

United Nations Educational, Scientific and Cultural Organization (UNESCO)

Investigating the integration of AI within the educational system to
improve the quality of learning



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An Introduction To The Topic

AI is a fast-growing area that not only has found a way to facilitate the lives of professionals but also the lives of students. However, there is a big ethical dilemma that comes with this newfound power and a lot of people ask the question 'Could this technology improve the education quality or rather send it backwards?'. Everyone uses some form of AI in their lives, especially students. Think about the plagiarism detector teachers use and ChatGPT that students use to help them finish assignments. But what could AI achieve at its true potential? That is a very broad question with many answers, but a few examples are mentioned in this report.

AI can be used in education to achieve numerous goals. One of them being translation and language learning. AI can help improve the pronunciation of language learners by comparing it to the native speaker's through speech recognition and is able to comprehend how it can help the student in the most efficient way based on their mistakes.

AI can also help improve translations by NLP and machine learning so it can deliver the most suitable translation based on context.

Adaptive learning is also an area in which researchers see great potential for AI. Whether it's for the students themselves that may have trouble with keeping up with the class and need more attention in some areas or to take some load off the teachers' plate. Nowadays there is a shortage of educators which means that there are more students per teacher than one can handle. The educator may not have time to give each student personal attention and help them on with their difficulties. By implying this 'personal tutor' in the classroom the AI is able to spot the student's difficulties and personalise their curriculum. This takes pressure and some workload off of teachers while still being able to improve students' education.

Definition of Key Terms

Artificial intelligence (AI)

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think and learn like humans (OpenAI, n.d.).

It has a lot of different learning mechanisms and key aspects such as deep learning, machine learning, and NLP.

Very simply said, AI functions by learning from the data that is available and is able to make predictions, recognize patterns, and make conclusions. It never stops learning because it keeps improving its function from feedback.

Deep learning

This is the ability that AI has to function like a human brain (a neural network) and therefore being able to recognize patterns and make predictions about the past and future based on what it has learned.

Machine learning

This is how AI is able to learn by examples. After data is given AI tries to make something out of it (with the help of examples and the data given) and if it makes a mistake, it tries again and again until it gets it right. This process is memorized to improve the next time.

NLP

This not only makes AI understand, interpret, and respond in human language in a natural way.

A General Overview of the Issue

When it comes to AI technology it isn't so much a matter of debating who's in favour and who is against this issue but more on who to find a safe way to do it. AI still has issues that if fixed could make it useful learning tool.

As mentioned above for example a way AI can help is in improving translations however this can also be a debatable function of AI as it makes stereotypical assumptions due to the information available, *"For instance, Google Translate historically translated the Turkish equivalent of "He/she is a doctor" into the masculine form, and the Turkish equivalent of "He/she is a nurse" into the feminine form."*

AI's gender bias problem is a big one with no solution in sight (so far) because if the algorithm is fed biased data that is created by humans that AI will reinforce that data and therefore be biased as well.

Another major issue is the data privacy of the students and teachers. AI may collect more data than necessary which can leave people wondering why and for what. This extra data it collects may also come from data exposure, which is when a party (in this case AI) releases information to other unauthorised parties. Which may not sound like much but when face recognition is enabled it can cause some privacy problems.

What makes it so difficult is that AI works at its very best when it has access to all of the user's information.

Major Parties Involved

A lot of countries have a nation AI plan on their government website though some may not be concrete nor definitive.

I suggest the nation's try to research their own privacy policies and education ideals and debate off of that.

Singapore

Singapore is one of the countries that has kept the most up to date when it comes to AI and technology. In 2019 the nation drew up 5 national AI projects, one of them being in the education sector, as a part of their Smart Nation initiative. Singapore want AI to create a 'personalised education through adaptive learning and assessment'.

National AI Strategy. (n.d.). National AI Strategy.

<https://www.smartnation.gov.sg/nais/>

USA

The United States of America has also shown interest in implementing AI in education but as of May 2023 a report published by the Office of Educational Technology no concrete plan had been drawn up but merely ideas of how they could introduce this new technology. The USA has however made it very clear that they have no intentions of having AI take over the educator's job.

Artificial Intelligence and the Future of Teaching and Learning - Office of Educational Technology. (n.d.). Office of Educational Technology.

<https://tech.ed.gov/ai-future-of-teaching-and-learning/>

Russia

Though not much can be found about Russia's plan to introduce AI in education, Vladimir Putin declared that the "West" has no right to monopolise AI and that Russia is therefore developing their own. He stated during a public speech that the western AI is trying to erase Russian culture.

Russia's newspaper The Moscow Times reports that the Kremlin has allocated 5.2 million Rubles for AI research in 2024.

China

China plays a big role in UNESCO's AI in education program, especially in implementing AI in third world countries. China also hosted the first International Forum on AI and Education. Unlike Singapore, China's plan is to use AI to accelerate the learning trajectory of the students. In the province Zhejiang, AI is a mandatory subject in primary and secondary school.

By 2027, China wants to have invested \$38.5 billion in AI.

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