

Applications of ChatGPT in higher education for teaching and learning

One of the most popular generative AI tools is **ChatGPT, a language model developed by OpenAI. It can help with a variety of tasks**, such as answering questions, providing explanations and generating text. The following table shows the roles it can play, as identified in the UNESCO publication *ChatGPT and Artificial Intelligence in Higher Education: A Quick Start Guide** (Sabzalieva and Valentini, 2023). In addition to the roles and descriptions created by Mike Sharples (Professor Emeritus of Educational Technology, Open University, UK), the guide also includes examples of implementation drawn from suggestions by Ronald Knust Graichen (Education Consultant, the Netherlands).

Role	Example of implementation
Possibility engine AI generates alternative ways of expressing an idea.	Students write queries in ChatGPT and use the Regenerate response function to examine alternative responses.
Socratic opponent AI acts as an opponent to develop and argument.	Students enter prompts into ChatGPT following the structure of a conversation or debate. Teachers can ask students to use ChatGPT to prepare for discussions.
Collaboration coach AI helps groups to research and solve problems together.	Working in groups, students use ChatGPT to find out information to complete tasks and assignments.
Guide on the side AI acts as a guide to navigate physical and conceptual spaces.	Teachers use ChatGPT to generate content for classes/courses (e.g., discussion questions) and advice on how to support students in learning specific concepts.
Personal tutor AI tutors each student and gives immediate feedback on progress.	ChatGPT provides personalized feedback to students based on information provided by students or teachers (e.g., test scores).
Co-designer AI assists throughout the design process.	Teachers ask ChatGPT for ideas about designing or updating a curriculum (e.g., rubrics for assessment) and/or focus on specific goals (e.g., how to make the curriculum more accessible).
Exploratorium AI provides tools to play with, explore and interpret data.	Teachers provide basic information to students who write different queries in ChatGPT to find out more. ChatGPT can be used to support language learning.
Study buddy AI helps the student reflect on learning material.	Students explain their current level of understanding to ChatGPT and ask for ways to help them study the material. ChatGPT could also be used to help students prepare for other tasks (e.g., job interviews).
Motivator AI offers games and challenges to extend learning.	Teachers or students ask ChatGPT for ideas about how to extend students' learning after providing a summary of the current level of knowledge (e.g., quizzes, exercises).
Dynamic assessor AI provides educators with a profile of each student's current knowledge.	Students interact with ChatGPT in a tutorial-type dialogue and then ask ChatGPT to produce a summary of their current state of knowledge to share with their teacher/for assessment.

*Sabzalieva, E., & Valentini, A. (2023). *ChatGPT and Artificial Intelligence in Higher Education: Quick Start Guide*.

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DISCLAIMER: European and local data protection authorities do not recommend the use of ChatGPT and other generative AIs until the legal context of this technology is clarified. If you do so, we recommend that you follow these tips: <https://blogs.uoc.edu/elearning-innovation-center/the-legal-situation-regarding-the-use-of-generative-ai/>