

Forum:	Special Conference 2 (SPC2)
Issue:	The question of AI's impact on educational systems
Student Officer:	Kuei Chen
Position:	President

Introduction

Over the past decade, Artificial Intelligence has witnessed exponential growth, providing cutting-edge solutions and innovative strategies for all industries, especially education. AI has transformed the landscape for future educational systems, streamlining grading processes, enhancing tutoring systems, trivializing basic research, and, indeed, upgrading efficiency for teachers and students alike, whether in the form of class preparation or homework completion (Smith).

Today, Artificial Intelligence in Education (AIED) is rapidly evolving, drawing the attention of educators, researchers, and investors alike. In fact, the industry's market value is projected to reach USD 32.27 billion by 2030, compared to 2024's market size of USD 5.88 billion (Grand View Research). Teachers and educators across the globe are actively exploring different ways of utilizing AI as a tool to enhance lesson planning, material generation, and grading. Yet there are also risks that educators recognise, such as potential of error and inaccurate generation, lack of human-like pedagogical strategy, which may dampen learning experiences, more accessibility to plagiarism for students, and amplification of unwanted biases (US Department of Education). Overall, AI in education is a relatively new innovation, and still lacks necessary frameworks and regulations, as well as tools for mass integration.

Definition of Key Terms

Artificial Intelligence (AI)

Technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy. (Stryker, IBM)

Natural Language Processing (NLP)

A subfield of computer science and AI that uses machine learning to enable computers to understand and communicate with human language. (Stryker, IBM)

Generative AI / Large Language Models (LLMs)

AI systems capable of understanding and generating human language by processing vast amounts of text data, e.g., ChatGPT. (Stryker, IBM)

Intelligent Tutoring Systems (ITSs)

Computer programs designed to deliver individualized instruction and feedback to learners. These systems harness AI techniques to offer a learning environment that adapts to the student's needs, creating a one-on-one educational experience. (UNESCO)

Bias / Equity / Fairness (In regard to AI education)

Ensuring AI tools and data are used in ways that are inclusive, non-discriminatory, and equitable across different student groups. (European Commission)

Adaptive Learning

A method of education or training using computers, that uses algorithms to change teaching material, exercises, etc. according to the needs and performance of each learner. (Cambridge)

Background Information

Despite the recent surge of integrating modern AI into education, the idea has been in circulation for half a century. In the 1960s, researchers began experimenting with uses of AI for the classroom, such as AI-powered tutors, which is still a core concept for our current innovation. Therefore, systems like PLATO (Programmed Logic for Automated Teaching Operations) and TICCIT (Time-shared, Interactive, Computer-Controlled Information Television) emerged in the 1970s, allowing students to interact with lessons on a screen, essentially becoming early e-learning. (Albanese, TSH)

In spite of that, the older versions of AI lacked one key aspect of 21st century AI: machine learning. Back then, AI systems followed strict algorithms and were unable to adapt and personalize for each individual teacher, student, and education system. However, modern machine learning AI allows these systems to have better analytical potential, inducing improved adaptability, enhanced predictive analytics, and augmented generative ability, ultimately allowing AI to become a more effective tool in the classroom to personalize

learning, trivialize educational logistics (e.g. timetable management), and act as a simple, accessible source to both educators and students due to NLP. (Albanese, TSH)

This streamlined version of AI brings numerous benefits for education when integrated into pedagogy, such as personalized learning which provides teachers with data to track their students' progress but also implements learning systems that can be tailored to each student's academic ability. Ergo, many nations are interested in the development of AI education, in the hopes of improving their educational system. (TSH) However, the incentives of enhanced AI in education aren't wholly altruistic. Many nations, such as the US and China, see this development as a compulsory objective to maintain their position as a leader in AI. (White House) (Asia Education Review) Not only that, but many states also expand AI in education to prepare future generations for the age of AI and improve digital literacy, so they can expand the workforce. Nevertheless, there is no doubt that, despite the incentives, AI in education will invoke a multitude of positive impacts for the entire educational sector.

However, there are also problems involving AI's impact on education. Firstly, there arises the issue of generative AI allowing for more accessible plagiarism by students, which will negatively impact their learning. Unfortunately, this issue is difficult to regulate unless the development of AI stagnates, thus certain policies and frameworks may have to be implemented. Also, it is difficult to guarantee educators will utilize the technology effectively, as teachers may not have proper guidance on how to integrate such technology into their everyday classes. Not only that, but there are concerns of AI becoming too prominent within the education sector, and there being a loss of teacher autonomy and perhaps jobs. There are also concerns of bias and equity regarding responses AI gives, as well as data privacy of students who utilize AI-supported applications and systems. (Albanese, TSH)

Previous attempts to solve issue

UNESCO Recommendation on Ethics of AI 2021

Claims AI has potential to advance SDG 4, and that policies can't keep up due to rapid technological enhancement of AI. The mandate calls for a 'human-centred approach to AI', that AI can be used to expand viable education to all, and that all can be able to take advantage of the fourth industrial revolution. Also published other frameworks such as 'AI and education: Guidance for policymakers' and "AI competency frameworks for students and teachers." (UNESCO)

UNICEF Policy Guidance for AI on Children 2021

Published a long report in November 2021 in regard to protecting all children from the potential dangers of using AI in education, and calls for a prioritization of protecting human rights for children when utilizing AI in pedagogical systems. (UNICEF) The report was successful in raising awareness about the topic, as well as identify practical tools for integration, but due to the non-binding nature of UNICEF and economic capabilities of different nations, practical impacts are limited.

AIED Conferences

Individuals in academia and policymakers meet annually in conferences hosted by the IAIED to foster the responsible integration of AI in education and EdTech, as well as discuss new innovations. Spearheads researching and innovation of AI within education. Most recent conference in Palermo, July 2025, where standards were discussed and cross-sector collaborations were fostered.

Organisations & Major Countries Involved

International AIED Society (IAIED)

An interdisciplinary community at the forefront of computer science, education, and psychology. Supports developing AI in the education sector globally, and conducts research on the effectiveness, integration, and ethics of AI in education, as well as hosting annual conferences discussing findings and developments. Part of the larger International Alliance to Advance Learning in the Digital Era (IAALDE). (IAIED)

United Nations Educational, Scientific, and Cultural Organisation (UNESCO)

Leading global educational AI development by guiding education policymakers, tackling ethical and pedagogical dilemmas in publications, promoting the potential of AI in education, pushing for global accessibility to AI in education, and supporting teachers and students to understand how to best exploit this tool. (UNESCO)

Organisation for Economic Cooperation and Development (OECD)

Tracks how countries handle policy creation for generative AI in education, including decisions of banning, restricting, or encouraging use. Also investigates ethical questions and examines digital infrastructure. (OECD)

United States of America

At the forefront of AI development and research, mainly to maintain their posture as a global leader in AI, as well as a leader of policy creation courtesy of the Department of Education. Provides federal grants for expanding AI, promotes AI literacy for students and

teachers alike, and collaborates with private corporations to further forward their agenda on nationwide AI integration. (White House)

China

The Ministry of Education in China has made AI education mandatory to increase AI literacy as well as expand the industry, pushing for at least 8 hours of AI instruction per year. The curriculum varies whether students are in primary, junior high, or senior high. On top of that, China is rolling out AI exam invigilators and integrating AI into multiple subjects, while taking care that AI doesn't replace jobs by creating policies. (Asia Education Review)

Viable Solutions & Approaches

There are already multiple frameworks and organisations in place to refer to, such as UNESCO and IAIED, but multiple issues are still not covered. To address plagiarism, one can choose to restrict AI or embrace it, to stagnate it or further it, to teach students proper ways to use AI, or crack down on it. For privacy, stronger security needs to be implemented. For bias and equity, AI in education needs to be global to reduce inequality, but also make sure inherent AI-generated biases are filtered out. Educators need to reevaluate their pedagogy systems and train themselves to better work with AI with programs, standardised or not, and developers/researchers need to make their systems transparent so teachers and students alike can understand where their data and recommendations are coming from.

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