

# A Review on the Challenges of Incorporating Artificial Intelligence (AI) in Teaching

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## Abstract

This paper explains the challenges of incorporating Artificial Intelligence (AI) in teaching in terms of educational resources, personalized learning, motivation. A qualitative library-research design was utilized to study researches published about Artificial Intelligence (AI) from 2018-2025. The challenges of the Artificial Intelligence (AI) integration into educational resources have a significant impact on the teaching practices. Although Artificial Intelligence (AI) provides a positive impact on educational resources such as it can personalize learning and speed up content creation, its implementation must be carefully managed to avoid compromising the human element of education. While AI can improve learning and help keep students motivated, its impact is sometimes reduced by misuse and the difficulty of properly integrating it into teaching. Some students rely too much on AI for assignments, raising concerns about academic honesty. Educators such as teachers and professors must monitor AI-generated content to ensure it meets the academic standards and promotes student engagement.

**Keywords:** *Artificial Intelligence (AI), Challenges, Teaching, Literature review*

## Background

In recent years, artificial intelligence (AI) has advanced quickly, leading to widespread usage in a variety of industries. AI in education has the potential to simplify administrative duties and provide a more individualized learning experience. However, these benefits also present ethical and social challenges that must be addressed for responsible implementation (Reiss, 2021). Key issues including privacy, bias, transparency, and over-reliance, as well as the potential for AI to replace human labor and the effects on the environment, will be covered in this study.

In the study of Agkun & Greenhow (2021) about artificial intelligence in addressing ethical challenges in K-12 settings, they place importance on addressing privacy and data security issues. They stressed that by monitoring student activities and learning patterns without any security measures in place, AI surveillance may inadvertently jeopardize student privacy; stored data may also be accessed by bad actors if data isn't properly safeguarded. In a similar vein, UNESCO (2021) stresses the significance of strong data protection regulations to safeguard and stop student data misuse.

Bias and fairness in AI decision-making are yet another significant ethical concern. According to Tang & Su (2024), biased training data is the root cause of algorithmic bias, which can reproduce and perpetuate systemic stereotypes based on racial, ethnic, class, gender, and cultural backgrounds that are inherent in historical data. In language learning AI models, gender discrimination is the most notable issue, as it often reinforces gender stereotypes when translating sentences about doctors or soldiers as male. There is also the issue of cultural imperialism, wherein AI models can unintentionally promote cultural bias, which can exacerbate existing discrimination. Additionally, during personalized learning, biased AI decision-making algorithms may not assess the performance of certain student groups fairly, leading to marginalization.

Another significant ethical issue with AI systems is transparency. According to Nguyen et al. (2022), educators frequently depend on AI for feedback, grading, and tailored learning; therefore, there is a risk of misuse and misunderstanding if they do not grasp how AI arrived at particular conclusions. In addition, the study states that if educators do not have a firm grasp on how the algorithm functions and makes decisions, it may cause issues

regarding trust to arise, which could lead to biased or unfair outcomes for students. Additionally, a lack of transparency may hinder the educator's ability to intervene in situations where AI makes errors or exhibits bias. The social impact of AI in education is truly vast; it not only encompasses students and teachers but also extends to the environment. According to Williamson (2024), the overuse of AI can have a negative effect on students' cognitive function, mental health, and problem-solving skills. It also poses the risk of lowering the value of studying and learning among students. In addition, Williamson also mentioned that AI may replace most educators in the future due to the cost-effective nature of AI, as it would be an efficient way for educational institutions to reduce or eliminate the cost of teaching labor.

Meanwhile in UNESCO (2021) report, artificial intelligence is important for the environment since it can provide information about environmental and economic issues. The report goes on to say that AI shouldn't neglect or break environmental laws, regulations, and standards. Its development should not be limited to certain areas; instead, it should cover a larger scope that prioritizes the benefits of many. The study also emphasizes how crucial it is to select the appropriate AI techniques. Member states must assess how AI affects the environment, particularly regarding spreading misinformation, lacking sufficient information, or failing to provide enough evidence to support its data. If AI does not follow precautionary principles and continues to have negative effects on nature, it could become a major challenge for everyone.

The findings laid out construct a coherent review about the implications of artificial intelligence in educational settings. While AI presents many advantages like personalized learning experiences for students and support for educators, it also comes with ethical and social challenges that need to be addressed. Creators of AI should design AI models while keeping in mind the ethical and social impacts of their creation. Developers should strive to earn the people's confidence regarding AI so that its advantages are distributed to all aspects of society. Algorithm developers should cultivate trust and confidence within the people to increase the favorability of AI adoption. Privacy concerns should be addressed by employing increased security measures to protect student data; on the other hand, there should be ethical guidelines in place for the collection of data to prevent its misuse and exploitation.

## Research Method

This article explains the challenges of incorporating Artificial Intelligence (AI) in teaching. Moreover, the method employed is a qualitative library-research design which required the writer to collect the object materials from the previous studies related to Artificial Intelligence (AI) in Teaching. Jones (1993) advocated that this type of research design which assist the researcher in attaching and identifying the factual sources or personal ideas to answer related research questions.

The sources in this research includes published papers on Artificial Intelligence (AI) from 2018-2025 in educational resources, personalized learning, motivation, teaching methods/strategies in incorporating Artificial Intelligence (AI) in Teaching, students' perception towards Artificial Intelligence (AI), and teachers' challenges in teaching Artificial Intelligence (AI). Furthermore, the main focus of this paper is on the challenges of Artificial Intelligence (AI) in Teaching.

The research utilized descriptive research anchored by a library research design. The data was analyzed through Conceptual Analysis by Furner (2004) of the published papers regarding educational resources, personalized learning, motivation in Artificial Intelligence (AI). The analysis of Furner (2004) allowed the researcher to evaluate the concept of evidence to improve understanding of archival concepts. The researcher's analysis involves identifying the gap in Artificial Intelligence Teaching in terms of the challenges, the research selection extracts keywords and content. The data gathered and analyzed through summarizing, synthesizing, or comparing different sources. Lastly, the evaluation of sources involves identifying the research credibility, publication date, and the relevance of the paper.

## Result and Discussion

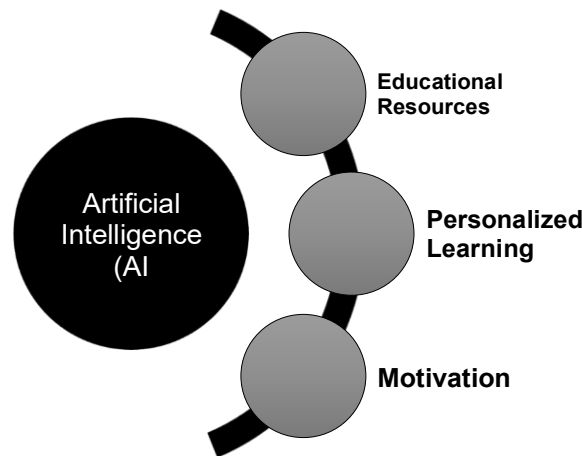


Figure 1. A review structure of Artificial Intelligence in Teaching

Figure 1 presents the connection of the challenges of Artificial Intelligence in Teaching. This includes the educational resources, personalized learning, and motivation.

### **Educational Resources**

Artificial Intelligence (AI) is rapidly growing and has revolutionized the way people work, communicate, and learn. In education, Artificial Intelligence (AI) has provided a lot of benefits and opportunities, especially in enhancing educational resources including more personalized and engaging learning experience, adaptive learning platforms, improved digital literacy, etc. While there are many benefits Artificial Intelligence has given, there are also several challenges and drawbacks it created, this includes, people over-reliance on AI platforms, potential replacement of teachers, etc. this study discusses the challenges involved in integrating Artificial Intelligence (AI) in teaching specifically on educational resources.

The use of Artificial Intelligence (AI) has led to both practical and ethical concerns. As stated in the study of Adiguzel et al. (2023) while AI can automate content creation and provide a prompt response, concerns such as biases in AI-generated contents can have a negative effect on the quality and reliability of educational resources. Similarly on the study titled Educators' Academic Insights on AI reveals that teachers are concerned about the potential replacement of Artificial Intelligence to human expertise in developing educational materials, which may negatively affect students' creativity and growth. Educators argue that Artificial Intelligence (AI) should be used in addition to, not a replacement to the traditional teaching methods (Jose, & Jose, 2024). Technological challenges also have an impact with the integration of Artificial Intelligence into education. The study of Canonigo (2024) highlights the challenges such as technological limitations, biases in AI systems, and concerns with pacing and social interactions. Educators must adapt to the rapid advancement of technology, which can make it challenging to adopt AI-driven resources. Furthermore, while Artificial Intelligence (AI) creates opportunities for inclusive learning and provides an improvement with digital literacy, educators are required to do additional training and resources to fully integrate Artificial Intelligence (AI) into their classrooms (Zhang & Zhang, 2024).

The challenges of the Artificial Intelligence (AI) integration into educational resources have a significant impact on the teaching practices. Although Artificial Intelligence (AI) provides a positive impact on educational resources such as it can personalize learning and speed up content creation, its implementation must be carefully managed to avoid compromising the human element of education. Educators such as Teachers and Professors must monitor AI-generated content to ensure it meets the academic standards and promotes student engagement. Furthermore, teacher education programs should include AI literacy to assist educators in successfully navigating



the new AI-driven educational landscape. Artificial intelligence (AI) has the potential to greatly improve educational resources by making learning more personalized and accessible. However, issues such as AI biases, technological limitations, and the need for teacher training must all be addressed. Educators can ensure that artificial intelligence (AI) enhances rather than detracts from the learning experience by balancing its potential with human responsibility and considerate integration.

### ***Personalized Learning***

Artificial Intelligence (AI) is developing various sectors, including education. Improving their knowledge and learning, but on the other hand, could damage the critical thinking skills (Russell and Norvig, 2021). According to the Digital Education Council, 24% of students use AI on a regular basis, while 86% rely on it for academic purposes.

AI affects student-teacher interactions, which could impact outcomes. High costs may limit AI's accessibility, reducing its use in many educational settings. However, the concerns about data privacy and security also arise, because AI can access students' data or identity (Zawacki-Richter et al., 2019). Some teachers and students favor traditional teaching techniques over AI-based alternatives. Despite these challenges, AI can bring a quality education and help the teachers and students by providing information that is reliable. The goal is to find a balance between AI and traditional teaching methods to ensure that students develop necessary skills while benefiting from AI. When used correctly, artificial intelligence can enhance learning while providing educational standards. Achieving this balance would allow education to benefit from AI while maintaining the essence of study. AI is certainly changing the communication between teacher and student in personalized ways where less time is dedicated to daily task-related work. Teachers are able to design individual classes according to a singular student's requirements and spend more time with students using AI. Learning is also the advantage of learning or getting more than what allows the fit to learn alone. Without replacing teachers in their functions, AI enhances learning on the Internet, making it interactive and more attended. An unfortunate aspect of non-balance would be depriving students of critical thinking and deeper learning.

AI in personalized learning has big implications for higher ed. AI can break down content to individual students but there's concern that teachers will lose their role in developing students' self-esteem, creativity and emotional intelligence. Teachers will become too reliant on AI and embed it into their teaching and lose sight of other methods. If these AI systems are based on biased or wrong data everyone will get the same suboptimal output and some students will suffer (Fadel, Holmes, and Bialik, 2019). So, it's up to teachers to balance how AI is used in teaching, to be in control of the AI used and to bring in the human elements of teaching into the classroom. Reflection and training for their job is key to the integration process so personalized learning is flexible, unconstrained and guided by humans (Luckin, 2017; Santos, 2024).

Moreover, AI improves education by providing personalized learning and work automation, but it also provides challenges of data privacy, accessibility, and its influence on critical thinking capacity. AI can indeed assist teachers in interacting with their students differently and preparing lessons suited for each student need. However, what is needed is a harmonized process whereby AI augments learning and yet leaves teachers as the central persons to students. With these, students never lack such essential skills as critical thinking and socialization. The employment of AI is meant to help teachers and not to replace them in streamlining learning and individualizing it. With problem-solving for privacy, bias, and ethics of use, AI can be a tremendous asset to education without taking away the human element involved in learning.

### ***Motivation***

Artificial Intelligence (AI) has rapidly advanced, with organizations such as OpenAI and DeepSeek driving its development. Students increasingly utilize AI for educational purposes, leveraging its capabilities to enhance their learning experiences. According to Mohamed et al. (2024), AI positively influences students' academic motivation, with many expressing favorable views toward its integration in education. However, Alasgarova and Rzayev (2024) highlight the concerning misuse of AI, where students rely on AI to complete assignments and generate answers with minimal effort, which compromising the authenticity of the learning process. Furthermore, this misuse extends to AI fabricating non-existent references, which threatens academic integrity and potentially misleading both students and teachers.

Celik et al., (2022) stated that AI can assist teachers by reducing task demands, helping teachers to assist students with mental disabilities and can help with lesson planning. Despite the advantages, AI algorithms need to be trained by teachers which takes time and resources, a considerable number of teachers also do not have the technical knowledge to efficiently use AI for teaching, furthermore, it is also found to be also inefficient in giving feedbacks; delayed responses and inconsistent feedback may not always align with the students' specific needs. Beyond these concerns **Ji, Suo, & Chen** (2024) found out that AI does not directly influence students' continuous learning intentions. Instead, its impact operates indirectly through expectation, confirmation, and learning satisfaction. Moreover, Nita and Margana (2024) suggests that AI assistance help students stay motivated and engaged in learning English by providing personalized lessons and instant feedback. Most teachers have a positive view of AI in EFL classrooms, recognizing its potential to enhance learning experiences. However, it highlights that effective AI training and adaptability are needed for enhanced learning assistance for teachers and students. While AI can be a useful tool, its success depends on how well it is integrated into the curriculum alongside traditional teaching methods.

While AI can improve learning and help keep students motivated, its impact is sometimes reduced by misuse and the difficulty of properly integrating it into teaching. Some students rely too much on AI for assignments, raising concerns about academic honesty. Teachers also need the right training to use AI effectively. To get the most out of AI in education, it is important to create systems that support both students and teachers, making sure AI is used as a helpful tool rather than a way to avoid learning. Combining AI with traditional teaching methods will help ensure a balanced and effective learning experience. These findings suggest that the integration of AI in educational institutions is inevitable, as its advantages outweigh the challenges and issues, to maximize the benefits of using it for teaching. AI developers should continue refining AI systems to enhance the reliability, reduce the misuse of AI to minimize student dishonesty and to further meet the expectations of educational needs, it should be also made to be active at helping student motivation rather than a tool for students to generating answers.

### Conclusion and Suggestion

AI should serve as a tool to promote inclusivity, not to perpetuate inequalities already present. Algorithmic biases can be mitigated by regulating training data, ensuring diverse data sets that represent people in all walks of life. Moreover, there should be regulations in place to ensure the transparent operation of AI systems to ensure that AI will not be exploited to spread false narratives that manipulate peoples' perspectives. Educators should find ways to implement AI systems in the classroom that strike the balance between the support technology can offer and the student's own problem-solving and critical thinking ability. AI should support students in their learning, not carry them. Ultimately, AI should be designed with the benefit of all in mind, regardless of race, ethnicity, socioeconomic status, gender, or cultural background

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