

Using AI in teaching and learning

Degree Programme in Biology

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AI is widely accepted in teaching and learning

- University of Helsinki:

University encourages the use of AI

The existence of large language models should be seen as an opportunity. The University encourages degree programmes and teachers to use AI in their teaching. This way, we can prepare you for a society of the future where AI methods will be widely used.

- University of Eastern Finland:

The University of Eastern Finland encourages the use of AI in teaching and research, taking into account, however, the restrictions set out in these guidelines and due to legislation and various contractual obligations.

- University of Jyväskylä:

Learning to use AI applications during studies can be seen as a working life skill. The critical use and understanding of different sources and materials is part of responsible expertise. The tool is based on many commonly available functions and applications, such as language checking, search engines, and the library's Finna search services.

ChatGPT: ten tools and software applications that utilize AI in teaching and learning:

1. **Grammarly:** While popular for its grammar and spell-check capabilities, Grammarly also uses AI to provide suggestions for writing style, helping students improve their communication skills.
2. **Duolingo:** This language-learning platform uses AI algorithms to adapt lessons to each learner's progress and strengths, providing a personalized language education experience.
3. **Blackboard Learn:** This popular learning management system integrates AI to provide personalized recommendations, track student engagement, and assist instructors in managing courses.
4. **Turnitin:** While primarily known for plagiarism detection, Turnitin also uses AI to provide feedback on writing style, grammar, and clarity, helping students improve their academic writing skills.
5. **Top Hat:** Top Hat incorporates AI to create interactive learning experiences, such as real-time quizzes and polls, fostering student engagement in large lecture settings.
6. **Carnegie Mellon's Open Learning Initiative:** This initiative offers AI-driven online courses that adapt to each student's learning pace and provide immediate feedback to enhance the learning process.
7. **Lumen5:** For educators looking to create engaging video content, Lumen5 uses AI to transform text into engaging video presentations, suitable for conveying complex ideas.
8. **CogBooks:** CogBooks offers AI-powered digital textbooks that adapt to individual student performance, providing real-time feedback and personalized learning paths.
9. **Labster:** Particularly useful for science and engineering courses, Labster offers virtual labs enhanced with AI simulations, enabling students to conduct experiments in a digital environment.
10. **Edpuzzle:** Edpuzzle employs AI to create interactive video lessons where instructors can embed questions and activities, promoting active learning and comprehension.
11. **Smart Sparrow:** This platform lets educators design adaptive eLearning experiences using AI. It's suitable for creating interactive lessons, simulations, and assessments.
12. **IBM Watson Element for Educators:** This tool uses AI to analyze data and provide insights about student performance, enabling instructors to tailor their teaching strategies more effectively.

Our researchers' recommendations on AI software

- **Perplexity AI:** An alternative to ChatGPT. It gives references to papers and does all the other stuff like ChatGPT, which could be helpful in Literature review. <https://www.perplexity.ai/> (free).
- **Elicit AI:** focuses on automating literature reviews. Elicit offers features such as finding "seed articles" to mine for keywords or subject headings and can also help with finding papers, extracting key claims, summarizing, and brainstorming ideas. Elicit is an example of how AI can be applied to assist researchers and enhance their workflows. <https://ought.org/elicit> (Free)
- **Humata AI:** a free AI research assistant that allows users to ask questions about any file in English and automatically get answers. It is similar to ChatGPT for handling large files with unlimited page processing. Users can upload unlimited documents and Humata AI will provide answers, making it a valuable tool for researchers and academics to enhance their workflows. <https://www.humata.ai/> (free)
- **Toms Planner:** a user-friendly and widely-used project management software that helps teams plan and organize their projects effectively. I generated a Gantt chart using this. <https://www.tomsplanner.com/> (Paid)
- **Github Copilot:** helps you write code faster and with less work <https://github.com/features/copilot> (Paid)

Pros

- Chatbots like ChatGPT can engage students, answer their questions, and keep them motivated
- ChatGPT can provide learners with access to vast amounts of information that they may not have had access to otherwise. This can help learners expand their knowledge base and discover new information that they may find useful in their academic or professional pursuits.
- AI can collect and analyze data on student performance, enabling educators to make informed decisions about teaching methods and curriculum improvements

Cons

- ChatGPT's responses may be biased if the dataset it relies on is biased, leading to the potential reinforcement of biases or stereotypes
- Another limitation is the potential for decreased engagement and motivation among learners when interacting with a machine instead of a human. The lack of real-time feedback and interaction may lead to a sense of isolation or disconnection from the learning process
- ChatGPT may not provide critical thinking or problem-solving skills
- Data privacy and security are also concerns, as the collection and use of student data must be ethical and transparent

Tips for using ChatGPT

- [Share conversations](#) and ask students to continue
- [ChatGPT for Bing](#): Show ChatGPT's answers in Bing™ search results at the same time

Library's guidelines for using AI in information retrieval

[Yleistä - Tekoäly tiedonhaussa - LibGuides at Oulu University](#)

[Library's instructions for using ChatGPT](#)

Now these seem to be available only in Finnish, but most likely also in English very soon.

Using AI in writing bachelor's thesis

- **Affects supervision:** if the topic is outside of the supervisor's own research theme, it might be quite time-consuming to track down whether references exist, or whether the content is valid
 - Solution 1: The student provides DOIs for each reference used in the thesis, supervisor should check the facts
 - Solution 2: supervisors accept only topics that they have expertise in
 - The supervisor decides which option to follow
- **Affects grading of the theses:** more focus on originality, style, deeper understanding, consistency and use of references
- **Suggestions:**
 - Students will be required to write a contribution section in the thesis: a short description of AI tools they used in planning and writing the thesis
 - Students will write a reflection diary on writing the thesis

Using AI in other teaching and learning tasks

- Writing essays
- Writing summaries/reports
- Take-home exams
 - Alternatives to all above: old-fashioned exam, exams in [EXAM](#), reflection diary on learning, oral exams (need practice and implementation throughout the studies, not only in final examination), exams based on given data
- Grading exams
 - AI tools available, hopefully the university will offer these to teachers in the near future