



## ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION

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**ANNOTATION:** This article will clarify changes in the demands of education require innovation and creativity in the learning process. With the development of Artificial Intelligence (AI) in the field of education to help process daily activities including teaching and learning. The objective of this study is to investigate Artificial Intelligence (AI) in education, especially in the teaching and learning process. This research also uses library research.

**KEY WORDS:** Artificial Intelligence (AI), education, teaching and learning

### INTRODUCTION:

Today's technology has become an unavoidable part of the passage of time. Technology has not only changed people's lifestyles but has also changed how we work, learn, and interact. Various kinds of innovations appear all the time, making our activities and work more practical and effective. A more recent technological development is the emergence of the term artificial intelligence which is abbreviated as AI (artificial intelligence) which is currently starting to steal attention as a tool to act like humans. In its development, artificial intelligence has also penetrated the world of education. AI systems allow people to learn with the help of education assistants such as bots. The development of the times requires the world of education to adapt to technological developments to improve the quality of education, especially the adjustment of information and communication technology. Digital learning content that is developing today can be presented thanks to the application of AI. Thick textbooks can now be presented into content that is more concise, easier to read and understand by students, such as study guides, material summaries, or short notes. AI as a pillar of the industrial revolution 4.0 plays a central role in facilitating the learning process mediated by technology. Artificial Intelligence (AI) is the process of modeling human thinking and designing a machine so that it can behave like humans or other terms called cognitive tasks, namely how machines can learn automatically from programmed data and information. Artificial intelligence can also be interpreted Artificial intelligence or AI is one part of computer science that makes machines (computers) able to do work as and as well as humans do. The use of Artificial Intelligence consciously or not we have applied it in everyday life. Many applications have implemented artificial intelligence as an advantage of these applications. Artificial intelligence technology referred to here refers to machines that can think, weigh the actions to be taken, and can make decisions as humans do. Artificial intelligence (AI) is currently being developed on a large scale so that this technology will imitate and even take over the work normally done by humans. Based on the definition of AI, it was created to be able to act like humans in the form of programs and robots. Of course to facilitate human work. Even various digital platforms have used AI as a part of it. AI is used to make things easier for humans to do. Several technology companies have implemented AI including Amazon, Facebook, Microsoft, and Google. Artificial intelligence or (AI) is a technology where machines can learn and understand logic like humans. This technology is said to be able to help simplify human life which is very complex (Fitria, 2021a). AI itself works by combining the presence of several data, iterative processing, and intelligent algorithms. This allows the software to learn automatically

from patterns or features in the data. AI can also be said to be a very broad field of study. The scope of theories, methods, technologies, and subfields that exist in AI is very wide, including machine learning, neural networks, cognitive computing, computer vision, and scientific language processing. The role of Artificial Intelligence (AI) technology is increasingly evident in various sectors, including the education sector. The presence of AI technology has transformed the educational curriculum, especially in the fields of technology, science, mathematics, and engineering. But AI will also change the face of the world of education as a whole. One technology that has recently received attention is Artificial Intelligence (AI). This technology has an important role in facilitating various job functions, including in the field of education. AI can also be implemented in the world of education. Teachers/lecturers can understand student needs more easily and more deeply (Fitria, 2021b). The students also can learn according to their needs without encountering difficulties. Artificial Intelligence (AI) is believed to be able to help humans learn better and achieve educational goals more effectively. So it's not surprising that currently many AI-based innovations and breakthroughs are being and will be applied to support the learning process to make it more practical and effective. So when AI is present in the education sector, which then raises concerns by teachers, it is a challenge that must be faced so that the existence of education continues. Some of the strong beliefs that teachers cannot be replaced by AI are teacher collaboration with AI in the implementation of learning. Teachers need to have skills in utilizing science and technology (Science and Technology). So that teachers can take advantage of AI in terms of completing school administration such as making lesson plans, student attendance lists, reporting student learning outcomes, making learning media and learning resources. The researcher is interested to investigate Artificial Intelligence (AI). Therefore, the objective of this study is to investigate Artificial Intelligence (AI) in education, especially in the teaching and learning process.

## **METHOD**

This research applies library research. Library research more emphasizes the strength of the analysis of existing sources and data by relying on existing theories and concepts to be interpreted based on the writings that lead to the discussion (Sari, 2021). Here, the research problem can only be answered through library research, and vice versa no one may expect the data and field research (Zed, 2004). The method of collecting data use document. If the data needed to answer the research problem are sought, in documents or library materials, the collection activities, that data is referred to as a document (Adi, 2021). The documents are can be both written documents, photographs, pictures, and electronic documents that can support the research. The example document used in this research is taken from books, articles journals both national and international related to the research. The method of analyzing data uses several steps, they are compiling related data from books and journals, analyzing the data (content) in the form of words and pictures then concluding.

## **FINDINGS AND DISCUSSION**

Findings Artificial intelligence has been widely applied to various educational technology platforms as follow:

### **a. Virtual Mentor**

The function of AI which is currently quite widely applied to various educational technology platforms, especially those based online, is as a virtual mentor. Mentoring is a process in which a more knowledgeable person (the mentor) assists a less-knowing person (the mentee) in achieving a learning objective (Klamma et al., 2020). AI can provide feedback on students' learning activities and practice questions, then provide recommendations for material that needs to be re-studied like a teacher or tutor. Zhang (2016) states that Virtual Mentor (VM) is a multimedia-integrated e-Learning environment that stresses interaction, personalization, and intelligence. One example is Blackboard which is an application that is widely used in universities in Europe and America. This AI tool is widely used by professors/lecturers to publish notes, homework, quizzes, and tests that allow students to ask questions and assignments for the assessment process. Applications are widely used by professors/lecturers to publish notes, homework, quizzes, and tests that allow students to ask questions and assignments. Applications can also be used for assessment/assessment. This application can identify the reasons behind students' misunderstanding and can offer solutions that have been released by the lecturer and programmed beforehand. The Blackboard concept is actually inspired by the conventional whiteboard that is in every classroom and discussion room. Blackboards in learning become the center and tests that allow students to ask questions and

assignments for the assessment process. Applications are widely used by professors/lecturers to publish notes, homework, quizzes, and tests that allow students to ask questions and assignments. Applications can also be used for assessment/assessment. This application can identify the reasons behind students' misunderstanding and can offer solutions that have been released by the lecturer and programmed beforehand. The Blackboard concept is actually inspired by the conventional whiteboard that is in every classroom and discussion room. Blackboards in learning become the center and medium that displays material information from the teacher to students and is also a place for ideas, discussions, problem-solving and new insights to emerge. That's how Blackboard AI works, developing solutions and solving problems in a comprehensive and cooperative manner. AI can provide feedback on student learning activities and practice questions, provide recommendations for material that needs to be re-studied like a teacher or tutor. This AI system will continue to learn and update information independently according to the needs and constraints faced by students. This tool can identify the reasons behind students' misunderstanding and can offer solutions that have been released by the lecturer and programmed in advance. This AI system will continue to learn and update information independently according to the needs and constraints faced by students. Hwang & Vrongistinos, (2012), states that the quality teachers for quality students initiative created an electronic mentorship system between new and experienced teachers to help new teachers improve their instructional and classroom management abilities in light of the special requirements of English language learners (ELLs) in Southern California. The results of the data analysis revealed that combining the use both of Blackboard and Skype technologies was advantageous to starting instructors' ability to effectively educate ELLs.

#### b. Voice Assistant

This AI technology has similarities with virtual mentors. It's just that Voice Assistant relies more on the voice function as a center for interaction and communication. Voice assistants incorporate AI using cloud computing and can communicate with the users in natural language (Terzopoulos & Satratzemi, 2019). Several Edutech platforms have also adopted Voice Assistant technology to help students find content and materials more quickly and practically. Voice Assistant is also one of the most widely recognized and used AI technologies in various fields, including education. Examples of commonly known voice assistants are Google Assistant (Google), Siri (Apple), Cortana (Microsoft), and others. Voice Assistant allows students to search for materials, reference questions, articles, and books by simply speaking or mentioning keywords. Furthermore, the VA will display the information you want to search for according to the keywords mentioned. In addition to presenting information in the form of text and images, Voice Assistant can also speak and explain the information you need like a personal assistant. Canbek & Mutlu (2016) states that AI assistants such as the ones described facilitate human-computer connection by using natural language in digital communication. The general goal of this research is to look at the possible usage of Intelligent Personal Assistants (IPAs) that learn using advanced cognitive computing technologies and Natural Language Processing (NLP). Voice Assistants allow interaction with various learning materials without communicating with the teacher. As a result, the educational platform can be used anywhere and anytime. That way, the students can learn independently without worrying about getting confused even without a teacher/tutor, because by using VA, everything and information that is not understood can be presented only by voice. The application of artificial intelligence to voice assistants has similarities to virtual mentors. It's just that Voice Assistant relies more on the voice function as a center for interaction and communication. Voice Assistant allows students to search for materials, reference questions, articles, and books by simply speaking or mentioning keywords.

#### c. Smart Content

Smart Content is an AI technology that functions to share and find programmable digital book and material content more easily and quickly. Common examples of the application of this technology are found in various digital libraries today, both in schools, universities, and public libraries. AI can find and categorize the books we are looking for quickly and structured. We will even be given book recommendations and other content relevant to what you are looking for. Smart Content is a summary of various learning materials, from digital textbooks to interfaces that can be tailored to our needs.

### **CONCLUSION**

The existence of artificial intelligence may be able to provide knowledge to students, but developing

character cannot be done. That is an educator's job. How to inspire, motivate, make students become good students." So the role of the teacher in providing motivation, inspiration, and developing character are what AI cannot replace because AI is not given feelings and emotions like humans in general. In the end, if we look at technological developments, we must be able to adapt as technology advances. If we do not adjust, we are an educator (teacher/lecturer) may be replaced by technology.

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