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Utilization of Artificial Intelligence (AI) Technology in the Field of Education: A Systematic Literature Review.

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Abstract

The rapid advancement of technology in the modern era has led to various new innovations, including artificial intelligence (AI), which can be utilized in multiple aspects of human life. The use of AI can significantly enhance productivity by transforming the way education is delivered, evaluated, and how curricula are developed. AI supports learning and prepares the younger generation for a world increasingly dominated by technology. However, there must be a balance in utilizing technology so that AI reduces human workload without replacing the role of teachers. A good understanding of the use of AI in education is necessary to maximize its benefits. This research uses the Systematic Literature Review (SLR) method to understand the utilization of AI in education, concluding that AI can perform tasks that typically require human intelligence in the field of education.

Keywords: Artificial Intelligence; Education; Systematic Literature Review

1. Introduction

The rapid advancement of technology in the modern era has led to various new innovations that can be used in many aspects of human life. One of the current technological developments gaining traction in society is artificial intelligence (AI). The term "artificial intelligence" (AI) comes from the eras of Industrial Society 4.0 and Society 5.0, which refer to "computer programs, machine learning, hardware, and software." Artificial intelligence is the science of using software and hardware solutions to build intelligence based on the reverse engineering of neuron patterns in the human brain.[1].

Artificial Intelligence (AI) has rapidly developed and transformed many industries worldwide. The use of AI can significantly increase productivity[2] In education, AI can play a role in enhancing the teaching and learning process and providing individualized learning experiences. The education sector is a crucial element in building a nation. With the adoption of artificial intelligence, education can undergo significant transformation in how materials are taught, evaluations are conducted, and curricula are developed.[3]

AI is here to support and facilitate learning as an option to prepare the younger generation for a world increasingly dominated by technology. However, a balance and adjustment are needed for effective use of technology. The AI used must adhere to its original purpose, which is to reduce human workload, not to replace the role of teachers in the existing and well-functioning education system[4]. Therefore, it is important to have a thorough understanding of the use of AI in education to maximize the benefits of its application. Based on this, this research aims to understand the utilization of AI in the field of education using the Systematic Literature Review (SLR) method.

Systematic Literature Review (SLR) is a research methodology used to systematically compile and analyze existing literature to answer research questions. The goal of SLR is to conduct a comprehensive and systematic evaluation of the literature related to a specific topic. To gain a complete understanding, this method involves the collection and analysis of all relevant data.[5]

2. Research Method

In this research, the method used is the Systematic Literature Review (SLR) method. The following are the stages of the SLR method: [6]:

1. Research Question

   In the Research Question (RQ) stage, research questions relevant to the topic being studied are formulated. The Research Questions for this study are:

   RQ1: What is the potential for the application of Artificial Intelligence (AI) in the development of the education sector from 2019 to 2024?

RQ2: How will Artificial Intelligence (AI) help solve the problems occurring in the education sector?

RQ3: What are the positive impacts of the application of Artificial Intelligence (AI) in the education sector?

2. Search Question

The journal search in this research was conducted using Google Scholar, Sinta, and DOAJ with a publication year range of 2019-2024. The aim of this search is to identify relevant sources that can answer the established Research Questions.

3. Inclusion and Exclusion Criteria

The Inclusion and Exclusion Criteria stage is carried out to filter suitable and unsuitable data for use in this research.

4. Quality Assessment

The Quality Assessment stage is conducted to evaluate the data based on predetermined assessment criteria. The Quality Assessment for this research includes the following questions:

QA1. Is the journal related to AI in the field of education published between 2019-2024?

QA2. Does the journal discuss the implementation of AI in the field of education?

QA3. Does the journal address the impact of AI implementation in the field of education?

5. Data Collection

In this research, a data collection process was conducted, which includes the gathering of both primary and secondary data.

3. Results and Discussions

3.1 Search Process Results

The journals are classified based on their types. This classification is done to facilitate the search for journals found during the search process. The categorization of journals is illustrated in Table 1 below:

Table 1. Classification of Journals by Type

No.	Journal	Quantity
1.	JPSP: Jurnal Penelitian Sains dan Pendidikan. 2023, Vol. 3, No. 1 dan 2022, Vol. 2, No. 2.	2
2.	Jurnal Pendidikan Tambusai. 2023, Vol. 7, No. 3 dan 2024, Vol. 8, No. 1.	2
3.	Journal on Education. 2024, Vol. 6, No. 4.	1
4.	Jurnal Informatika: Jurnal pengembangan IT (JPIT). 2019, Vol. 4, No. 22.	1
5.	JURNAL AMPLIFIER: JURNAL ILMIAH BIDANG TEKNIK ELEKTRO DAN KOMPUTER. 2023, Vol. 13, No. 2.	1
6.	Journal of Systems Information and Management (JISMA). 2023, Vol. 2, No. 6.	1
7.	Innovative: Journal of Social Science Research. 2023, Vol. 3, No. 6.	1
8.	Antroposen: Journal of Social Studies and Humaniora. 2024, Vol. 3, No. 1.	1
9.	Educatio: Jurnal Ilmu Kependidikan. 2024, Vol. 19, No. 1.	1
10.	Indonesian Journal of Multidisciplinary on Social and Technology. 2022, Vol. 2, No. 2.	1
11.	JOURNAL OF EDUCATION SOCIETY & MULTICULTURALISM. 2024, Vol. 5, No. 1.	1
12.	LONDON REVIEW OF EDUCATION. 2020, Vol. 18, No. 2.	1

3.2 Results of Inclusion and Exclusion Criteria Selection

After the search process, selection will be conducted based on the Inclusion and Exclusion Criteria. At this stage, 12 journals were identified and will be further processed through data scanning.

3.3 Quality Assessment Results

Table 2 illustrates the results of the quality assessment to determine which data can be used in this research.

Table 2. Quality Assessment Results

No.	Writer	Article Title	QA1	QA2	QA3	Result
1.	Sofi Liza Zahara, Zahira Ula Azkia, Muhammad Minan Chusni	Implementasi Teknologi *Artificial Intelligence* (AI) dalam Bidang Pendidikan[1]	Y	Y	Y	✓
2.	Eka Suryokta W. Taruklimbong, Hotmaulina Sihotang	Peluang dan Tantangan Penggunaan AI (*Artificial Intelligence*) dalam Pembelajaran Kimia[7]	Y	Y	Y	✓
3.	Khansa Luthfiyyah, Luluk Zhafira, Siti Nurani, Sendi Fauzi Giwangsa	Analisis Peran *Artificial Intelligence* (AI): ChatGPT dalam Perkuliahan di Kalangan Mahasiswa PGSD Universitas Pendidikan Indonesia[8]	Y	Y	Y	✓
4.	Fatmawati, Mike Nurmalia Sari, Yanti Setianti, Khairul Saleh, Dedek Helida Pitra	Peran *Artificial intelligence* (AI) dalam Personalisasi Proses Pembelajaran Mahasiswa di Pendidikan Tinggi[9]	Y	Y	Y	✓

No.	Writer	Article Title				
5.	Dedi Prasetio, Wawan Hermawan Syah, Budi	Penerapan *Artificial Intelligence* (AI) Pada Sistem Informasi Optimasi Jadwal Kuliah Menggunakan Algoritma Genetika[10]	Y	Y	Y	✓
6.	Yuniana Cahyaningrum	Penerapan *Artificial Intelligence* Menggunakan Fuzzy Logic dalam Dunia Pendidikan[11]	Y	Y	Y	✓
7.	Grace Yulianti, Benardi, Ngadi Permana, Fitri Ayu Kusuma Wijayanti	Transformasi Pendidikan Indonesia: Menerapkan Potensi Kecerdasan Buatan (AI)[2]	Y	Y	Y	✓
8.	Khairul Marlin, Ellen Tantrisna, Budi Mardikawati, Retno Anggraini, Erni Susilawati	Manfaat dan Tantangan Penggunaan *Artificial Intelligences* (AI) ChatGPT Terhadap Proses Pendidikan Etika dan Kompetensi Mahasiswa Di Perguruan Tinggi[12]	Y	Y	Y	✓
9.	Ahmad Abdul Rochim	Kecerdasan Buatan: Resiko, Tantangan Dan Penggunaan Bijak Pada Dunia Pendidikan[13]	Y	Y	Y	✓
10.	Putri Sofiatul Maola, Indira Syifa Karai Handak, Yusuf Tri Herlambang	PENERAPAN *ARTIFICIAL INTELLIGENCE* DALAM PENDIDIKAN DI ERA REVOLUSI INDUSTRI 4.0[4]	Y	Y	Y	✓
11.	Salsabila Rheinata Rhamadani Putri Supriadi, Sulistiyani, Muhammad Minan Chusni	Inovasi pembelajaran berbasis teknologi *Artificial Intelligence* dalam Pendidikan di era *industry* 4.0 dan *society* 5.0[14]	Y	Y	Y	✓
12.	Sehan Rifky	Dampak Penggunaan *Artificial Intelligence* Bagi	Y	Y	Y	✓
13.	Mashilo Modiba, Shekgola Mahlatse	Pendidikan Tinggi[3] *Utilising Artificial Intelligence Chatbots for Student Support at Comprehensive Open Distance E-learning Higher Learning Institutions in the Fifth Industrial Revolution*[15]	Y	Y	Y	✓
14.	Sandra Leaton Gray	*Artificial intelligence in schools: Towards a democratic future*[16]	Y	Y	Y	✓

Description

✓: The article is selected because it has relevance to the addressed issue, the approach used, and sufficient information that meets the data selection criteria.

X: The article is not selected because it does not have enough information to support data selection.

3.4 Discussion Results

In the discussion of results, the outcomes of the Research Questions will be discussed and explained, starting with RQ1, RQ2, and RQ3.

RQ1: What is the potential for the application of Artificial Intelligence (AI) in the field of education from 2019-2024?

For RQ1, the results show the potential for AI application in the field of education. The results are presented in Table 3 below:

Table 3. Potential Applications of Artificial Intelligence (AI) in Education

No	Article Title	Writer	Findings
1	Implementasi Teknologi *Artificial Intelligence* (AI) dalam Bidang Pendidikan	Sofi Liza Zahara, Zahira Ula Azkia, Muhammad Minan Chusni	In education, AI is used for individual learning personalization by creating learning profiles tailored to each student's abilities, learning styles, and experiences.
2	Peluang dan Tantangan Penggunaan AI (*Artificial Intelligence*)dalam	Eka Suryokta W. Taruklimbong, Hotmaulina Sihotang	The application of AI in chemistry education includes data processing and predicting molecular properties with high accuracy, as well as

No	Judul	Penulis	Keterangan
	Pembelajaran Kimia		efficiency in molecule design. AI also supports independent learning, helps teachers collect and analyze student data, and provides automatic feedback.
3	Analisis Peran *Artificial Intelligence* (AI): ChatGPT dalam Perkuliahan di Kalangan Mahasiswa PGSD Universitas Pendidikan Indonesia	Khansa Luthfiyyah, Luluk Zhafira, Siti Nurani, Sendi Fauzi Giwangsa	One of the potential applications of Artificial Intelligence (AI) in the field of education is through AI technologies like ChatGPT (Generative Pre-Trained Transformer). ChatGPT, an AI-based chatbot, has the capability to transform the way students learn.
4	Peran *Artificial intelligence* (AI) dalam Personalisasi Proses Pembelajaran Mahasiswa di Pendidikan Tinggi	Fatmawati, Mike Nurmalia Sari, Yanti Setianti, Khairul Saleh, Dedek Helida Pitra	AI can analyze student data comprehensively and provide personalized learning recommendations. Technologies like adaptive learning and AI-based virtual tutors also enhance interactivity and focus in teaching.
5	Penerapan *Artificial Intelligence* (AI) Pada Sistem Informasi Optimasi Jadwal Kuliah Menggunakan Algoritma Genetika	Dedi Prasetio, Wawan Hermawan Syah, Budi	AI can facilitate automatic scheduling of classes. Through genetic algorithms, AI can create morning, evening, and extension class schedules more efficiently, accurately, and optimally.
6	Penerapan *Artificial Intelligence* Menggunakan Fuzzy Logic dalam Dunia Pendidikan	Yuniana Cahyaningrum	The application of Artificial Intelligence using fuzzy logic in education has brought significant innovation with benefits that include improved accuracy of assessments, efficiency in the learning process, and more effective management.
7	Transformasi Pendidikan Indonesia: Menerapkan Potensi Kecerdasan Buatan (AI)	Grace Yulianti, Benardi, Ngadi Permana, Fitri Ayu Kusuma Wijayanti	AI technology can customize educational content according to students' needs using machine learning algorithms. AI can also evaluate student performance, including written work, projects, and verbal responses, using natural language processing techniques.
8	Manfaat dan Tantangan Penggunaan *Artificial Intelligences* (AI) Chat GPT Terhadap Proses Pendidikan Etika dan Kompetensi Mahasiswa Di Perguruan Tinggi	Khairul Marlin, Ellen Tantrisna, Budi Mardikawati, Retno Anggraini, Erni Susilawati	The utilization of Artificial Intelligence (AI) in education offers the ability to provide personalized and customized learning experiences, as well as improve accessibility to learning materials.
9	Kecerdasan Buatan: Resiko, Tantangan Dan Penggunaan Bijak Pada Dunia Pendidikan	Ahmad Abdul Rochim	Creating more personalized and adaptive learning experiences for students. AI also enables tailored teaching according to individual needs, accelerates the learning process, and enhances its effectiveness.
10	PENERAPAN *ARTIFICIAL INTELLIGENCE* DALAM PENDIDIKAN DI ERA REVOLUSI INDUSTRI 4.0	Putri Sofiatul Maola, Indira Syifa Karai Handak, Yusuf Tri Herlambang	AI can assist teachers in analyzing student assessments, monitoring attendance, and improving the teaching process to be more effective and efficient. Teachers can also use AI to recognize students' learning characteristics and styles, enabling personalized learning experiences.
11	Inovasi pembelajaran berbasis teknologi *Artificial Intelligence* dalam Pendidikan di era *industry* 4.0 dan *society* 5.0	Salsabila Rheinata Rhamadani Putri Supriadi, Sulistiyani, Muhammad Minan Chusni	Enabling the creation of more interactive, personal, and adaptive learning experiences supports the effective development of students' knowledge and skills.
12	Dampak Penggunaan *Artificial Intelligence* Bagi Pendidikan Tinggi	Sehan Rifky	With AI, personalized learning can be achieved where the system designs learning experiences tailored to individual student needs, thereby enhancing learning effectiveness. Another area where AI can significantly contribute to education in Indonesia is in creating virtual classroom spaces.

No	Article Title	Writer	Findings
13	*Utilising Artificial Intelligence Chatbots for Student Support at Comprehensive Open Distance E-learning Higher Learning Institutions in the Fifth Industrial Revolution*	Mashilo Modiba, Shekgola Mahlatse	Providing a more engaging and interactive learning experience through the use of chatbots, simulations, and game-based learning can enhance learning effectiveness by delivering content tailored to each student's individual needs.
14	*Artificial intelligence in schools: Towards a democratic future*	Sandra Leaton Gray	Designing learning experiences that meet the individual needs of each student enhances learning effectiveness and allows students to learn more efficiently.

RQ2. How Will Artificial Intelligence (AI) Help Solve Existing Problems in the Field of Education? RQ2 shows results in the form of AI applications in business as solutions to problems faced by educational institutions. The results are shown in Table 4 below:

Table 4. AI as a Solution to Problems in Education

No	Article Title	Writer	Findings
1	Implementasi Teknologi *Artificial Intelligence* (AI) dalam Bidang Pendidikan	Sofi Liza Zahara, Zahira Ula Azkia, Muhammad Minan Chusni	The implementation of AI technology in education provides ease for educators in administrative tasks such as weighted grading and creating more active learning environments. It also helps simplify tasks for teachers and students in the teaching and learning process.
2	Peluang dan Tantangan Penggunaan AI (*Artificial Intelligence*)dalam Pembelajaran Kimia	Eka Suryokta W. Taruklimbong, Hotmaulina Sihotang	With AI, teachers can recognize learning preferences and deliver content tailored to each learner's needs. AI also enables quick performance analysis and automatic feedback, assisting in addressing basic queries so that teachers can focus on more complex teaching tasks.
3	Analisis Peran *Artificial Intelligence* (AI): ChatGPT dalam Perkuliahan di Kalangan Mahasiswa PGSD Universitas Pendidikan Indonesia	Khansa Luthfiyyah, Luluk Zhafira, Siti Nurani, Sendi Fauzi Giwangsa	Artificial Intelligence (AI) can help solve complex problems in education with efficiency and effectiveness in utilizing time and data. One AI technology widely applied in education is ChatGPT, which has the potential to transform student learning methods.
4	Peran *Artificial intelligence* (AI) dalam Personalisasi Proses Pembelajaran Mahasiswa di Pendidikan Tinggi	Fatmawati, Mike Nurmalia Sari, Yanti Setianti, Khairul Saleh, Dedek Helida Pitra	AI enhances education by providing personalized, adaptive, and focused learning experiences. It adjusts content and teaching methods according to individual needs, thereby enhancing learning effectiveness.
5	Penerapan *Artificial Intelligence* (AI) Pada Sistem Informasi Optimasi Jadwal Kuliah Menggunakan Algoritma Genetika	Dedi Prasetio, Wawan Hermawan Syah, Budi	AI can assist in managing the often-changing scheduling challenges at the beginning of a semester, which can disrupt students and faculty. By utilizing AI and genetic algorithms within the information systems for optimizing class schedules, the scheduling process can be improved to be more efficient, accurate, and optimal.
6	Penerapan *Artificial Intelligence* Menggunakan Fuzzy Logic dalam Dunia Pendidikan	Yuniana Cahyaningrum	AI with fuzzy logic in education provides objective assessments, curriculum adjustments based on interpersonal skills, personalized learning recommendations tailored to students' needs, and detection of behaviors requiring special attention.

No	Article Title	Writer	Findings
7	Transformasi Pendidikan Indonesia: Menerapkan Potensi Kecerdasan Buatan (AI)	Grace Yulianti, Benardi, Ngadi Permana, Fitri Ayu Kusuma Wijayanti	AI technology can create virtual classrooms that facilitate direct interaction between students and teachers, even when they are in distant locations. Traditional curricula often struggle to adapt to the dynamics of the job market and global developments, but with AI data analysis, educators and policymakers can gain insights into future workforce needs.
8	Manfaat dan Tantangan Penggunaan *Artificial Intelligences* (AI) Chat GPT Terhadap Proses Pendidikan Etika dan Kompetensi Mahasiswa Di Perguruan Tinggi	Khairul Marlin, Ellen Tantrisna, Budi Mardikawati, Retno Anggraini, Erni Susilawati	The use of AI in universities can also help solve social or environmental issues through research and the development of technologies that have a positive impact on society.
9	Kecerdasan Buatan: Resiko, Tantangan Dan Penggunaan Bijak Pada Dunia Pendidikan	Ahmad Abdul Rochim	AI can help overcome human limitations as educators by providing virtual tutors, voice assistants, personalized learning experiences, virtual mentors, intelligent content, automatic assessment tools, and educational games. This helps address limitations in traditional learning processes.
10	PENERAPAN *ARTIFICIAL INTELLIGENCE* DALAM PENDIDIKAN DI ERA REVOLUSI INDUSTRI 4.0	Putri Sofiatul Maola, Indira Syifa Karai Handak, Yusuf Tri Herlambang	AI helps students learn according to their abilities and learning styles. AI can provide feedback, assess exercises, and offer comments and recommendations on materials similar to what a teacher does.
11	Inovasi pembelajaran berbasis teknologi *Artificial Intelligence* dalam Pendidikan di era industry 4.0 dan society 5.0	Salsabila Rheinata Rhamadani Putri Supriadi, Sulistiyani, Muhammad Minan Chusni	AI provides features like Virtual Mentors that can offer automatic feedback and assessments, facilitating more efficient learning and assisting teachers in analyzing student needs, reducing administrative workload, and enhancing the quality of education.
12	Dampak Penggunaan *Artificial Intelligence* Bagi Pendidikan Tinggi	Sehan Rifky	The presence of AI can help overcome limitations in education by providing features such as virtual mentors and voice assistants, which can offer personalized learning support tailored to students' needs.
13	*Utilising Artificial Intelligence Chatbots for Student Support at Comprehensive Open Distance E-learning Higher Learning Institutions in the Fifth Industrial Revolution*	Mashilo Modiba, Shekgola Mahlatse	Personalized learning, where the system can design learning experiences according to each student's needs, enhances learning effectiveness.
14	*Artificial intelligence in schools: Towards a democratic future*	Sandra Leaton Gray	The use of AI can help manage student data, schedule lessons, and provide recommendations for improving student performance.

RQ3. What Are the Positive Impacts of Implementing Artificial Intelligence (AI) in the Field of Education? RQ3 shows results in the form of positive impacts of implementing AI in education. The results are shown in Table 5 below:

Table 5. Positive Impacts of Implementing Artificial Intelligence in Education

No	Article Title	Writer	Findings

No	Title	Authors	Description
1	Implementasi Teknologi *Artificial Intelligence* (AI) dalam Bidang Pendidikan	Sofi Liza Zahara, Zahira Ula Azkia, Muhammad Minan Chusni	The implementation of artificial intelligence in education brings positive impacts such as easing tasks for teachers and students, providing unlimited data storage, avoiding repetitive educator tasks, enabling usage without time constraints, and enhancing efficiency and job quality.
2	Peluang dan Tantangan Penggunaan AI (*Artificial Intelligence*) dalam Pembelajaran Kimia	Eka Suryokta W. Taruklimbong, Hotmaulina Sihotang	AI helps teachers recognize students' learning styles, provide suitable materials, and offer automatic responses in busy classrooms. AI also supports virtual lab demonstrations and task efficiency, enhancing understanding through interactive learning tools and accurate predictions.
3	Analisis Peran *Artificial Intelligence* (AI): ChatGPT dalam Perkuliahan di Kalangan Mahasiswa PGSD Universitas Pendidikan Indonesia	Khansa Luthfiyyah, Luluk Zhafira, Siti Nurani, Sendi Fauzi Giwangsa	AI technology widely used in education is ChatGPT. ChatGPT has positive impacts, such as introducing new innovations that can be further developed, assisting students in completing complex tasks, and providing information in easily understandable language.
4	Peran *Artificial intelligence* (AI) dalam Personalisasi Proses Pembelajaran Mahasiswa di Pendidikan Tinggi	Fatmawati, Mike Nurmalia Sari, Yanti Setianti, Khairul Saleh, Dedek Helida Pitra	Adaptive learning systems using AI adjust content and difficulty levels of materials in real-time based on each student's abilities and needs. This enhances learning efficiency and helps students reach their maximum potential.
5	Penerapan *Artificial Intelligence* (AI) Pada Sistem Informasi Optimasi Jadwal Kuliah Menggunakan Algoritma Genetika	Dedi Prasetio, Wawan Hermawan Syah, Budi	The use of AI with Genetic Algorithms in college scheduling systems can expedite the scheduling process compared to conventional methods. This system can also automatically or manually evaluate schedules to handle scheduling conflicts.
6	Penerapan *Artificial Intelligence* Menggunakan Fuzzy Logic dalam Dunia Pendidikan	Yuniana Cahyaningrum	The implementation of AI with fuzzy logic in education enhances the accuracy of assessments and efficiency in the learning process. AI provides personalized learning recommendations tailored to students' needs and helps detect behaviors that require special attention.
7	Transformasi Pendidikan Indonesia: Menerapkan Potensi Kecerdasan Buatan (AI)	Grace Yulianti, Benardi, Ngadi Permana, Fitri Ayu Kusuma Wijayanti	AI enables personalized learning tailored to students' needs, including consistent assessment systems and the use of virtual classrooms and virtual laboratories. Additionally, AI helps address learning differences by providing broader access and inclusive learning environments. AI also prepares students for future challenges by enhancing critical thinking skills and adaptability.

8	Manfaat dan Tantangan Penggunaan *Artificial Intelligences* (AI) Chat GPT Terhadap Proses Pendidikan Etika dan Kompetensi Mahasiswa Di Perguruan Tinggi	Khairul Marlin, Ellen Tantrisna, Budi Mardikawati, Retno Anggraini, Erni Susilawati	AI can provide instant feedback to students, enhancing the efficiency of the learning process and assisting in the more effective development of students' competencies.	
9	Kecerdasan Buatan: Resiko, Tantangan Dan Penggunaan Bijak Pada Dunia Pendidikan	Ahmad Abdul Rochim	The use of AI in education can provide significant benefits such as saving time, costs, and other resources. AI can also help in automatically assessing student work, providing fast feedback, and increasing student engagement in the learning process.	
10	PENERAPAN *ARTIFICIAL INTELLIGENCE* DALAM PENDIDIKAN DI ERA REVOLUSI INDUSTRI 4.0	Putri Sofiatul Maola, Indira Syifa Karai Handak, Yusuf Tri Herlambang	Increasing the efficiency and effectiveness of learning. AI simplifies administrative tasks for teachers, assists in student assessments, and provides instant feedback, making the teaching and learning process more effective and engaging.	
11	Inovasi pembelajaran berbasis teknologi *Artificial Intelligence* dalam Pendidikan di era industry 4.0 dan society 5.0	Salsabila Rheinata Rhamadani Putri Supriadi, Sulistiyani, Muhammad Minan Chusni	Improving the efficiency and effectiveness of the learning process. AI assists in personalized learning, provides instant feedback, and facilitates wide access to information, ultimately enhancing the quality of education and student autonomy.	

12	Dampak Penggunaan *Artificial Intelligence* Bagi Pendidikan Tinggi	Sehan Rifky	The use of AI can enhance administrative efficiency and service quality for students, as well as enable personalized learning and more accurate automatic evaluations.
13	*Utilising Artificial Intelligence Chatbots for Student Support at Comprehensive Open Distance E-learning Higher Learning Institutions in the Fifth Industrial Revolution*	Mashilo Modiba, Shekgola Mahlatse	The use of AI can detect and prevent plagiarism, as well as enhance academic integrity.
14	*Artificial intelligence in schools: Towards a democratic future*	Sandra Leaton Gray	AI can enhance personalized learning, automatic evaluation, and management efficiency.

4. Conclusion

Based on research conducted using the Systematic Literature Review (SLR) method on articles with the same topic of Artificial Intelligence (AI) in education, the following conclusions were drawn, AI, a technology that enables machines to perform tasks that typically require human intelligence, particularly in the context of education, has several applications:

1. Personalization of learning tailored to each student's interests to enhance the efficiency and effectiveness of the learning process.
2. Assisting educational institutions in scheduling and evaluating schedules to avoid conflicts.
3. Using AI to facilitate easy information retrieval and aid in the brainstorming process.

These applications illustrate how AI can significantly enhance educational practices by providing personalized learning experiences, optimizing scheduling processes, and improving information access and brainstorming capabilities.

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