



## ARTIFICIAL INTELLIGENCE: A THREAT OR AN OPPORTUNITY FOR THE EDUCATION SYSTEM?

Our education system, indeed, the very idea of education, is rooted in decades, or even centuries, of tradition and shared experiences. The recent public health crisis saw the introduction of digitalisation of education - in a necessary precipitation. Even, this very specific context did not bring any radical changes.

Generative artificial intelligence (AI) has put the spotlight back on the debate on the threats and opportunities for the education sector and raised the question of its ability to adapt. The financial markets seem disposed to see AI as a threat, and have heavily punished the education sector, starting with Chegg, whose share price has halved since the management stated that the fall in the growth of its new users was related to ChatGPT. Although the relevance of some business models might be questioned following the advent of Large Language Models (LLM), some companies will probably be strengthened by them.

### A SUPER-TUTOR FOR EVERY STUDENT

It is still too soon to assess all the consequences of this technology, but we can already say that it will boost the development of some educational innovations. This includes adaptive learning, a concept based on the personalisation of learning classes courses.

AI may indeed finally solve Bloom's 2 sigma problem. In 1984, Benjamin Bloom discovered a method for considerably improving teaching effectiveness, a method that improves results by a factor of two standard deviations (two sigmas). An "average" student in a given class could in this way achieve better results than 49 out of 50 students in a traditional class. What was his secret? Individual tutoring. What was the problem? The scale required. By offering personalised conversational tools, homework, assessments and tailored advice, AI gives every student virtual access to their own personal super-tutor.

AI would therefore offer this super-tutor to every student, and a super-assistant to every teacher. As there is currently a major shortage of teachers in the US, tools that would facilitate their task and improve their productivity could provide beneficial solutions.

Universities already give us an interesting example of the use of artificial intelligence to improve students' success. Georgia State University (GSU) introduced an AI-powered predictive analysis system in 2012. This system analyses data from various sources, such as transcripts, information about financial assistance and extracurricular activities on campus, to identify students at risk of dropping out or falling behind academically. It then sends early warnings to academic advisors, who contact the students and offer them personalised support. Since the system was introduced, the university graduation rate has increased by 22 percentage points. The difference in the success rate between students from under-represented minority groups and their peers has been eliminated. The system has also saved GSU USD 10 million in scholarships and grants that would have been lost due to students dropping out, preventing students from accruing unnecessary debt.

AI therefore has a social role to play by both enabling equal access to information for all students, and by removing any human biases in the identification of students' needs.

## THE QUALITY AND RELIABILITY OF CONTENT IS KEY

The use of AI in education goes far further than the mere solving of short-term questions or problems. If some listed companies have been heavily penalized, it is because their value proposition is based solely on occasional help with homework, and is not transforming the way people learn and teach, but instead offers shortcuts in the learning process.

It is not a matter of identifying the disruptors and incumbents. The outcome will undoubtedly be more nuanced. Incumbents can be innovative. They often have more resources. They have the databases, content and relationships with clients that make innovation relevant, useful and targeted. There are also many opportunities for collaboration and partnerships between different players, i.e., companies that supply content and companies offering AI models. Future success stories will therefore not depend on one or the other, but on a combination of the two.

The key issue is more what companies are able to build using these AI models, whether they are long-standing operators or newcomers. What will separate the winners from the losers will be the way in which the technology is used to improve the value proposition of products and services for users.

The dataset on which the AI model is trained on is critical. Data and content that is sufficiently differentiating or exclusive compared with the offer available on the open internet, combined with AI will only improve the value proposition. A model such as OpenAI's, which is trained on open-source data, ultimately has few barriers to entry. The quality of the input data in fact determines the quality of the results. Access to high quality, precise and accurate data is therefore critical. The operators with the best data will have the best models. Those in possession of recognised sources will be in the best position, hence the interest in giving credit to institutional players, who are known and recognised sources. At the same time, this will add value to the content.

By using new methods to foster learning, operators who are committed to maintaining academic excellence will have much to gain from appropriating these new tools.

Even as no major disruptions are expected in the short term; these forms of artificial intelligence are facilitating technologies. They will be distilled in many use-cases, including in education. Their full power will be revealed by the capacity to train them on proprietary, accurate and updated information. The quality and reliability of content will therefore be the arbiter of which players will benefit from AI and which may be harmed.

**Written by Elise de Coligny, Analyst, and Aymeric Gastaldi, Fund Manager of the Edmond de Rothschild Fund Human Capital at Edmond de Rothschild Asset Management**

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### **EDMOND DE ROTHSCHILD ASSET MANAGEMENT (FRANCE)**

47, rue du Faubourg Saint-Honoré 75401 Paris Cedex 08

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332.652.536 R.C.S. Paris