



# AI in Education; The Challenges and Opportunities of Using AI in Teaching and Learning

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Submission: July 18, 2024; Published: July 31, 2024

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## Mini Review

In the last few years artificial intelligence (AI) has acquired increasing relevance in the education sector and has presented both opportunities and challenges. In this respect both teachers and students are at the forefront of the multiple challenges that are presented by AI. This is especially so in higher education.

The advances in AI, as well as developments in other technologies and applications, have impacted all aspects of our daily life, work and study. AI has become a central theme in academic conferences, scientific conferences and technological competitions all over the world. This transformative technology has, accordingly, expanded rapidly in its scope and depth and in its application across wide fields of endeavor.

Examples of how AI may be used in the classroom include AI-assisted classroom tools and mechanisms which can help teachers substantially, supporting them to [1]:

- i. Automate and personalize grading.
- ii. Complement the existing course materials.
- iii. Save time with grading, aiding them in providing constructive feedback to students, and help them to become more efficient.
- iv. Help the student on a more personal basis.

What is important to highlight is that AI should be implemented ethically, empowering both teachers and students, however without overpowering them. Therefore, future developments in AI should be implemented for the common good and be carried out sustainably, thereby transforming education systems towards the goal of an inclusive and sustainable future [1].

There are however a number of challenges presented by AI and specifically by generative AI tools such as Chat GPT. The latter has the capability to imitate human writing, and therefore may be utilized by students to cheat on the different assignments they might need to complete at university. Furthermore, even though in some instances AI is regarded as being unethical and wrong to use, students still do employ it in their assignment work. The unethical use of AI presents a dilemma. Teachers will have to become knowledgeable about AI in order to be able to detect cases where the tool has been misused by students. This is essential as the non-detection of AI in academic works may present serious threats to the quality of education as well as to correct recognition of student's real achievements. Over time, teachers will need to necessarily become familiarized with these new tools.

There are further challenges that AI presents that are listed below [1]:

- i. **Cost.** The initial installation of software and cloud support may prove costly, as well as may the continuous training of the teachers and professors. This is especially so when technology is progressing rapidly, and educational institutions will need to keep abreast of developments in both the technology and its applications. What also needs to be considered here is that although there is the potential that increasing the number of virtual teaching assistants and administrative staff may save costs for the educational institution, analysing the impacts of such radical change on both the learning environment and on learning outcomes will be especially important.
- ii. **Technology awareness and adoption.** As technology is advancing so quickly, educational institutions will need to be both

nimble and agile to determine and then continuously monitor which technology will be most adequate to use. Furthermore, keeping up to date with technology is very attractive with regard to student enrolment as it provides a profile which increases the attractiveness of the university to students.

Challenges come with AI but are outweighed by the opportunity of its potential to revolutionize education through its transformative effect on the way students study and learn, thereby helping them to improve their work [2].

At this stage in the discussion, it must be noted however that the role of technology is increasing both in teaching and learning at all levels in the educational sector all over the world. It is therefore essential to adapt to the advancements of technology. The challenge here is to ensure that teachers and professors possess the teaching competences to use these new technologies and incorporate them in their teaching repertoire. Furthermore, teachers and professors also have their own valuable role to play in the development of new technologies associated with AI, especially regarding the creation of content and methodology.

Furthermore, AI's arrival has brought considerable innovation to the educational sector for example with the development of tools used in teaching, which has in turn;

- i. Expanded the digital skills of students [3,4].
- ii. Brought new forms of media in learning which requires students to have better drawing skills and specific photographic capabilities [5].
- iii. Develop students' creativity skills when required to change the old to the new [6].

What is interesting to note is that, through AI, teachers gain the potential to get students ready for the hyper-complexity of both work and life that they will find themselves facing when they finish their university studies. The level of complexity in which we are living is increasing, especially in the BANI world framework we find ourselves in. BANI stands for "Brittle, Anxious, Nonlinear, and Incomprehensible", which very coherently expresses and describes the complexities and transformations of our present environment. Our world is currently brittle, uncertain and non-linear, and AI will help students deal with the anxiety of being

faced with a host of different factors, giving them the capability of forming a holistic perspective of different situations and helping them to make better and more grounded decisions.

What can be concluded however, is that while technologies such as AI are progressing rapidly with an ever-greater impact on learning and teaching in both the short and the long term in universities, they cannot replace the human mind. AI can presently affect many aspects of our personal lives, from our credit scores to our employability and much more besides, and its impact, both apparent and occult, can only increase further. With regard to education, the impact of AI is becoming ever more evident as regards both the opportunities as well as the risks that come with it. It has the potential to improve and enhance the teaching and educational system, but it is clear it cannot replace teachers. Education is a human-centric discipline (i.e., and not a technology-driven one), where the core of the learning is based on the interaction between teachers and students, and technology should be used as a tool to promote and strengthen this learning bond. Consequently, enhancing human thinking and increasing the teaching and learning process is the main aim of technology in education [1].

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DOI: [10.19080/ASM.2024.10.555796](https://doi.org/10.19080/ASM.2024.10.555796)

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