THE USE OF ARTIFICIAL INTELLIGENCE IN EDUCATION (AIED): CAN AI REPLACE THE TEACHER'S ROLE?

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Abstract

This study describes the AI tools in education and teachers’ role in Artificial Intelligence (AI) in the teaching and learning process. This study applies library research by using documentation from books and journals related. The analysis shows that AI’s role in education is to increase intelligence and assist in carrying out effective and efficient learning activities. Several AI tools can be used by teachers including Virtual Mentors, Voice Assistants (VA), Smart Content, Presentation Translator, Global Courses, Automatic Assessment, and Personalized Learning. Several benefits of using AI in education are improving the quality of the education system, and increasing the effectiveness of learning as an adaptive learning. AI provides feedback and recommendations, increases efficiency, enhances the teaching experience, personalized and customized learning, minimizes error, saves time, automates fundamental and routine tasks, is adaptable to student needs, monitors students' progress, and modifies the teachers’ role as facilitators. Therefore, the use of AI must be done wisely and consider its impact on teachers and students as a whole. However, no system can replace the role and significance of the teacher's role, knowledge, expertise, experience, and desire to provide the best for the students. The basis of every use of technology is to continue to prioritize the essence of teaching, namely managing the morale and behavior of students. The activities of educating, guiding, and matters relating to the student’s character can only be carried out by humans. The teacher's work cannot be replaced by AI technology. AI technology only assists teachers in the classroom and enhances student learning, so its existence should be utilized optimally following its capacity and purpose. The importance of the teacher's role must be maintained so that humanist values and affection in an educational process can endure and be maintained in line with the essence of that education, namely humanizing individuals.

Keywords: Artificial Intelligence (AI), education, teacher's role, teaching and learning process

Introduction

Today, Artificial Intelligence (AI) is among the emerging technologies (Jaakkola et.al., 2020). The concepts of what comprises ‘artificial’ and ‘intelligence’ have compromised AI (Karppi & Granata, 2019). AI is an “umbrella term” used to refer to artificial intelligence carried out by machines or tools, which are connected to the data ocean, and resemble human intelligence (Pabubung, 2021). AI is a system that is developed and capable of innovating in the field of study which is modeled on both machines and computers that can have the same or even more intelligence as humans, which is characterized by adaptive, decision-making, cognitive, and learning abilities (Manongga et.al., 2022). In the current technological era, artificial intelligence has established itself in all disciplines due to its accelerated expansion. The purpose of artificial intelligence is to reduce the need for human intervention and perform tasks more efficiently (Li & Zhang, 2022).
AI is a branch of computer science that focuses on developing technology to enable machines to perform tasks that normally require human intelligence (Fitria, 2023). In simple terms, AI can be interpreted as the ability of computers to learn and complete tasks that normally require human intelligence such as decision-making, facial or language recognition, and language translation. This technology can work to make decisions by analyzing the data available in the system. AI also has a meaning, namely the study of how to make computers do things that currently can be done better than humans, and involves the study of human thought processes and expressing those thought processes through machines. To achieve this goal, AI uses various techniques such as machine learning, deep learning, and neural networks. AI can be applied to areas such as natural language processing, image recognition, robotics, and many more. AI can also be used to increase efficiency and productivity in industries such as healthcare, transportation, and manufacturing. The prevalence of artificial intelligence (AI) technology promotes the intelligent and resource-based trend of development in numerous industries (Huang, 2021). AI applications are diverse, and AI technology is expanding. It has created a new horizon for industries, enterprises, transportation, hospitals, and schools by allowing machines to think like humans (Shen & Su, 2020). Over the past few decades, there has been a growing interest in AI and its effective application in education (Al Darayseh, 2023).

AI is a technology developed to create systems capable of thinking and acting like humans (Fitria, 2021a). AI uses complex algorithms and techniques to process information and make decisions, so it can handle complex tasks and solve problems that are difficult for humans to do (Fitria, 2023). In today’s digital era, artificial intelligence, or AI has been used in various sectors, including in education. The potential of AI in education can increase the effectiveness of learning and help solve some of the challenges in the educational process. In this study, it will be discussed whether AI can replace the role of teachers in the education system. Every change in educational technology brings opportunities and challenges to the development of teachers (Liu et.al., 2021). As a result of the development of new technologies, teaching, and learning methodologies have undergone a radical transformation (Alam, 2022). As a consequence of the rapid development of AI technology in recent years, applications of AI in educational contexts are becoming more apparent.

Currently, we are starting to enter the era of Society 4.0 towards 5.0 where all technology and its developments have an impact on every field, including the field of Education. In the world of education, the application of AI will bring breakthroughs in supporting the development of knowledge in learning. However, technological advances are growing rapidly. In addition to providing practicality and benefits for the general public. This has an impact on fears of reducing or even losing jobs for various professions that have been replaced by technology. Education in the industrial era 4.0 is marked by the digitalization of information and the massive use of AI in the life sector people, especially in
education (Nita, 2021). Teachers are required to give birth to a millennial generation that can face the Industrial Revolution 4.0 Era, in this era, the role of humans has been disrupted with many human roles being replaced by machines and artificial intelligence (Widaningsih, 2019).

Artificial Intelligence in Education (AIEd) is one of the currently emerging fields in educational technology (Zawacki-Richter et.al., 2019). AIEd refers to the use of technology and algorithms to strengthen the learning process and improve student learning outcomes. By leveraging artificial intelligence, teachers can collect data about student performance and provide learning that fits the individual needs of students. In addition, AI can be used to develop adaptive learning systems, provide feedback, assess learning outcomes, and facilitate distance learning processes.

Two approaches can be applied to implementing AIEd settings. First, the transfer of teacher tasks to the AI system, which acts as a tutor for each student. The existence of smart technology that adapts content to each learner is already widely used in many classrooms, in the form of smart tutor systems. Second, the alternative role of AI is to increase human intelligence and assist humans in carrying out effective and efficient learning activities. Various things can be done to apply AI in learning activities.

The times are growing, demanding all fields including education to adapt and collaborate to solve problems. AI is best applied as an additional tool to make the teacher's job easier. The question about whether artificial intelligence in the classroom is necessary. However, given that the use of AI as an additional tool has clear benefits for enhancing students’ learning and teacher productivity, the use of this technology in the classroom environment is worth considering. In addition, education seeks to prepare students for the real world, and artificial intelligence is becoming a dominant force in several industries. If teachers want students to be career-ready, they must prepare them to coexist with artificial intelligence in meaningful, productive, and appropriate ways. If not, they will be unprepared to do so when they enter the workforce.

With the application of AI in education, it is hoped that learning effectiveness can be increased and gaps in learning outcomes can be minimized. AI can perform various tasks that are difficult for humans to do, ranging from speech recognition to vision and language processing. This sophistication makes people think that AI will replace human work, one of which is in the world of education. AIEd applications have been made possible by the accelerated development of computing technologies (Hwang et.al., 2020). AI is used in education in different ways (Celik et.al., 2022). AI's contribution to the field of education has always been significant. AI has always benefited both educators and students (Malik et.al., 2019). With the advent of AI, the need to use AI in the field of education is widely recognized (Shin, 2020).

Zawacki-Richter et.al. (2019) present four application areas for AIEd in academic support services and institutional and
administrative services: profiling and prediction, assessment and evaluation, adaptive systems and personalization, and intelligent tutoring systems. Conclusions address the near absence of critical reflection on the challenges and risks of AIEd, the tenuous connection to theoretical pedagogical perspectives, and the need for additional research into ethical and educational approaches in the use of AIEd in higher education.

AI machine was designed to perform specific work to assist individual learning, which can carry out information search and present it with fast, accurate, and interactive. This is what marks the Industrial Revolution 4.0, especially in education. These two things change fundamentally teaching and learning activities. Classroom experiences evolve towards digital learning patterns that create learning more creative, participatory, gam, and thorough. Teachers play an important role in contextualizing information and guiding as well as educating during online discussions. The teacher is an important figure in the education. In addition to providing knowledge, the teacher acts as a guide, motivator, and role model for students. However, can AI replace the role of a teacher? This research reviews the use of Artificial Intelligence in Education (AIEd) and describes teachers’ role in Artificial Intelligence (AI) in the teaching and learning process.

**Utilizing AI in Education (AIEd) Tools**
AI is beneficial in the field of education. AI is believed to help humans to learn better and achieve educational goals more effectively. There are many innovations and AI-based breakthroughs that are applied to support the teaching and learning process to be more practical and effective (Hilir, 2021). Several technologies/tools may shape the implementation of AI in educational contexts in the future (Fahimirad, 2018). “AI Learning Tools” is a growing trend in the learning and teaching arena. AI learning tools are a great way to overcome the challenges faced by teachers and students. They can help improve student performance by providing more relevant feedback, helping them learn faster, increasing their learning retention, and improving students’ learning, study, and performance. The following is the application of Artificial Intelligence in education as following:

1. **Virtual Mentors**

   Virtual mentors or virtual assistants are very useful for learning, especially online. This service helps teachers share materials, practice questions, assignments, or other important information related to learning. Virtual mentors facilitate teachers to provide feedback on the activities and development of students. Communication between teachers and students can be run interactively here. Students can ask about the material or anything for the assessment process. Thus, the teacher can conclude the level of student understanding and make improvements to improve it. Like a teacher or tutor, AIs can provide students with feedback on learning activities and practice questions, as well as material recommendations that need to be reviewed again.

   Blackboard, which is extensively used in universities in Europe and the United States, is one example of its application. This AI tool is extensively used by
professors/lecturers to publish class notes, homework, quizzes, and exams, and it enables students to submit evaluation-related queries and assignments. This instrument, which has been released by a teacher and pre-programmed to identify the cause of students' lack of comprehension and provide appropriate solutions, is capable of determining the reason for their lack of comprehension and offering suitable solutions. This AI will perpetually learn and independently update information following the requirements and constraints of students. The Blackboard concept is inspired by the board conventional writing and classroom discussion found in every classroom.

2. Voice Assistant (VA)
Voice Assistant places a greater emphasis on voice-based interaction and communication. Voices Assistant is also one of the most extensively known and utilized AI technologies in education. Commonly recognized voice assistants include Google Assistant (Google), Siri (Apple), Cortana (Microsoft), and others. Voice Assistant enables students to search for information, such as reference queries, articles, and books, simply by speaking or mentioning keywords. Voice assistants also make it possible for pupils to obtain accurate and transparent information. In addition, the VA will retrieve the requested information based on the mentioned keywords and display information as text and images. The Voice Assistant can also verbally describe the information. In this way, students can study independently without fear of confusion, even if they are not accompanied by a teacher or tutor because everything and inadequately comprehended information can be presented solely through audio. Users can study without having to read thanks to the voice assistant feature or voice assistant, voice replacement. Reading information that activates voice assistants will be different from human cognitive processes such as absorbing information from sound. In the classroom, this feature speeds up students' search for additional materials.

3. Smart Content
This AI technology functions to divide and find content material and digital books that are already programmed virtually more easily and quickly. Digital libraries in schools, colleges, and the public library serve as an example of the widespread application of this technology today. Quickly and systematically, AI can locate and categorize the book you seek. We will also provide book recommendations and other content that is pertinent to our search. AI technology can group books according to their categories in a structured manner and can help us find the book we want and also provide book recommendations that are relevant to the book we are looking for.

An app called Smart Content offers data such as weather reports, breaking news, alarms, and stock market trading reports. This function provides the latest reading material from newly released books as well as information seekers according to the learning needs to be covered in the field of education. This capability is available in applications such as Cram101, which divides digital textbooks into chapters. This will make it easier for readers—in this case students—to dig up the information they are looking for. What it does is so that users can search for more information specifically according to their needs.
4. Presentation Translator
A presentation translator explains or presents a text written in a distinct language in the target language. It is designed to describe or convey a text written in a distinct language in the desired language. This technology's functionality is dependent on voice input. Without the need to read, users can listen to a variety of text-based speeches, articles, and digital publications. With this Artificial Intelligence Speech Recognition, users can hear in their native language. We can read and comprehend periodicals, articles, and novels in any language with greater ease and speed. This technology also plays an essential role for those with language and vision impairments, so it has already been extensively adopted for a variety of purposes. 'Voice Control' is a feature that is ubiquitous on smartphones today. Now, we can also type using only our voices (voice typing), so this is a solution for those of us who have difficulty composing lengthy text. In our application, the spoken word will be converted to text automatically upon utterance.

5. Global Courses
Various open and free courses with a variety of interactive features and content can be tested out immediately. Students or users of Global Courses can search for and enroll in online courses from around the world. Course platforms can recommend your interests and passions based on the keyword you submitted previously. Courses that have incorporated AI technology include Udemy, Google AI, Alison, Khan Academy, and Duolingo. There is a personalization feature in AI-powered courses that allows us to receive notifications about course progress, material that needs to be studied, accumulated assessments, total grades, and relevant course recommendations, among other features.

6. Automatic Assessment
AI is widely used for assessment purposes and online automatic question correction that are done online. Teachers do not need to correct questions manually. Automatic assessment of English composition is an inevitable consequence of the swift advancement of computer and artificial intelligence technologies (Bin & Mandal, 2019). AI shows potential for use in review and assessment where, in traditional educational settings, teacher input is often limited. This level of personalized engagement enables AI-based review and assessment to increase student retention and prevent valuable review time from being wasted covering topics they are already comfortable with.

This feature makes it simpler for teachers and tutors to prepare and administer quizzes and examinations practically. No longer must teachers and instructors create and correct queries manually. The AI system will operate independently following the programmed instructions and can adapt to the preferences of the user or student. Even artificial intelligence will provide an examination creation and correction feature automatically provided by the pursuit platform is one example of Automatic Assessment implementation. This feature enables instructors to construct examinations and repetitions efficiently and effectively. The instructor only needs to select the subject classification, grade level, quantity of questions, and difficulty
level, among other options. After that, the teacher need only share the examination link with students for them to work online immediately. The results of student quizzes can be promptly and automatically uploaded to the teacher's account. There is a score, a catalog of incorrect questions, correct questions, and a discussion.

7. Personalized Learning
This AI technology enables students or consumers to obtain personal assistant-like services. AI in the classroom can facilitate this by analyzing students' learning styles and providing them with individualized learning aids. AI accumulates data from user-performed learning activities and then offers alternative learning solutions based on user preferences. AI also provides content suggestions, notifies the user of his or her study schedule, and performs several other crucial functions. AI will learn to optimize user learning methods to improve and enhance the learning process.

Examples of applying Personalized Learning are Khan Academy, Duolingo, Ruanguru, and others. Learning becomes more practicable and effective as a result of the influence of AI technology on quality and pattern enhancement. This has also been demonstrated by several studies and the adoption of AI technology by several edutech platforms, which indicate that AI can have a significant impact on the quality and efficacy of learning. With increasing class sizes, teachers frequently have less one-on-one time with students. This can cause students who require additional assistance to fall behind their classmates or disengage students who have a superior grasp of the material. Integrating customized AI-based learning activities for students can have a significant impact on information retention and passing rates.

The Advantage of AI in Education (AIEd)
AI experiences massive development every year. All aspects that include function, appearance, and features have an impact on all lines of life, including education. AI is one of the driving forces for the development of educational technology. There are several benefits of using AI in teaching and learning activities. First, improve the quality of the education system. As technology continues to develop, AI can help teachers create smarter learning patterns. AI makes it possible to find the right way of learning for students and their instruments. Second, the sophistication of AI technology can identify factors that cause students to be unable to understand learning concepts. In addition, this technology can also make adjustments to find new ways or strategies to help students learn. Third, it makes it easier for teachers to assess student learning outcomes. AI technology can evaluate multiple-choice and short-answer questions. In the future, it is projected that AI can also assess essay questions. That way teachers can spend time focusing more on teaching and learning activities in class, while assessment and work on assignments can be carried out by utilizing AI technology. The massive use of AI technology in education can also be seen from the presence of artificial intelligence-based educational platforms that can help students learn.

According to Fitria (2021b), AI can increase the effectiveness of learning in several ways, including: 1) Adaptive learning: AI can strengthen adaptive
learning by collecting data on student performance and providing materials tailored to individual student needs. AI can adjust the content, difficulty level, and teaching strategies based on student abilities and provide real-time feedback. 2) Virtual assistant: AI can act as a virtual assistant for students, helping them understand course material, answer questions, and provide feedback on learning outcomes. This virtual assistant can be accessed anytime and anywhere, so students can learn more flexibly. 3) Distance learning: AI can be a solution to overcome some of the challenges faced by students and teachers in distance learning. AI can provide interactive virtual learning platforms, facilitate collaboration, and gather data about student performance. 4) Automatic evaluation: Using AI, the evaluation process can be done automatically, whether for multiple choice questions, filling in, or correcting assignments. This automatic evaluation can reduce the teacher's workload and speed up the evaluation process so students can receive feedback more quickly. 5) Data analysis: AI can assist teachers in analyzing data on student performance, looking for patterns, and making predictions regarding learning outcomes. This data analysis can help teachers better understand students' needs, adjust teaching methods, and increase learning effectiveness.

AI can help teachers in the learning process, including: 1) Facilitate data collection: AI can help teachers collect data on student performance, understand their strengths and weaknesses, and adapt teaching methods to individual student needs. 2) Provide feedback and recommendations. By leveraging AI, teachers can provide more effective feedback and recommendations on student learning outcomes. AI can provide real-time feedback and provide learning suggestions tailored to student needs. 3) Develop adaptive learning: Teachers can develop adaptive learning systems that can adjust the content, level of difficulty, and teaching strategies based on students' abilities. This adaptive learning can help students to learn more effectively and speed up the learning process. 4) Increase efficiency: AI helps teachers to improve efficiency in the teaching process, for example providing automatic evaluations, automating administrative tasks, and reducing the time needed to prepare teaching materials. 5) Enhance the teaching experience. AI can help teachers enhance the teaching experience by facilitating more effective interactions and providing a more interactive virtual learning platform. Overall, the use of AIEd can assist teachers in increasing the effectiveness of the teaching process and improving student learning outcomes.

Garg & Agrawal (2020) state the advantages of AI in education, as follows: 1) Personalized and customized learning: AI provides personalized learning, thereby assisting the student in his/her learning journey. On the other hand, it aids teachers in gathering information about each student and teaches them how to develop an individualized approach for better instruction. From traditional course outlines, AI systems can generate highly customized textbooks and personalized learning interfaces can be developed to assist students. 2) Minimize the error: With AI, the probabilities of error are minimal, such as nearly negligible, resulting in
improved precision. 3) Save time and resources: It is possible to complete work faster with minimal human resources, and there is no need for breaks with AI. Thus, AI saves the essentials of human resources, as the job is virtually infinite, as the machines will be able to do everything, and they have no limits. 4) Automate fundamental and routine tasks. AI can automate time-consuming tasks for educational institutions, such as grading assignments and examinations for large lecture courses. AI systems can be programmed to provide expertise, a platform for students to pose questions and discover information, or to replace the teacher's presence in solving the most elementary courses/concepts. 5) Adaptable to student needs. AI-based systems respond according to the requirements of the student, placing greater emphasis on topics that students have not mastered and allowing them to work at their tempo. 6) AI can provide feedback based on the monitoring of student's progress and send instructors alerts when there is a problem with a student's performance.

All systems enable students to receive assistance for their needs and instructors to identify areas for improvement. AI can identify locations for course improvement. Teachers will not always be aware of voids in their lectures and instructional materials that may cause students anxiety about certain concepts. Various college students have various learning approaches, skills, interests, and requirements. 7) Capable of modifying the role of instructors as facilitators. The role and significance of teachers in education cannot be replaced; however, by utilizing AI, the teachers' expertise, knowledge, and experience can be used for more productive activities, focusing on students who require their attention rather than engaging them in basic tasks that can be easily replaced by AI systems.

The Disadvantage of AI in Education (AIEd)
Garg & Agrawal (2020) state the disadvantage of AI in education, as follows: 1) No system can replace the role and significance of the teacher's knowledge, expertise, experience, and desire to provide the best for their students. The system cannot replace a teacher and cannot foster personal relationships between students and instructors. The robot's algorithm is not affected by the teacher's emotions and fervor for his or her profession. 2) Addiction to technology. When technology replaces human beings and the student becomes dependent on systems, it will not have a negative effect on the student's learning behaviors, but they will also become dependent on the system rather than attempting on their own. As a result of referring to the system for every minor problem, their capacity for imagination would also be diminished, and they would eventually develop a dependency on technology. 3) High cost. There are several issues with the availability and accessibility of quality education in remote places with inadequate infrastructure, and the majority of the budget is spent on the creation and maintenance of basic infra and facilities. Introducing an AI-based system will be an expensive endeavor that many students from low-income backgrounds cannot afford. 4) Unemployment. There is a problem with unemployment, and replacing instructors with AI systems will
exacerbate the issue. 5) Education quality. The lack of personal engagement of teachers and the replacement of teachers with machinery may have an impact on education and the absence of personal interaction between teachers and students.

However, several obstacles, such as the high cost of entry, have impeded the implementation of artificial intelligence in the classroom. In an education system that is already overburdened and underfunded, the need to purchase costly hardware and software to initiate an AI-powered classroom can be prohibitively expensive or require a significant amount of teacher and administrator time to ensure the software can be implemented. Numerous educational institutions are hesitant to make substantial initial investments in technologies that may or may not meet their requirements. Remember that incorporating any new technology in the classroom will involve growing difficulties. Given the limited resources available within the education system, it is understandable that schools are reluctant to invest in technology that does not consistently provide students and instructors with tangible and demonstrable benefits.

Method
This research uses library research. Khatibah (2011) states that library research is activities related to data collecting methods literature, perusing and recording, and processing library materials. These activities are inextricable from the library's print and electronic media collections, as well as library-related documents. In the search for theory, researchers will collect as much information as possible from related literature (Evanirosa et.al., 2022). Documentation is used to collect the data. Library research is a study in which documents, such as manuscripts, books, newspapers, and periodicals, serve as the primary data source. With the advancement of technology, the definition of a library has expanded to include digital documents in addition to printed ones (Sugiarti et.al., 2020). In this research, the researcher uses printed documents such as articles journals both from national and international, and books related to the topic of AI in education. In analyzing data, the researcher uses content analysis. Content analysis employs a set of procedures for deriving valid conclusions from documents (articles journals and books). This is a comprehensive analysis of the content of written or printed material which involves specific steps to extract the essence of ideas and information from which conclusions are derived.

Findings and Discussion
Teacher's Role
Smart teachers are expected to be able to adapt to technological advances in the era of the Industrial Revolution 4.0 or towards 5.0 so that they can keep abreast of developments and not be left behind or crushed by the progress of the times. It is hoped that teachers can keep up with developments so they are not left behind and run over by the times. For example, the development of learning gaps is one of the most significant outcomes that can result from the implementation of AI in the classroom. AI tools will only provide pupils with answers, not the method by which these answers are discovered. The teacher is then responsible for bridging the divide between the AI-provided
information and what students need to know.

With the implementation of intelligent platforms, intelligent tools, and intelligent services in the field of education, artificial intelligence technology has introduced challenges and dilemmas to the professional roles of teachers (Liu & Wang, 2020). As an auxiliary teacher and classroom analyst, artificial intelligence has significantly increased the effectiveness, precision, and variety of classroom teaching. Teachers should be the designers, decision-makers, and educators of classroom teaching to promote students' all-around development and equip them with the skills required by modern society. The task of the teacher as an educator is not only to teach, but also to guide, direct, motivate, and evaluate the learning process of their students so that the class becomes a superior human being and is successful in life. Therefore, teachers as educators must have four basic competencies as mandated by law (Fitria, 2021b). The four basic competencies are pedagogic competence, social competence, personal competence, and professional competence. The social competence possessed by the teacher is expected to be able to bridge students in increasing the social competence of students as social beings (Fitria, 2021b).

**Teachers’ Role Can be Replaced by Artificial Intelligence (AI) Technology**

The Industrial Revolution 4.0 is replete with lightning-fast technology and will bring about significant changes, including to the education system in Indonesia. Changes in the education system affect the role of teachers as educators, but AI has never supplanted educators (lecturers). (Lufri et al., 2020). Teachers must possess a high level of expertise to produce pupils who can meet the challenges. As a result, the role of the teacher shifts from being a conduit of knowledge to students to that of a facilitator, motivator, inspirer, mentor, developer of imagination, creativity, values character, as well as teamwork and social empathy.

One of the concerns that arise with the increasingly widespread example of the application of AI technology is the replacement of roles of humans by robots and intelligent machines. Acquiring knowledge is not the sole purpose of education. Education is a multifaceted process through which we not only acquire knowledge about various concepts but also learn to implement them in our daily lives with our social skills. Empathy, sympathy, and other emotions crucial to the formation of our personalities cannot be taught by machines. This technology will not be able to replace the role of the teacher or educator, regardless of how advanced it is or how many examples of its use (Nasution et al., 2022). AI’s role is limited to assisting and empowering educators to make the learning process enjoyable for students. AI’s role is limited to assisting and empowering instructors to create an enjoyable learning environment for students.

Teaching is a profession that plays a significant function in human existence. Humans as instructors possess three distinct qualities that comprise the substance of teaching. 1) Education is centered on relationships. Some aspects of the teacher-student relationship could be replicated by AI. This will never be able to completely replicate the tenderness,
empathy, and connection that result from genuine human interaction. 2) Teachers continue to develop. In class, they are constantly gaining new knowledge and experimenting with novel techniques. No machine can replicate a skilled teacher's agility and creativity. Teaching is concerned with human relations. The relationship between instructor and pupil is one of the most influential aspects of teaching. This connection assists students in learning, developing, and feeling supported in their education. This cannot be replaced by AI. Now that we've established the premise, let's discuss the evidence that supports it and explain why AI can never supplant human teachers.

AI can more effectively supplant teachers' daily teaching roles, thereby reducing teachers' daily tedium. However, AI cannot accomplish the goal of educating and teaching people (Sun et.al., 2022). Although machine learning will not completely replace teachers in the age of AI, the traditional teacher's function cannot satisfy the demands of the intelligent age. Therefore, teachers must increase their professional literacy and reposition themselves (Wang et.al., 2022). The role of the teacher changes the way of teaching so that it is more fun and interesting. Likewise, the roles of the teacher changed from being a transmitter of knowledge to students, becoming a facilitator, motivator, inspirer, mentor, and developer of imagination, creativity, and character values, as well as teamwork, and social empathy because if not then the role of the teacher can be replaced by technology (Halimatussa’diyah, 2019). Although AI can teach students skills or improve tough concepts, it cannot replace a human teacher (Krishnan et.al., 2023).

An AI system can perform an intermediary function by providing students and teachers with timely feedback (Kanagachidambaresan et.al., 2023). AI provides numerous benefits for students and teachers, but it cannot replace educators (Sadiku et.al., 2022). It's important to understand that technology cannot replace the teacher (Blannin, 2021). Therefore, machines are responsible for imparting knowledge, whereas educators are responsible for educating individuals. In the era of artificial intelligence, machine learning will not entirely replace teachers (Wang et.al, 2022). A teacher has unique qualities that AI cannot replace (Kaur, 2021).

Even robots implanted with artificial intelligence are certainly a smarter matter of general knowledge compared to humans, nowadays it feels more satisfying to ask Google than to the teacher (Fiandra, 2020). However, the researcher believes that the teaching profession will not be replaced until the end of time. Which profession comes into contact with emotions, morals, ethics, and feelings will not be replaced by robots. Artificial intelligence may take our role in educating knowledgeably or skills, but not to educate students’ character or attitudes.

Priyanta (2021) states that technology-based learning is very interesting for students today. However, the role of the teacher is not will be replaced by any sophisticated machine or robot. This is because the teacher's job is not just to convey the material learning, but more than
that the teacher has to shape the character of the nation's children who have values of kindness, virtuous character, tolerance, and empathy. Strengthening character education is very important in the process of the disbursement carried out. The inner bond between the teacher and students will not be replaced by machine technology, robots, as well as artificial intelligence. The challenge for education going forward is how to prepare human resources that will not be replaced by robots or AI (Akmal, 2019).

In the future, the role of physical intelligence will be replaced by machines, and the role of intellectual intelligence will be replaced by AI. Meanwhile, emotional intelligence and spiritual intelligence cannot be replaced. This intelligence should be taught to children first so that it is not replaced by machines or AI (Ali & Erihadiana, 2021). The role of a teacher in delivering to students is to equip them to become a generation that is strong and has character and will not be replaced by anything in the form of material (Retnaningsih, 2019). This approach to the heart is not hindered by time, place, or anything else. That is what makes teachers never be replaced by machines or other AI.

AI does not replace teachers, but these teachers should be of a high caliber to foster human development. AI may be able to eradicate teachers who rely solely on knowledge transfer but have no sense of teacher morality (Wei & Ya-bing, 2018). The role of the teacher cannot be replaced by any sophisticated technology in educating character and morals, as well as setting an example for students (Tri et.al., 2021). Maybe the function of teaching can be replaced, but the process of educating cannot be replaced by anything. There is an exemplary process, values, and morals in the process (Solihati & Rachmawati, 2020). The essence of education is to develop the character, mind, and body of students. AI may be able to provide knowledge to students, but it cannot develop character. This is the teacher's role in inspiring, motivating, and making students become good students. Besides that, the thing that separates a human being who educates and an AI is feelings. The figure of the teacher has feelings of sympathy, empathy, compassion, and tolerance.

Then, we can utilize our intuition to devise a solution for that student. Even the most impressive artificial intelligence still struggles to properly analyze the students' complex requirements and direct signals. Context to know each student holistically and intuition to evaluate the richness and complexity of "classroom moments" are beyond the capabilities of artificial intelligence. Even the most impressive artificial intelligence still struggles to properly analyze the students' complex requirements and direct signals. Context to know each student holistically and intuition to evaluate the richness and complexity of "classroom moments" are beyond the capabilities of artificial intelligence. And despite the progress, the designers do not anticipate you holding your breath soon. Even the most impressive artificial intelligence still struggles to properly analyze the students' complex requirements and direct signals. Context to know each pupil holistically and intuition to evaluate the richness and complexity of "classroom moments" are beyond the capabilities of artificial intelligence.
The role of the teacher in the classroom cannot be replaced by the presence of AI. Even though technology is getting more and more sophisticated, AI can only take over routine tasks such as giving assignments and correcting answers. However, the teacher’s role is more than just giving assignments and correcting answers. Teachers are also tasked with guiding students in understanding concepts, teaching social skills interacting with others, and preparing students for success in the world of work. For example, in the teaching-learning process, teachers can help students overcome learning difficulties, motivate students to study, and provide guidance and support in students' academic careers. In addition, teachers can also assist students in developing cognitive abilities, social skills, and critical thinking skills. AI can make a positive contribution to the teaching-learning process, but AI cannot take over the role of the teacher as a whole. The role of the teacher as an educator and student guide remains very important and cannot be replaced by technology. Therefore, the teacher's role in the classroom remains very important and relevant, and teachers must continue to adapt to technological advances to provide the best education for students.

In this case, the teacher must start developing himself following the times and developments in existing technology. AI is here only to facilitate work, it does not mean that it can also replace the role of the teacher. The development and formation of character in children certainly require a special approach, this cannot be replaced by AI. The value of humanism must also be maintained and the essence of education is to humanize humans. AI may be able to provide knowledge to students, but it cannot develop character. That is the teacher's job. How to inspire, motivate, and make students become good students. So that way, we do not need to be afraid of existing technological developments. We don't need to be afraid of being replaced by technology. We should be able and able to keep abreast of existing developments, be willing to learn, and continue to develop our skills. Make ourselves great and upgrade ourselves so that we are qualified.

It is undeniable that some of the teacher's roles allow it to be replaced by technology such as robots. However, there are several reasons why robots cannot replace teachers in educating students.

1) teachers can interact naturally with students. Even though many AI technologies have been developed that have high "intelligence" and are said to be able to interact with humans, the types of interactions that can be carried out are of course very limited depending on the program given. Meanwhile, humans as social beings experience many processes that require different responses. Through interaction with human teachers, students can learn what empathy and trust are. The relationship between students and teachers is very important in learning. Teachers can throw jokes, or design fun learning. If something goes wrong, the teacher also can find a way out. In contrast to a robot that only works according to a given program.

2) teachers' master understands human growth. Teachers comprehend what it means to develop critical thinking, what progress looks like, and where and how to
intervene when problems arise. Teachers have the knowledge and insight to support and challenge students as they transition from childhood to maturity. Teachers are also aware of how to foster sociability and empathy in young children, as well as teach them to read and develop a numerical sense. The experience possessed by teachers allows them to understand not only the development of brain work but also the psychological development of students who experience changes in each period of their development. The teacher's ability to provide the emotional support and boundaries that will help children become thriving adults in the world of tomorrow is something that robots cannot do.

3) teachers are sources of inspiration. Teaching is about inspiration, not just information. Effective teaching focuses on the why and how, not the what, to spark the imagination and find a bridge to the hearts and minds of learners. Teachers must be able to inspire their students and inspiration cannot be programmed. AI teachers may not necessarily be able to create conditions that inspire students’ curiosity and passion for learning. AI may be able to replace some of the teacher's tasks such as computers that can provide information, can calculate, project, and even become a tool for human interaction but in the end, technology cannot truly become human beings who treat their students or students like humans.

4) Teachers play an important role in education. Teachers help students recognize their individuality, which promotes creativity and the development of problem-solving skills. They cultivate a passion for learning and provide support and guidance as students develop. In addition, they are responsible for preparing students for prospective employment or further education based on their interests. On the other hand, AI has begun to play a role in the education sector by aiding in the individualization of student learning. Additionally, it can provide students with objectives There are additional crucial facets of education that AI will never be able to replicate. Teachers also teach essential life lessons, such as how to cope with disappointment and failure. Teachers are always adapting, learning new things, and experimenting with new classroom techniques. AI can aid in the development of teachers by providing feedback based on previously specified criteria and by suggesting new teaching methods.

5) Teachers can adapt and change their teaching methods. Teachers can modify and adapt their instructional strategies to satisfy the requirements of specific students. They recognize that each pupil is unique. One comprehends the topic better than the other and has an aptitude for assimilating information. Teachers can tailor learning experiences to the abilities of individual students and help them excel in a particular subject. Additionally, teachers can interact with their students individually, which aids in their learning and development. Teachers teach their students essential life skills, such as collaboration and critical reasoning. They teach their students values and prepare them for the future. Now that we've discussed the limitations of AI as a teacher, let's examine how technology can improve the learning experience for both students and teachers.
The concern that AI will replace teachers in the future is understandable but unfounded. There are numerous factors why AI cannot fully supplant human educators. AI cannot provide holistic emotional connections. This connection facilitates pupil learning, growth, and a sense of educational support. AI will never replace the emotional support provided by a teacher. Educators are perpetual learners who continue to acquire new knowledge and develop throughout their professions. They continuously adapt to new situations and their students' requirements. AI is incapable of providing the same level of assistance as a teacher. In addition, instructors are enthusiastic about education and assisting students with their learning. They view it not only as a profession but also as a vocation and a means to an end. And this is something that AI will never comprehend. Teachers are aware that to transmit the knowledge they wish to impart to students, they must foster an environment conducive to limitless learning.

AI also has characteristics that are never tired, work quickly and efficiently, there are no emotions, and are very logical. As for humans, they have the opposite characteristics, namely humans feel tired and need rest, and work quickly and efficiently but if an error occurs, the activity must be repeated and is ineffective. The thing that distinguishes human characteristics and AI is emotion. This emotion is related to the development of creativity which AI systems do not have.

Based on Law Number 14 of 2005 concerning Teachers and Lecturers article 1 paragraph (1) reads, "Teachers are professional educators with the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students in early childhood education, formal education, basic education, and secondary education pathways" and Article 10 paragraph (1) which reads, “Teacher competencies referred to in Article 8 include pedagogical competence, personal competence, social competence, and professional competence obtained through professional education.” From the law we can underline the section "educate, teach, guide, direct, train, assess, and evaluate students." also on "pedagogic competence, personal competence, social competence, and professional competence" which we can relate to the characteristics of AI, namely there is no emotion and is very logical. In this case, of course, the activities of educating, guiding, and matters relating to the character education of students can only be carried out by humans. Thus, the teacher's work will not be replaced by technology. However, AI technology can help teachers in learning and improve student learning. Therefore, the teacher's goal in teaching is not just transferring knowledge, but also guiding, directing, motivating, and evaluating the learning process of a student. As a teacher, one must be exemplary and be a role model for students. This cannot be owned by an AI. Being a teacher is not an easy task, but the hope of Indonesian education is in the hands of teachers.

The law reminds us that the duties and role of the teacher as an educator are irreplaceable due to the rapid advancement of technology today the reason being taught by teachers is that humans are social beings and teachers have social competence. The figure of the teacher has a sense of
sympathy, empathy, and compassion, as well as tolerance. Meanwhile, machine technology does not have social competence as mentioned above. So, the teacher's role is very strategic. Therefore, teacher competence must always be maintained and honed, because a teacher is a person who has a big role in educating the life of the nation (Sutirna, 2021).

Although advances in AI technology have brought us into an increasingly sophisticated future, AI will never completely replace the role of teachers, such as 1) Interpersonal skills that AI cannot collect. Teachers not only provide lessons in academic terms but also provide social and emotional guidance and guidance to students. They help students build interpersonal skills, such as cooperation, empathy, and communication, which are critical to future student success. AI may help ban academic concepts, but it cannot provide social and emotional guidance and guidance in the same way. 2) Ability to make complex decisions. Teachers must be able to make complex decisions that consider many factors in a dynamic classroom environment. They must also be able to adapt their teaching approach depending on the needs of their students. These decision-making skills are difficult to implement in algorithms or robot programs. 3) Ability to create personal connections with students. A teacher can create a personal connection with their students. They can identify students' strengths and weaknesses and provide support and guidance that is specific to their individual needs. This is difficult for robots to achieve, they cannot form personal connections with students. 4) Creativity skills. A teacher must also be able to consider creative and innovative ways to teach complex concepts. They must be able to create interesting and interactive learning experiences for their students. This creativity skill is also difficult for robots to achieve. Even though technology and robotics are advancing, robots will never completely replace the teacher's role. Teachers provide more than just academic instruction, they also provide social and emotional support, complex decision-making, the ability to create personal connections with students, and creativity skills.

The world is getting more modern, and the logical consequence that arises is that technology is getting more sophisticated. Recently, there has been an issue about the greatness of AI technology. Indirectly, of course, there are effects, especially in the world of education. But no matter how sophisticated technology is, it will only function to provide tool efficiency for humans, nothing more. So even as a teacher, the role will not be easily replaced by this technology. Because the teacher is the subject, while technology is the object. The teacher has a sense of empathy, sympathy, and compassion, and not just transferring knowledge, the teacher also guides, directs, motivates, and evaluates the learning process. This is proof that the role of the teacher will not be replaced by an artificial intelligence technology device even though technology can make a child smart and have knowledge and expertise in certain fields.

No matter how much data an AI processes about student performance and preferences, nothing can match a human teacher's ability to visually assess and comprehend their
students' reactions and engage with them on an emotional level. AI has characteristics that are never tired, work quickly and efficiently, have no emotions, and are very logical. As for humans, they have the opposite characteristics, namely humans feel tired and need rest, and work quickly and efficiently but if an error occurs, the activity must be repeated and is ineffective. The thing that distinguishes human characteristics and AI is emotion. This emotion is related to the development of creativity which AI systems do not have.

Therefore, a teacher must keep abreast of technological developments and always be updated so as not to be left behind and make himself a lifelong learner so that he can set an example for his students. Thus, the presence of the teacher as a facilitator, inspiration, motivator, imaginative, creative, forming work teams, and developing character values cannot be replaced by artificial intelligence technology. However, the sophistication of technology the swift flow of information, and the ease of acquiring knowledge from various sources do not make a student forget the teacher's services but still respect the teacher because, without ethics, life becomes disorderly. Thus, it is very clear that the role of the teacher will never be replaced by AI technology because the blessing of knowledge is the pleasure of the teacher.

Although AI has many benefits in education, we also need to consider several things. First, is the issue of data security and privacy. By using AI, schools must ensure that student data cannot be accessed by unauthorized parties, and must be done with high confidentiality. The second is attention to the quality of education. While AI can help provide more effective subject matter, it cannot replace the teacher's role in providing direct guidance to students. Therefore, there is a need for synergy between AI and teachers in the teaching and learning process. Third, there is a need for awareness and awareness from all parties regarding the importance of AI technology in the education sector. Teachers, students, parents, and the government must all be involved in the development of AI technology in the education sector so that it can be used optimally and can provide maximum benefits for all parties. Overall, the future of AI technology in education is very promising. By using this technology, we can speed up the learning process to be more effective and efficient, and help teachers and other educators to provide higher quality guidance for students. However, there needs to be awareness and responsibility from all parties regarding the importance of AI technology in the education sector, so that it can be used optimally and can provide maximum benefits for all parties.

The future of AI technology in education seems to be getting brighter. With rapid advances in AI, many schools and universities are now starting to use this technology to assist the teaching and learning process. AI can help provide subject matter tailored to student needs, evaluate student achievement quickly and accurately, and provide more effective feedback for students. AI can also be used to improve the efficiency of school management, such as managing class schedules, managing student absences, and managing school administration in general.
Thus, AI technology can help reduce the workload of teachers and other educators, so that they can focus more on the teaching and learning process and provide higher quality guidance for students. The future of AI technology in education is promising. By using this technology, we can speed up the learning process to be more effective and efficient, and help teachers and other educators to provide higher quality guidance for students. However, there needs to be awareness and responsibility from all parties regarding the importance of AI technology in the education sector, so that it can be used optimally and can provide maximum benefits for all parties. In addition, there needs to be strict supervision and regulation regarding the use of AI technology in the education sector. This is important to ensure that AI technology is used ethically and does not harm students or other parties. This regulation is also important to ensure that AI technology is used effectively and does not reduce the quality of education.

With the development of AI technology, students are expected to be able to use this technology to assist the teaching and learning process, so students can learn more effectively and efficiently. AI can help provide subject matter tailored to student needs, evaluate student achievement quickly and accurately, and provide more effective feedback for students. On the other hand, AI technology can also assist lecturers in managing school administration, such as managing class schedules, managing student attendance, and managing school administration in general. Thus, AI technology can help reduce the workload of lecturers, so that they can focus more on the teaching and learning process and provide higher-quality guidance for students. To be able to make a major contribution to education in Indonesia, teachers are also expected to continue to improve their quality and competence.

Teachers are also expected to be able to adjust to the development of technology and information that continues to grow. Thus, lecturers can use technology and information to assist the teaching and learning process, so that students can learn more effectively and efficiently. With all these factors, it is hoped that the future of lecturers in Indonesia will be even brighter. Teachers are expected to continue to improve their quality and competence and can be a good example for students and society in general. In addition, by using AI technology, lecturers can also make a bigger contribution to education in Indonesia. However, AI technology is only a tool for lecturers in the teaching and learning process. Teachers still play a very important role in the teaching and learning process, because they are directly responsible for students and provide direct guidance to them. Therefore, there is a need for synergy between AI technology and teachers in the teaching and learning process, so it can provide maximum benefits for students and education in Indonesia. There needs to be strict supervision and regulation regarding the use of AI technology in education. This is important to ensure that AI technology is used ethically and does not harm students or other parties. This regulation is also important to ensure that AI technology is used effectively and does not reduce the quality of education.
Conclusion

Several tools may shape the implementation of AI in educational contexts. AI can be used to train students to become better teachers and also be used as a learning tool for students. Therefore, the use of AI must be done wisely and consider its impact on humans and society as a whole. Besides, the disadvantages of AI in education toward addiction to technology, high costs, unemployment problems, and education quality. Furthermore, no system can replace the role and significance of the teacher’s role, knowledge, expertise, experience, and desire to provide the best for their students. The role and significance of teachers in education cannot be replaced; however, by utilizing AI, the teachers' expertise, knowledge, and experience can be used for more productive activities, focusing on students who require their attention rather than engaging them in basic tasks that can be easily replaced by AI systems. What must be underlined is technology until whenever its function is only as a tool, of course not completely replace the role of a teacher. For example, related to affective and moral aspects involving feelings and psychological of course only can be done by a teacher. So the existence of AI technology should be utilized optimally according to its capacity and function. On the other hand, the role of the teacher must remain prioritized so that humanist values and affection in an educational process can be realized continue to last, and be maintained according to the essence of that education itself, namely humanizing humans.

References


