Chapter 24
How Can Education Use Artificial Intelligence?
A Brief History of AI, Its Usages, Its Successes, and Its Problems When Applied to Education.

Claudio Pacchiega
Edu3d, Italy

ABSTRACT

AI, artificial intelligence, has recently made a big leap, especially in the field of ANI (artificial narrowed intelligence), meaning that now we are starting to have decent tools that can be useful in teaching. After the surge in importance of the distant learning techniques due to the COVID-19 pandemic in 2020, many educators have found themselves lost in dealing with an overwhelming excess of electronic information from their students, either via chat, email, documents, videos, or multimedia material. This chapter tries to delve into the difficulties of using affordable techniques for generating valid synthetic information such as rating homework or understanding if students are correctly following distant lessons. Since this is still an early subject, much more study and tests must be done to understand the full usability of automated AI tools in this (educational) context.

INTRODUCTION

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distant lessons. Since this is still very an early subject, much more study and tests must be done to understand the full usability of automated AI tools in this (educational) context. The content is separated into 6 main topics:

What is AI? Since AI is still not completely understood by most of the Educators, an extensive recap of what is AI and its history since 1950 has been provided,

Big Data and Neural Networks are heavily related to AI, and current AI successes are strongly connected with these new paradigms, so the basis for these technologies is also explained.

Where has it successfully being used? Many fields and examples where AI has been particularly strong and successful are listed.

Where and how has it being used in Education? Having a grasp of these concepts, we can then try to understand where AI and Big Data had already experimented in Education. To be sure the actual state of implementation is quite primordial so do not expect much concrete.

Teaching AI. Furtherly we will extend this concept in a section where we try to show that even if the actual techniques of direct AI can be challenging to implement in ordinary teachers' day life, we can plan to set the AI itself as a valuable teaching and experimental subject which is extremely interesting for students at any level.

Strong and Weak points of AI in Education. Finally, we try to understand which are the current criticism of the way AI is being used so far and show that AI can be useful as a general paradigm extending the already existent "coding" competencies that are going to be replaced or extended very soon with AI concepts.

What is AI?

Artificial Intelligence had become quite vast during the circa 70 years of existence, covering a significant number of different concepts, artifacts, methodologies, and the technology behind has various and different techniques and methods.

The history of Artificial Intelligence (AI) began in antiquity, with myths, stories, and rumors of artificial beings endowed with intelligence or consciousness by master craftsmen. The seeds of modern AI were planted by classical philosophers who attempted to describe the process of human thinking as the mechanical manipulation of symbols. This work culminated in the invention of the programmable digital computer in the 1940s, a machine based on the abstract essence of mathematical reasoning. This device and the ideas behind it inspired a handful of scientists to begin seriously discussing the possibility of building an electronic brain. (History of artificial intelligence, n.d.)

The term AI was officially created in 1956 during the conference at Dartmouth College, in Hanover, New Hampshire, but almost everybody knows the quite important Turing Test invented by Alan Turing in 1950.

Alan Turing, in this famous test, tried to make a brain experiment, called 'imitation game', where a judge was to chat with an invisible subject via blind messages such as on paper and only based on the actual conversation the judge could have misidentified the computer as human.

While in the beginning, AI was considered a science which would have given almost immediate results in one generation (20 years), it is still in its infancy. The Turing Test is supposed to define the so-called "Strong AI," meaning an artifact that can be "misidentified as a human" and this task so far