

## **Artificial Intellegence (AI) as a Challenge and Solution in Facing Education in the Digital Era**

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### **Abstract**

Artificial Intelligence (AI) has become a hot topic in the world of education in recent years. AI's potential to revolutionize various fields, including academics and research, has encouraged many educational institutions to develop policies and strategies related to AI. The digital era is an era where an era experiences rapid progress that leads to digital. This era is characterized by fast and easy access to information. Artificial intelligence (AI) is a computer program designed and built to imitate human intelligence, including decision-making abilities, logic and other characteristics of intelligence. This research discusses the challenges and solutions in facing education in the digital era, namely solutions that can be provided by introducing artificial intelligence (AI) in the development of science and technology in educational institutions.

**Keywords:** *Artificial Intelegence, Education, Digital Era*

### **Abstrak**

Kecerdasan Buatan (AI) telah menjadi topik hangat di dunia pendidikan dalam beberapa tahun terakhir. Potensi AI untuk merevolusi berbagai bidang, termasuk akademisi dan penelitian, telah mendorong banyak lembaga pendidikan untuk mengembangkan kebijakan dan strategi terkait AI. Era digital merupakan era di mana suatu era mengalami kemajuan pesat yang mengarah ke digital. Era ini ditandai dengan akses informasi yang cepat dan mudah. Kecerdasan buatan (AI) adalah program komputer yang dirancang dan dibangun untuk meniru kecerdasan manusia, termasuk kemampuan pengambilan keputusan, logika, dan karakteristik kecerdasan lainnya. Penelitian ini membahas tentang tantangan dan solusi dalam menghadapi pendidikan di era digital, yaitu solusi yang dapat diberikan dengan memperkenalkan kecerdasan buatan (AI) dalam pengembangan ilmu pengetahuan dan teknologi di lembaga pendidikan.

**Kata Kunci:** *Artificial Intelegence, Pendidikan, Era Digital*

### **Introduction**

In the Law on the Education System no. 20 of 2003, states that education is "a conscious and planned effort to create an atmosphere of learning and learning so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals and the skills needed by themselves and society".

The digital era is an era where an era experiences rapid progress that leads to digital. This era is characterized by fast and easy access to information. Technology that is developing more rapidly brings many significant changes.

The transformation of education in the digital era has become an inevitable phenomenon along with the rapid development of information and communication technology. This change creates a new paradigm in the learning process, affecting all aspects of the world of education (Soeratin & Fanani, 2023). The digital era brings significant challenges as well as solutions to the world of education. These challenges include issues of unequal access, shifting learning paradigms, and data security (Arrazaq, 2023).

The Society 5.0 concept was adopted by the Japanese Government in anticipation of global trends as a result of the emergence of the Industrial Revolution 4.0. Society 5.0 is a natural thing that will definitely happen as a result of the emergence of the Industrial Revolution 4.0. Society 5.0 is an answer to the challenges that emerged as a result of the Industrial Revolution 4.0 era which was accompanied by disruption characterized by a world full of turmoil, uncertainty, complexity and ambiguity.

Society 5.0 era, a time where society is human-centered which balances economic progress with solving social problems by a system that integrates world space and physical space. Society 5.0 will balance economic development and solving social problems (Hosna, 2020: 182).

Artificial Intelligence (AI) has become a hot topic in the world of education in recent years. AI's potential to revolutionize various fields, including academics and research, has encouraged many educational institutions to develop policies and strategies related to AI. In the academic sphere, especially education, educational innovation in the context of artificial intelligence is a rapidly developing field with significant implications for teaching and learning in educational institutions.

Currently, in facing the era of globalization and the rapid changes brought by internet technology and artificial intelligence, which impact social life, the environment, and other complexities. Therefore, it is imperative to prepare this generation to become productive contributors in their time, rather than parasitic burdens on their country. Educational reform is carried out by restructuring the curriculum. This includes revising the content of what is taught in learning, as well as how teachers determine the appropriate models for teaching (Hosna 2015).

Technological developments are currently developing very rapidly, one of which is AI which can be used in education. The ability of a computer or computer system to imitate and complete tasks that usually require human intelligence is called artificial intelligence (AI) (Suhanda, 2015). AI is also used as a solution that can improve learning processing and teaching.

## **Research Methode**

This research uses a qualitative approach, a type of library research method. This method is an activity that examines various reference works and the results of previous similar research, which is useful for obtaining a theoretical basis for the problem being

researched by reading various books or sources. The goal is to find a more in-depth discussion of a topic or issue. This topic is adapted to the topic presented in the article.

Literature study is a data collection technique that examines books, literature, notes and various reports related to the problem to be solved. The author will later use this information to complete or combine his writing. Library studies or librarianship can be defined as activities related to library data collection methods, reading and storing research materials and their processing (Mestika Zed, 2003).

## **Research Result**

The integrity of artificial intelligence (AI) creates a transformation phase in education, the application of AI makes it easier for the education system to become more dynamic and responsive. AI's ability to analyze data and trends enables continuous improvement of educational content, ensuring its relevance and responsiveness to the challenges of the digital age.

The field of artificial intelligence (AI), tries to understand intelligent entities. So, one of the reasons to study it is to learn more about ourselves. However, unlike philosophy and psychology which also emphasize intelligence, AI seeks to build intelligent entities while understanding them (Hindarto and Sumarno, 2022). So, AI is a tool to help someone understand something in a fast process. However, we still have to pay attention to the news we receive so that the data we receive truly matches the existing facts.

In facing competition in the era of society 5.0, there are several things that can be done. First, always improve your abilities and skills. By improving abilities and skills, a person will be better prepared to face competition in this era. Second, don't be afraid to learn new things. So someone must always learn new things to be able to compete. Even though competition in the era of society 5.0 looks very tight. By preparing yourself well, someone will definitely be able to compete well in that era. Believe in your own abilities and don't forget to always learn and develop.

Artificial intelligence is taking an important role in computer science research, management and operational areas. Intelligence is a term known as proficiency about a subject and your command and knowledge to solve complex problems (Hindarto and Sumarno, 2022). So, in studying AI it is necessary to have knowledge related to computers so that in its implementation someone can easily manage existing information. Society 5.0 has its own risks associated with the development and use of new technologies. Careful planning is required to reduce this risk. In addition, new risk management systems and processes must be implemented. This implies that new technologies have the potential to change lives in positive ways. However, the world must not ignore the dangers and negative impacts of these new technological advances.

Talking about educational transformation in the digital era, it cannot be separated from every existing challenge. This is because the digital era itself is interpreted as a flow of change that occurs in line with the increasingly rapid development of existing technology. Education plays a central role in educating human resources. Therefore, the following are challenges that need attention in order to realize education in the digital era. Following:

### ***The implementation Artificial Intelligence (AI) in the Learning Process***

The advancement of technology, Artificial Intelligence (AI) is increasingly being introduced in various aspects of education. For teachers, the application of AI is not just about using advanced technology, but also about how it can align the learning process with the individual needs of students and help support their development.

The implementation of AI by teachers in learning involves several important and interconnected steps. From the preparation of materials tailored to students' abilities to ongoing evaluation and improvements based on data analysis generated by AI systems, each step allows teachers to leverage technology to create a more efficient, inclusive, and data-driven learning environment (Nainggolan & Hosna, 2024). Below are examples of AI implementation in the learning process that can help teachers optimize their teaching and provide more effective learning experiences for students (Mahbubah & Hosna, 2024).

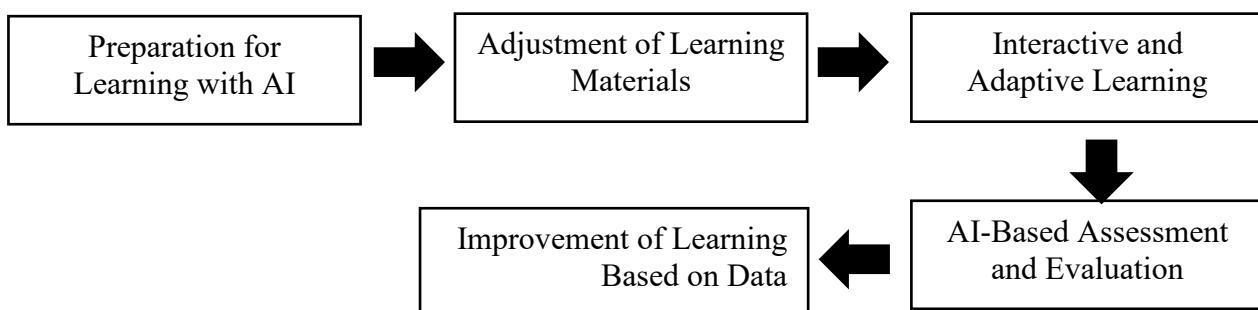


Chart:1.2 Implementation AI in the Learning Process

### ***Challenges of AI in learning***

The digital era brings a number of challenges. The digital era brings a number of challenges that the education system needs to face. One of the main challenges is unequal access to technology. Even though technology is becoming more prevalent, there are still disparities between students who can access digital devices and the internet easily and those who face accessibility challenges.

Another challenge is changing the learning paradigm. Implementing technology requires significant changes in the way teachers present material and students understand it. Educators need to overcome their own technology learning curve and devise strategies to effectively integrate technology into the curriculum (Haw, 2023).

Data security and privacy are critical issues in digital education. With the large amount of student data collected by online learning platforms, extra efforts need to be made to ensure that students' personal information is well protected. Data protection is an urgent need to face cyber threats and potential misuse of information.

Challenges arise in assessing the quality of digital education. The lack of consistent evaluation standards can result in uncertainty in evaluating the effectiveness of online learning platforms. A comprehensive assessment framework is needed to ensure that digital education provides added value comparable to conventional approaches.

Inequality in understanding technology between teachers is also an obstacle. Some educators may lack confidence in integrating technology into their teaching methods, so adequate training and support is needed to improve educators' technological competence (Astriani & Marzuki, 2021).

Another challenge is the tension between the use of technology and the preservation of traditional values in education. Increased use of technology may raise questions about how to maintain critical values such as human interaction, ethics and leadership in digital learning. It is important to maintain a balance between technological innovation and preserving the fundamental core values of Education.

### ***AI as a Solution in Learning***

In this future, the use of artificial intelligence will enable personalized and adaptive learning approaches. Students will get learning experiences tailored to their needs and interests, AI will analyze student learning data in depth to identify their level of understanding, strengths and weaknesses, thereby providing appropriate learning recommendations. This will maximize each individual's learning potential, reduce gaps in achievement, and increase student engagement in the learning process.

The digital divide is a complex and multidimensional issue, requiring consideration of a wide range of technologies, variables and regions. The current digital divide is more than just a gap in material access or ownership, but rather a gap in skills, skills and outcomes from internet use. In fact, more people access the mobile internet for entertainment than information gathering. This causes digital competitiveness to also be low. On the other hand, the development of ICT infrastructure, although still lagging behind that of surrounding countries, has begun to spread evenly and can be said to be efficient because the pandemic has helped avoid this lag in remote areas of 3T. Apart from that, there is still a gap in internet use among digital natives in rural areas. This of course requires synergy between the center and the regions in increasing the distribution of digital skills to all corners of Indonesia.

A change in learning paradigm is a change in perspective in the learning process that is adapted to current developments. One of the changes in the learning paradigm is triggered by technological advances, especially artificial intelligence (AI). The solution to this challenge is personalization of learning, namely using AI algorithms to analyze learning styles and individual needs. The learning platform can be customized to provide relevant material and the appropriate level of difficulty for each individual student. By conducting teacher training, namely providing comprehensive training for teachers on how to integrate AI in their teaching. This includes an understanding of existing technologies and how best to utilize them in the classroom context.

Challenges related to data security and privacy in digital learning have become critical issues, especially with the increasing use of AI, providing several solutions, namely by strengthening privacy policies, developing and implementing clear and transparent privacy policies. This policy should cover how student data is collected, used, and protected, and provide options for students and parents to control their data. Apart from that, you can also regulate data access by limiting data access to only individuals who need it for certain tasks. This reduces the risk of data misuse and ensures that only authorized parties can access sensitive information.

Inequalities in technological understanding between teachers can hinder the effective use of AI in education. The solution to this challenge is to provide comprehensive training programs for teachers to understand and use AI technology. This training should include practical tutorials, workshops, and easily accessible online courses. Apart from that, lessons about technology and AI can also be integrated into the teacher training curriculum. In this way, prospective teachers will have a better understanding of technology from the start of their careers.

The tension between the use of technology, including AI, and the preservation of traditional values in education is a challenge that needs to be overcome, namely by conducting

project-based education encouraging learning projects that combine technology with traditional themes. Students can conduct research on their cultural values and use technology for presentations or content creation.

## Conclusion

Society 5.0 is a picture of a future where technology is used to provide solutions to social problems, improve our quality of life, and have a positive impact on society as a whole. Society 5.0 is the same as the digital era which brings significant challenges as well as solutions to the world of education. The challenge covering issues of unequal access, shifting learning paradigms, and data security. Artificial Intelligence (AI) in the era of society 5.0 is not just technology, but is the core of deep digital transformation. AI has penetrated many aspects of our lives, from the way we work to the way we interact with each other. By understanding the potential and challenges of AI, we can harness this technology to create a better future for all. Apart from access to technology, digital literacy is also very important. Students need to have basic skills in using technology, including AI, in order to make optimal use of it. Meanwhile, education in the digital era is a necessity. By using technology wisely, we can create learning experiences that are more effective, interesting and relevant for future generations. However, we must also pay attention to existing challenges and strive to overcome the digital divide.

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