Generative artificial intelligence (Generative AI): Frequently asked questions about artificial intelligence and how it could impact teaching and learning

ChatGPT was released in November 2022 and made artificial intelligence text-generation easily accessible to all, including teachers and students. Since then, many similar tools have emerged on the market, and many might worry that students will misuse this technology by presenting AI-generated text as their own work. At the same time, this technology can also help transform teaching and learning if used thoughtfully. Below, you will find some frequently asked questions about this technology.

What is artificial intelligence?

Artificial intelligence (AI) refers to a computer system that can perform tasks that simulate human-like intelligence. AI systems can perform tasks like compute natural language, language translation, recognizing images and speech, making decisions. These systems can learn from data (i.e., the acquisition of information and rules for using the information), reason (i.e., using the rules to reach approximate or definite conclusions), and self-correct.

What is Generative AI?

Generative AI is a type of artificial intelligence designed to create new content, such as text, images, music, or code, based on the data it has been trained on. It is a chatbot that can generate human-like text based on a given prompt or context. The more specific the prompt, the more specific the text (or image, or sound) response will be. These chatbots use a neural network trained on a massive amount of data (mostly produced by humans). They produce texts with the help of next-word prediction algorithms, using a technique called transformer architecture. The more people use gen AI tools, the better they will get at generating responses to prompts.

Although it provides perfectly written texts that seem to answer the given prompts, Generative AI output presents some problems. Users should be aware of 'false fluency', the fact that a perfectly sounding sentence or text can be non-sensical or misleading. Making a parallel with machine translation output which also relies on huge corpora, we can assume that Generative AI tools output presents cultural, racial and gender bias. It has also been documented that chatbots often presents information that is factually inaccurate or even completely made up. This includes references, citations, and even the names of researchers. As it is based on statistical choices, the language of the output is also certainly

less varied than human writing. Finally, even if the system works very well on sentence and paragraph level, overall coherence and cohesion of the whole text is still not optimal.

What are the most common Generative AI tools?

Recommended at UniNE (institutional license): Microsoft Copilot
https://copilot.microsoft.com/

ChatGPT (OpenAI) https://openai.com/chatgpt/

Claude (Anthropic) https://www.anthropic.com/claude

Gemini (Google) https://gemini.google.com/app

Perplexity https://www.perplexity.ai/

Can generative AI be used at UniNE?

UniNE encourages the responsible use of generative AI as a tool for learning and innovation. However, it is essential to be transparent about its use and to adhere to the principles of academic integrity and ethical standards. The UniNE Guide on academic work and scientific integrity can help consider questions related to academic integrity.[1]

Does UniNE have a license for a Generative AI tool?

Yes, as of the summer of 2024 all members of the UniNE community have access to Microsoft Copilot via an institutional license using our UniNE login credentials. This chatbot is very similar to ChatGPT. The UniNE account offers protected data access and we recommend using Microsoft Copilot for your university activities (rather than other tools).

What is Microsoft Copilot ?

Microsoft Copilot (formerly Bing Chat) is a generative artificial intelligence tool capable of generating text and images based on a given instruction or set of

[1] Academic work and scientific integrity: A guide for students and teachers at UniNE: https://www.unine.ch/files/live/sites/unine/files/Etudiant/UniNE_Guide_Scientific_integrity_EN_September2024.pdf

instructions (referred to as a 'prompt'). It is directly integrated with Microsoft 365 applications. Searches are integrated with the internet.

How to access and login ?

- Go to https://copilot.microsoft.com/
- Enter your institutional e-mail address and password (the system uses multifactor authentication (MFA), identical to that used for Outlook e-mail).

Why is Generative artificial intelligence a potential threat to teaching?

Teachers are afraid that students will use Generative AI to write their assignments for them, which, if not included in the assignment description, would be a threat to academic integrity. The UniNE Guide on academic work and scientific integrity has been edited to help teachers and students better understand how to deal with this type of challenges. [2]

Why is Generative artificial intelligence a potential threat to learning?

If not used appropriately, Generative AI could be detrimental to student learning, particularly critical thinking and analytical skills.

Should the use of Generative AI be forbidden in higher education?

Banning Generative AI at the university might be problematic for several reasons. Three arguments for why this might not be realistic:

1. It is currently almost impossible to detect whether a text has been generated by Generative AI, so it would be difficult to control even if the tool is forbidden. Additionally, a punitive and forbidding culture does not make for a motivating environment in which our students want to study, or in which our teachers want to teach (note: the current policy about *academic integrity* specifies that it is against the rule to use work made by someone else as one's own; which should also include work made with AI*) ;
2. Even if Generative AI would be forbidden at the university, these tools will continue to exist outside of the university and it might be unrealistic to forbid them entirely. Forbidding ChatGPT and other AI tools might create disadvantages for our students

[2] Academic work and scientific integrity: A guide for students and teachers at UniNE: https://www.unine.ch/files/live/sites/unine/files/Etudiant/UniNE_Guide_Scientific_integrity_EN_September2024.pdf

by not helping them understand what AI is and how to use it to enhance their learning and work;

3. Many new technologies are initially seen with a lot of skepticism (e.g., calculators, spell- and grammar-check programs, Internet search-engines, Wikipedia, automatic translators, etc.) but once they are generally accepted they become indispensable tools and help us produce work of higher quality.

*NOTE: The current Policy on academic integrity and plagiarism. The UniNE Guide on academic work and scientific integrity has been edited to help teachers and students better understand how to deal with this type of challenges.

Can the use of Generative AI be detected?

Not in a reliable manner.

While numerous AI detectors are available to identify the use of Generative AI in student work, research indicates that these tools are often unreliable and prone to generating false positives, wrongly accusing students of AI use. Therefore, teachers are advised against relying on such detectors.

How to address Generative artificial intelligence in courses?

The use of Generative AI can be integrated into courses in a thoughtful and strategic manner. By being transparent about the existence of Generative AI and clearly communicating the purpose and limitations of chatbots, teachers can explain how Generative AI will be used in the course (or not), and what its limitations are. They can explain that AI is a tool to assist learning, but not a replacement for human instruction. In this way, teachers can invite students to discuss Generative AI in an effort to develop a culture of trust and academic integrity.

It is important to make sure all students can benefit equally from incorporating the use of AI in their coursework.

How can Generative AI help improve student learning?

Teachers can use Generative AI to support learning, for example, by providing students with additional resources and feedback. Integrated into assignments, ChatGPT can help students with problem-solving skills and critical thinking.

How can ChatGPT and similar tools be useful for teachers for preparing a course?

ChatGPT and other similar tools can be useful for developing a course plan or lesson plan, to prepare teaching activities and materials, to create evaluations as well as grading rubrics to help evaluate student work. Using specific prompts about level, content, type of activities, etc., Generative AI can come up with quite interesting and useful material that can help teachers save time on the preparation for teaching.

The guide edited by Daniel Kaufmann, Faculty of economics and business, and his team on « AI in economic research: A guide for students and instructors » provides advice and ideas. This document can be downloaded at : https://libra.unine.ch/entities/publication/ca2c198c-f96e-4487-a6af-5c224ee3bdc3/details

How can teachers adjust assignments for (or against) the use of Generative AI tools?

There are many ways to adjust assignments.

First, changing the type of assignment to make it harder for students to use ChatGPT. For example:

- Ask students to make a video, podcast or audio file instead of a written assignment;
- Switch to oral evaluations instead of written evaluations;
- Have students make mind-maps to show how concepts are related (as well as other performative tasks);
- In-class writing assignments make it impossible for students to use Generative AI (however, this might be time-consuming and assignments need to be shorter);
- Create open-ended questions that require critical thinking and analysis;
- Teacher can think about how to better evaluate the process of learning;
- …

Second, another way to adjust assignments is to embrace the AI tools and include them in the assignments, providing new opportunities for learning and engagement.

For example:

- Use AI for brainstorming activities to help students come up with ideas;
- Generate prompts for creative writing assignments to explore different perspectives and ideas;
- Ask students to analyze texts produced by AI to judge their quality and accuracy;
- Use AI to assist with language learning assignments, for example: translations, grammar corrections, and suggestions for sentence structures;

- Use AI to help students with their research by providing them with relevant information and resources on a given topic;
- Have students use AI to get started with a writing assignment;
- Have students ask for a number of alternative answers and then debate which one is best;
- Add precise constraints of what has to be included in the written assignment, e.g. ask students to add direct quotations;
- Focus on the writing process rather than on the final product, have students submit several versions of the text with a meta-analysis of their writing process;
- …

Resources:

**French resources marked with an asterisk*

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