions of the use of AI to support deep learning and to identify the experiences, benefits, and obstacles reported by teachers in its use. The study used a descriptive survey design supplemented by qualitative interviews. Participants consisted of 25 elementary school teachers from public and private schools. Quantitative data were collected through questionnaires and analyzed using frequencies and percentages, while qualitative data were obtained through semi-structured interviews and analyzed through data reduction, data presentation, and drawing conclusions. The results showed that 18 teachers (72%) stated their support for the use of AI as a learning medium, while 7 teachers (28%) did not support its direct use in learning. Teachers who supported AI reported that AI helped develop teaching materials, search for learning resources, create learning media, and provide materials that were more tailored to students' needs. Meanwhile, teachers who did not yet support AI reported concerns about student dependency, limited digital competency, limited devices and internet access, and the accuracy of information generated by AI. Interview findings reinforce this pattern and indicate that teachers view AI as a supporting tool that still requires supervision and active teacher involvement. This study provides an empirical overview of teachers' perceptions and experiences regarding the use of AI to support immersive learning in elementary schools.

Keywords: artificial intelligence; primary education; teacher perception; meaningful learning; digital competence; educational technology

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
**"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society"** July 30th, 2026

INTRODUCTION

The development of digital technology has driven transformation in various aspects of life, including in the field of education (Handini & Mustofa, 2022). One of the technological developments that is increasingly receiving attention is artificial intelligence, namely technology that enables computer systems to perform certain tasks that generally require human cognitive abilities, such as understanding language, recognizing patterns, analyzing information, generating text, and providing recommendations (Adawiyah & Sunanto, 2025). The presence of generative AI technology further expands the opportunities for utilizing technology in the learning process, from compiling teaching materials, developing interactive learning media, providing feedback, to adjusting learning activities based on student needs (Aji & Widyatini, 2026). These developments open up opportunities for educators to develop more adaptive, interactive, and student-centered learning. However, integrating AI into education is not only about the availability of technology but also requires pedagogical, ethical, and professional considerations to ensure its use truly supports the achievement of educational goals.

In the context of education, the use of AI offers the potential to increase the effectiveness of planning, implementing, and evaluating learning (Akbar, Sholihah, & Setyawan, 2026). This technology can help teachers identify students' learning needs, create a variety of learning activities, develop provocative questions, and provide alternative explanations for difficult-to-understand concepts (Anita & Setiawan, 2025). AI also has the potential to reduce some of the administrative burden on teachers, freeing up time and attention to more meaningful pedagogical interactions (Apriadi & Sihotang, 2023). However, these benefits do not emerge automatically because the quality of AI output depends on the accuracy of instructions, the characteristics of the system used, and the user's ability to evaluate the resulting information. The use of AI also presents challenges, such as the potential for inaccurate information, bias in system output, technology dependency, personal data protection, and academic integrity issues. Therefore, the integration of AI in education needs to be understood as a process that combines technological innovation with pedagogical considerations and the professional responsibilities of educators.

Elementary education is a strategic level of education in building a foundation of knowledge, thinking skills, character, and independent learning for students. At the elementary school level, learning is directed not only at mastering facts and procedures, but also at understanding concepts, connecting knowledge to everyday experiences, solving problems, and developing communication and collaboration skills (Assidiqi & Sadiyah, 2025). In this context, the use of AI offers the potential to support teachers in designing learning experiences that are appropriate to children's cognitive, social, and emotional developmental stages. Teachers can use AI to develop contextual stories,

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
**"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society"** July 30th, 2026

simple simulations, illustrations, reflective questions, tiered exercises, and problem-solving activities relevant to students' lives (Atmojo, Saputri, & Fadhil, 2025). However, the use of AI in primary education requires special attention to the appropriateness of the material to the child's age, digital security, the validity of the information, and the need for social interaction and direct guidance from teachers (Chairunnisak et.al, 2026). Thus, the use of AI in elementary schools should be positioned as a learning support tool, not as a substitute for the role of educators in guiding student development.

The use of AI in basic education also needs to be linked to a learning orientation that emphasizes conceptual understanding, active involvement, and the ability to apply knowledge in various situations (Darmayasa et al., 2025). One relevant approach is deep learning in a pedagogical context. This approach guides students to understand material meaningfully, connect new knowledge with prior knowledge, reflect on the learning process, and apply this understanding in different contexts. Deep learning emphasizes not only the volume of material mastered but also the quality of understanding, intellectual engagement, and students' ability to actively construct knowledge. In the context of Indonesian education, the orientation of deep learning can be linked to mindful, meaningful, and joyful learning experiences. These three principles position students as active subjects who are given the opportunity to explore, engage in dialogue, experiment, reflect, and gradually develop understanding. Therefore, AI technology needs to be utilized to strengthen this learning process, not simply to speed up the delivery of material or produce instant answers.

Integrating AI into immersive learning requires an understanding that technology and pedagogy are interconnected. AI can help teachers design open-ended questions, present authentic problems, provide varied examples, offer alternative explanations, and support reflection on students' learning processes.(Fajriati et.al, 2024)For example, in mathematics, teachers can use AI to construct contextual problems that encourage students to explain solution strategies, compare answers, and evaluate reasoning. In Indonesian language learning, AI can be used to develop stories, comprehension questions, and discussion activities that encourage listening, speaking, reading, and writing skills (Faruq, Dewi, & Sabar, 2026). However, this utilization must maintain independent thinking activities, dialogue between students, concrete experiences, and reflection. If AI is used solely to provide final answers or complete tasks automatically, the technology has the potential to reduce students' opportunities to construct understanding independently. Therefore, the success of AI integration in immersive learning depends heavily on teachers' ability to select, adapt, and direct the use of technology according to learning objectives.

Elementary school teachers play an important role in determining how AI is used to support deep learning (Ramadhan, & Laksana, 2025). Teachers not only act as users of technology, but also as learning designers, interaction facilitators, thought process directors, information evaluators, and guardians of the security and ethics of technology

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
**"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society"** July 30th, 2026

use. Teachers' perceptions of AI are an important aspect to consider, as they can be related to their acceptance, beliefs, attitudes, and inclinations to integrate technology into their learning practices. Teachers who view AI as a learning support tool are potentially more open to exploring its use, while teachers who have concerns about information accuracy, privacy, dependency on technology, or its impact on their professional roles may demonstrate more cautious consideration. However, positive perceptions do not necessarily reflect actual ability to use AI effectively, just as cautious perceptions do not necessarily indicate resistance to innovation (Waruwu, 2025). Therefore, teacher perceptions need to be understood as an important dimension in assessing AI integration readiness, which needs to be distinguished from digital competencies, technical skills, and actual technology use practices (Adrias & Zulkarnaini, 2025).

Teacher readiness in utilizing AI to support in-depth learning includes several interrelated aspects, including knowledge of the functions and limitations of AI, the ability to operate relevant applications, skills in composing instructions or prompts, the ability to evaluate the accuracy of output, and the ability to integrate technology with learning objectives, materials, methods, and assessments (Zega, Sibuea, & Ritonga, 2025). The Technological Pedagogical Content Knowledge (TPACK) framework developed by Mishra and Koehler (2006) can be used to understand the importance of integrating technological, pedagogical, and content knowledge in teaching practice. Based on this perspective, the ability to use AI is not only measured by the frequency of application use or mastery of technical features, but also needs to be seen from the teacher's considerations in determining when technology is used, how AI output is adapted to student characteristics, and how its use supports conceptual understanding and reflection. Furthermore, teacher readiness is also related to access to devices and internet networks, the availability of training, the support of the school principal, educational unit policies, and opportunities to share experiences with fellow teachers (Yanto, Saâ, & Rizqiyah, 2025). These differences in conditions allow for variations in perception and readiness among elementary school teachers, so an empirical study is needed that can describe their conditions systematically.

While the use of AI in education is growing, its integration into immersive learning at the elementary school level still requires attention to pedagogical aspects and educator preparedness. Discussions about AI in education often focus on the technology's potential to improve efficiency, personalize learning, provide feedback, and develop teaching materials. However, utilizing AI to support learning processes that emphasize meaningful understanding, active engagement, reflection, and application of knowledge requires more specific considerations (Nisa, 2025). In elementary education, these considerations become increasingly important because students still require intensive guidance in understanding information, distinguishing between facts and errors, developing reasoning skills, and developing responsible learning habits. Furthermore, differences in access to technology, experience with AI applications, and opportunities

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
**"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society"** July 30th, 2026

for training can shape teachers' diverse experiences. This situation highlights the need for research that not only addresses the benefits and risks of AI conceptually but also identifies how elementary school teachers perceive the use of AI in relation to the goals and characteristics of deep learning.

The empirical gap that is of concern in this study lies in the need for a descriptive overview of elementary school teachers' perceptions of AI specifically as a supporter of in-depth learning (Assidiqi & Sadiyah, 2025). Research on technology acceptance and teachers' digital competencies provides an important foundation for understanding technology use in education. However, general perceptions of AI do not necessarily reflect teachers' perceptions of AI's suitability for supporting learning oriented toward conceptual understanding, meaningful learning experiences, reflection, and application of knowledge (Khairiyah & Humayah, 2025). Similarly, assessments of technical readiness do not fully explain teachers' beliefs about the benefits of AI, their perceived concerns, their need for mentoring, and the conditions necessary for responsible use of the technology. Therefore, this study focuses on mapping elementary school teachers' perceptions of the use of AI to support immersive learning, taking into account aspects of perceived pedagogical benefits, understanding and readiness for use, challenges and concerns, and competency development needs (Twiningsih, Gunarhadi, & Musadad, 2024). This mapping is expected to provide a more contextual picture of the opportunities and constraints of AI integration in elementary school learning practices.

METHODS

This study used a descriptive survey supplemented by qualitative interviews to obtain insights into elementary school teachers' perceptions of the use of Artificial Intelligence (AI) to support deep learning. The survey was used to obtain quantitative data on teachers' acceptance of AI, while the interviews explored teachers' reasons, experiences, perceptions, and obstacles in utilizing AI in learning. Therefore, the research design is not categorized as purely quantitative descriptive, but rather as a descriptive survey with supplementary qualitative data.

The study participants were 25 elementary school teachers from several public and private schools. The sampling technique used was purposeful sampling, with elementary school teachers as the participant criteria. The study was conducted in Surakarta City in 2026, while the recruitment process was conducted through a survey method. The characteristics of the schools involved included schools that had already used IFP learning media. The number of 25 teachers used was based on the qualifications of certified educators, so the results of the study are interpreted as a descriptive description of the research participants and are not intended to be statistically generalized to all elementary school teachers.

The research instruments consisted of a questionnaire and a semi-structured interview guide. The questionnaire was used to measure teachers' perceptions or

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
"Navigating Global Transformation in an Uncertain World: Interdisciplinary Perspective on Economics, Business, Education, Law, Agriculture, Food Technology, Politics and Society" July 30th, 2026

acceptance of the use of AI, while interviews were used to explore experiences, benefits, reasons for acceptance or rejection, and obstacles to AI use. The questionnaire was developed and consisted of 20 items, using a Likert scale, with a scoring and categorization procedure based on teachers' participation in the use of AI in learning. Interviews were conducted with 25 teachers, each with 10 questions and lasting approximately 30 minutes. Data collection was carried out through questionnaire distribution and interviews. Quantitative data were analyzed using descriptive statistics in the form of frequencies and percentages, while interview data were analyzed qualitatively through the stages of data reduction, data presentation, and drawing conclusions. The study adhered to ethical research principles by ensuring voluntary participation, provision of information regarding the research objectives and procedures, informed consent, and participant confidentiality and anonymity. The data obtained were used only for research purposes and were stored securely with limited access to the researcher.

RESULTS AND DISCUSSION

Results

This study involved 25 elementary school teachers from several public and private schools. Data collection was conducted using questionnaires and interviews regarding teachers' perceptions of the use of Artificial Intelligence (AI) as a learning tool to support deep learning. The results showed that most teachers had a positive view of the use of AI, although some teachers still did not support its implementation in the classroom.

Of the 25 respondents, 18 teachers (72%) stated that they support the use of AI as a learning medium, while 7 teachers (28%) stated that they do not yet support the direct use of AI in classroom learning activities.

Table 1. Teachers' Perceptions of the Use of AI as a Learning Medium

Teacher Perception	Number of Teachers	Percentage
Supporting the use of AI	18	72%
Does not support the use of AI	7	28%
Total	25	100%

Teachers who support the use of AI believe the technology can improve learning effectiveness. Sixteen teachers (88.9%) stated that AI helps develop teaching materials, such as modules, teaching materials, and assessment questions. Furthermore, 15 teachers (83.3%) stated that AI can speed up the search for relevant learning resources, while 14 teachers (77.8%) stated that AI makes learning media more engaging through interactive images, videos, and illustrations.

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
**"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society"** July 30th, 2026

Thirteen teachers (72.2%) also stated that AI helps implement differentiated learning because it can generate materials tailored to students' abilities. Teachers felt that time previously spent on developing learning administration could be redirected to providing more intensive support to students during the learning process.

Interview results showed that teachers who support AI still emphasized that the technology serves only as a tool. All respondents in this group believed that the role of teachers cannot be replaced by AI, as they serve to educate, guide, build character, and provide social and emotional interaction for students.

Meanwhile, seven teachers who did not support the use of AI provided several reasons. Six teachers (85.7%) were concerned that students would become overly dependent on AI, thus diminishing critical thinking and creativity. Five teachers (71.4%) admitted they lacked adequate skills to utilize AI for learning. Furthermore, four teachers (57.1%) stated that limited digital devices and internet access remain major barriers in schools.

Several teachers also expressed concerns about the accuracy of AI-generated information. They stated that materials obtained from AI must still be verified before being used in learning to avoid conceptual errors. Teachers also highlighted the importance of monitoring students' use of AI to prevent plagiarism and dependency on AI for completing assignments.

Quantitative Findings

Among the group of teachers who supported the use of AI, 16 teachers (88.9%) stated that AI helps develop teaching materials, such as modules, learning materials, and assessment questions. Fifteen teachers (83.3%) stated that AI speeds up the search for relevant learning resources, while 14 teachers (77.8%) stated that AI can make learning media more engaging through interactive images, videos, and illustrations. Furthermore, 13 teachers (72.2%) stated that AI helps implement differentiated learning because it can produce materials tailored to students' abilities. These findings illustrate the pattern of positive perceptions reported by respondents, but are not used to conclude that these factors statistically influence teacher acceptance because this study used only descriptive analysis.

In contrast, among the seven teachers who did not yet support the use of AI, several reasons were reported through questionnaires and interviews. Six teachers (85.7%) expressed concern that students would become overly reliant on AI, which could reduce critical thinking and creativity. Five teachers (71.4%) stated that they lacked the skills to utilize AI for learning, while four teachers (57.1%) cited limited digital devices and internet access as barriers. Teachers also reported concerns about the accuracy of AI-generated information, suggesting that it needs to be verified before being used in learning.

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society" July 30th, 2026

Interview Findings

Interview analysis yielded several main themes, namely: (1) the benefits of AI in developing learning, (2) AI as a supporting tool and not a substitute for teachers, (3) competency and infrastructure as constraints on use, and (4) information accuracy and student dependency as concerns about using AI. On the theme of learning benefits, teachers who supported the use of AI reported that the technology helped develop teaching materials, find learning resources, produce more engaging media, and support differentiated learning. On the theme of teacher roles, all teachers in the support group emphasized that AI is seen as a tool, while teachers still have a role in educating, guiding, building character, and providing social and emotional interaction to students. On the theme of constraints, interviews revealed limitations in digital competency and infrastructure as part of teachers' experiences in using AI. Meanwhile, the theme of caution in using AI emerged through concerns about the accuracy of information generated by AI, the need for verification, the potential for plagiarism, and the possibility of student dependency in completing assignments.

Overall, the results showed that the majority of respondents expressed support for the use of AI, while others reported a number of concerns and barriers. Interview findings revealed that teachers' perceptions related to their reported benefits, experience using AI, digital competence, availability of facilities, accuracy of information, and potential student dependency.

Discussion

The results of the study indicate that the majority of elementary school teachers have a positive perception of the use of Artificial Intelligence (AI) as a supporting medium for in-depth learning. Of the 25 teachers who responded, 18 teachers (72%) stated that they support the use of AI, while 7 teachers (28%) do not support the direct use of AI in learning. Teachers who support AI view it as being able to help compile teaching materials, find learning resources, create more engaging learning media, and support differentiated learning. This finding is in line with Atmojo, Saputri, and Fadhil (2025) who explain that AI integration can be used to develop contextual stories, simulations, illustrations, reflective questions, and problem-solving activities to support in-depth learning. Thus, the positive perceptions of teachers in this study indicate that AI is seen as having the potential to help create learning that is more adaptive, interactive, and tailored to students' needs.

However, the study also revealed several obstacles to AI utilization, particularly related to teachers' digital competency, limited devices and internet access, information accuracy, and concerns about students' dependence on technology. Six teachers (85.7%) from the group who did not support AI expressed concerns about students' dependence on AI, five teachers (71.4%) stated they did not have adequate skills, and four teachers (57.1%) cited limited devices and internet access as obstacles. These findings align with

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
**"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society"** July 30th, 2026

Anita and Setiawan's (2025) findings, which identified both opportunities and challenges for AI in elementary school learning. This study also reinforces the view of Zega, Sibuea, and Ritonga (2025) that teacher readiness to utilize technology is not only related to the ability to operate applications but also the ability to evaluate AI output and integrate it with learning objectives. Therefore, the use of AI requires increased digital competency and infrastructure support so that the technology can be used appropriately and responsibly.

Further research findings indicate that teachers continue to position themselves as the primary players in the learning process, while AI is positioned as a tool. Teachers emphasized that AI cannot replace the role of teachers in educating, guiding, building character, and providing social and emotional interaction to students. This aligns with the concept of Technological Pedagogical Content Knowledge (TPACK), which emphasizes the importance of integrating technological, pedagogical, and content knowledge in learning practices. In the context of immersive learning, AI should be used to enhance thinking, reflection, problem-solving, and application of knowledge, rather than simply providing instant answers. Thus, the results of this study reinforce relevant research that positions AI as a learning support technology, while teachers continue to play the role of learning designers, facilitators, information evaluators, and student development companions.

CONCLUSION

Based on the research results, it can be concluded that the majority of elementary school teachers have a positive perception of the use of Artificial Intelligence (AI) to support in-depth learning, especially in assisting in the preparation of teaching materials, searching for learning resources, developing learning media, and implementing differentiated learning. However, the use of AI still faces obstacles such as limited teacher digital competency, devices and internet access, concerns about the accuracy of information, and the potential for student dependence on technology. Therefore, AI needs to be positioned as a learning support tool, while teachers continue to play a primary role in guiding, directing, evaluating, and building student character so that the use of AI can support meaningful, reflective, and student-centered learning.

ACKNOWLEDGMENT

The author would like to express his gratitude to all parties who have provided support in the implementation of the research and the preparation of this article. Special thanks are extended to Slamet Riyadi University Surakarta for providing academic support and facilities during the research process, to the elementary school teachers who were willing to be respondents and provide the necessary information, and to all parties who have provided input, assistance, and support so that this research on teacher

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
**"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society"** July 30th, 2026

perceptions of the use of Artificial Intelligence (AI) to support in-depth learning can be completed successfully.

REFERENCES

- Adawiyah, SR, & Sunanto, L. (2025). Deep Learning-Based Curriculum Development in Elementary Schools. *Sinergi: Scientific Journal*.... Retrieved from <https://publikasi.ahlalkamal.com/index.php/sinergi/article/view/91>
- Adrias, A., & Zulkarnaini, AP (2025). Application of artificial intelligence to support elementary school students' mathematical understanding. ... : *Scientific Journal of Elementary Education*. Retrieved from <https://journal.unpas.ac.id/index.php/pendas/article/view/23878>
- Aji, MRW, & Widyatini, IR (2026). Strengthening Digital Literacy: Teachers and AI, Collaborating Towards Smart Learning. *Eastasouth Journal of Positive* Retrieved from <https://ejcs.eastasouth-institute.com/index.php/ejpcs/article/view/499>
- Akbar, S., Sholihah, I., & Setyawan, A. (2026). The Impact of Artificial Intelligence (AI) on the Role of Elementary School Educators in the Independent Learning Era. *Journal of Social Sciences* Retrieved from <https://jurnal.suriaacademicpress.com/index.php/JISEP/article/view/45>
- Anita, I., & Setiawan, R. (2025). Opportunities and challenges of artificial intelligence in elementary school learning for educators: A literature review. *Social, Humanities, and Educational Studies* jurnal.uns.ac.id. Retrieved from <https://jurnal.uns.ac.id/SHES/article/view/107276>
- Apriadi, RT, & Sihotang, H. (2023). Deep transformation of education through artificial intelligence: Positive impacts for students in the digital era. *Tambusai Journal of Education*. Retrieved from <http://repository.uki.ac.id/id/eprint/13653>
- Assidiqi, AH, & Sadiyah, D. (2025). Implementation of Deep Learning in Elementary Schools as a Strengthening of the Independent Curriculum. ... *Elementary School Teacher Education Science* Retrieved from <https://sihojournal.com/index.php/pedasud/article/view/711>
- Atmojo, IRW, Saputri, R., & Fadhil, PA (2025). Integration of Artificial Intelligence in Realizing Deep Learning in Elementary Schools. *Didaktika Dwija Indria*. Retrieved from <https://jurnal.uns.ac.id/JDDI/article/view/106422>
- Chairunnisak, C., Abdi, E., & ... (2026). ... Artificial Intelligence-Based Learning on Increasing Student Motivation and Learning Achievement in Supporting Generation Z Learning Transformation *Indonesian Journal of* Retrieved from <https://multidisipliner.org/ijim/article/view/1522>
- Darmayasa, D., Lakadjo, MA, Juasa, A., Rianty, E., Efitra, E., & ... (2025). Education in the digital era: Challenges and opportunities. *books.google.com*. Retrieved from <https://books.google.com/books?hl=en&lr=&id=INxfEQAAQBAJ&oi=fnd&pg=PA142&dq=artificial+intelligence++in->

PROCEEDING

The 8th International Conference on Technology, Education, and Social Science
**"Navigating Global Transformation in an Uncertain World: Interdisciplinary
Perspective on Economics, Business, Education, Law, Agriculture, Food
Technology, Politics and Society"** July 30th, 2026

- depth+learning+for+elementary+students+in+digitalization&ots=AO9XIHXu5E&sig=XBUC368HcEPXayE5nkMUH2jO5QU
- Fajriati, A., Wisroni, W., & ... (2024). Utilization of Artificial Intelligence (AI) technology in student-based learning in the digital era. ... and Learning. Retrieved from <https://e-jurnal.unisda.ac.id/index.php/wahana/article/view/7890>
- Faruq, MS Al, Dewi, ZR, & Sabar, S. (2026). Empowering Rural Elementary Schools through Optimizing Coding Curriculum and Artificial Intelligence. *Innovation Journal of Community Service....* Retrieved from <https://publications.id/index.php/ijpm/article/view/1311>
- Handini, O., & Mustofa, M. (2022). Application of TPACK in 21st Century Learning. *International Journal of Community Service Learning*, 6(4), 530–537. <https://doi.org/10.23887/ijcs.v6i4.54620>
- Khairiyah, TK, & Humayah, H. (2025). Implementation of an AI Platform for Personalized Learning Evaluation of Junior High School Students in the Digital Era. *International Journal of Informatics*. Retrieved from <https://jurnal.untirta.ac.id/index.php/ijinf/article/view/34108>
- Nisa, Z. (2025). Optimizing Artificial Intelligence-Based Learning Media to Improve Learning Effectiveness and Outcomes. *NOVARA: Nusantara Innovation and Educational* Retrieved from <https://journalweb.org/ojs/index.php/NOVARA/article/view/720>
- Ramadhan, RI, & Laksana, SD (2025). Artificial intelligence education in schools: A theoretical and practical study. *Complex: Jurnal* Retrieved from <https://ejurnal.faaslibsmidia.com/index.php/complex/article/view/48>
- Twiningsih, A., Gunarhadi, G., & Musadad, AA (2024). Analysis of the Needs for the Development of Gamification Based Mobile Learning Media. *Atlantis Press SARL*. <https://doi.org/10.2991/978-2-38476-301-6>
- Waruwu, DER (2025). Building a deep learning curriculum to prepare the digital generation. *Jurnal Sosialita*. Retrieved from <https://journal.upy.ac.id/index.php/sosialita/article/view/7662>
- Yanto, M., Saâ, M., & Rizqiyah, N. (2025). AI-Based Personalization of Education in Improving the Quality of Student Learning. ...*Journal of Educational Sciences....* Retrieved from <https://ejournal.uinmadura.ac.id/index.php/entita/article/view/19116>
- Zega, BH, Sibuea, MN, & Ritonga, N. (2025). The influence of digital-based learning on the effectiveness of the learning process in elementary schools. *Modem: Journal of Informatics and* Retrieved from <https://journal.aptii.or.id/index.php/Modem/article/view/585>