ADVANCING GEOLOGICAL EDUCATION THROUGH ARTIFICIAL INTELLIGENCE: OPPORTUNITIES, CHALLENGES, AND FUTURE DIRECTIONS

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The use of artificial intelligence (AI) in geology, and generally in science and technology, is becoming the norm and does not raise much controversy. The situation is different with education. It has been a long time since there has been such extreme polarization of views as regarding the use of AI in education.

Artificial intelligence (ChatGPT-4, Copilot, Gemini, and others) is not killing today's education. AI simply makes us realize that we are often still stuck in the 19th century model. There are those who would like to ban GPT Chat, but for their information - we have no real ability to enforce this ban. So all we have to do is like it and embody it in a reasonable way. We must remember that the use of AI in education involves certain risks. Care must be taken to protect data, avoid over-reliance on technology, and ensure that AI is treated as a tool to support and not replace traditional teaching methods (from Copilot 2024).

There are two approaches to AI in education: based on artificial intelligence and supported by artificial intelligence. Each of them has its pros and cons and should be tailored to a specific situation, without going to extremes.

How to use AI tools?: a/ Ask for study strategies; b/ Ask for an explanation in simple words of what you did not understand during class; c/ Get examples to support your claims in written documents; d/ Ask for recommendations on resources, apps and websites; e/ Practice quizzes to better remember concepts; f/ Give instructions to create your own exercises; g/ Support your AI tool to motivate you (based on https://www.euroeducation.net/articles/how-to-use-ai-tools-for-studying.htm).

How to modify the geology curriculum using AI?: a/ Personalization of teaching; b/ Interactive educational tools; c/ AI-based grading systems; d/ Personalized learning suggestions; e/ Use of virtual reality (VR); f/ Analysis of geological data; g/ Educational bots; h/ AI-supported research projects (suggested by GPT-4). Introducing these innovations has the potential to significantly improve geology education, make it more engaging and effective, and better prepare students to understand and cope with the challenges of geology in the future.

Of course, relying on AI in education may lead to students becoming lazy while mindlessly completing tasks or solving problems, and reducing their ability or motivation to think critically and independently. Whether this happens, however, is mainly up to the teacher.

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