Technology
Arts Sciences
TH Köln

Handout for teachers
how to use the THKI GPT-Lab

Dear teachers,

we are at the threshold of a significant transformation in academic education, characterized by the use of artificial intelligence (AI). Enabling the competent and responsible use and ethical evaluation of AI and being able to assess its potential and limitations are essential educational tasks of our teaching activities. Through this and with this new technology, we not only prepare students for the technological future, but also promote a deep understanding of the multidimensional impact of AI - how it will change and shape our society, the world of work and the way we learn and teach. At the same time, legal regulations provide us with the minimum framework needed to integrate AI responsibly and ethically into our teaching and learning settings. Only through a conscious approach to these technologies can we ensure that their use supports our educational goals while protecting the rights and privacy of all those involved.

This handout is intended in particular to provide guidance on how to use the THKI GPT-Lab, which ensures data protection-compliant use. As AI applications and the underlying legal situation are currently undergoing rapid development, this information is constantly being adapted to current developments; in this sense, the guide is a ‚living document'.

THKI
GPT-Lab

The tool

What is the THKI GPT-Lab?

The THKI GPT-Lab is a didactic interface that integrates GPT-4, the latest AI model from OpenAI, via an API programming interface. You can log in with your campusID and make requests to GPT-4 - free of charge and without the data of your campusID (e-mail address, user ID, IP address) being forwarded. With the license of TH Köln, requests are sent centrally and non-personalized via API to OpenAI. GPT-4 is a language model based on artificial intelligence that has been trained to generate the most appropriate answers to queries, also known as prompts. It can give tips for targeted research, create text structures and correct text modules, develop ideas, provide feedback and be used to create teaching materials. The GPT-Lab offers the opportunity for creative teaching approaches, improves the interactivity of the learning material and can effectively accompany learning progress. A detailed description of the tool and a handout for your students in German and English can be found on Lehrpfade.

Artificial intelligence in education

How can the GPT-Lab be used in university teaching?

The GPT-Lab can be used to prepare assignments, teaching materials or even data sets. It can even be used to create personalized learning materials tailored to the needs and preferences of individual students. The GPT-Lab can be used as a tool to promote creative writing and thinking by encouraging students to generate ideas, revise texts and explore different perspectives. It can also serve as a source of inspiration or be used to prepare brainstorming sessions. It can also be used to create code and learn programming languages. AI skills can be promoted by incorporating tasks in which students are asked to critically evaluate the content generated in the GPT Lab. It can also support the learning process through formative assessments (for summative assessments as graded work, see *AI in examinations*), generate interactive learning games and exercises and support the planning and implementation of project work.

What are the limitations and ethical considerations when using the GPT-Lab?

The content generated in the GPT-Lab can be erroneous, biased and even discriminatory and should always be validated with trusted sources. Do not use the GPT-Lab like a search engine, as this only displays results for keywords entered, while the generative AI invents plausible answers based on probability calculations. Teachers should therefore critically monitor the use of the GPT-Lab and instruct students to check information for accuracy.

Ensure that all users acquire the necessary skills to use the language model and awareness of the limitations of the GPT-Lab. The ability to generate high-quality texts also raises questions about academic work and copyright. Integrate the topic of academic integrity into your teaching to teach students how to handle generated content correctly. Also set a good example and, in the spirit of good scientific practice, make it clear whether and how you have used AI, e.g. in the creation of teaching materials.

Data protection concerns should also be taken into account when using the GPT-Lab. When using any AI systems or AI-based applications, the input of personal and copyright-protected data must be avoided. Data entered in the GPT-Lab is transmitted to OpenAI, which means that data processing takes place outside the EU. It is currently unclear exactly for what purposes the personal data is processed by OpenAI. Read the data protection and usage guidelines of TH Köln for the THKI GPT-Lab.

What can I do if the answers in the GPT-Lab are unsatisfactory?

If answers from GPT-4 in the GPT-Lab do not meet your expectations, make your requests more precise or vary the questions. Give clear instructions in order to get the information you need. Follow the rules for good prompts. Use inadequate or incorrect answers as an opportunity to strengthen your own research and critical thinking skills by cross-checking information with reliable sources. Remember that challenges in dealing with AI-generated answers are part of the learning process. If the answers in the GPT-Lab are unsatisfactory, you can compare the results with other sources or, if necessary, resort to manual research to get better results.

By using the GPT-Lab, students can be encouraged to formulate questions and research answers independently. This promotes self-directed learning and autonomy as students learn to solve problems independently and evaluate information critically. The GPT-Lab can thus be used as a support to respond to different learning needs with adapted material. Other examples of the use of AI at universities could be chatbots in student advisory services or for answering frequently asked questions. It is important to make it clear to users that they are interacting with an AI and not with human advisors. AI-supported tutoring systems that support students in their learning by providing personalized exercises and feedback are also a permitted application. Again, transparency about how a system's decisions are made is relevant. The GPT-Lab can also be used to create interactive learning activities, such as role plays or case studies, that encourage active student participation. It can also generate discussion questions that encourage critical thinking.

Artificial intelligence in examinations

Can the GPT-Lab be used in examinations?

In principle, AI-based applications such as the GPT-Lab can be used in examinations. However, the lecturers must expressly allow the AI-based application as a permitted examination aid. The aid must also have been approved by the examination board. The teacher can decide for themselves whether or not to allow the GPT-Lab. If they decide to do so, they must also specify in the course how the tool is to be used in the respective examination and what information is expected. This must be transparent and clear for the students. It should be noted that excluding the use of AI-based applications may not be up-to-date. It is also difficult to find out whether the examination paper has been created with an AI application or not.

The use of the GPT-Lab in examinations requires careful consideration, particularly with regard to fairness, equal opportunities and the students' own performance. Examinations are intended to demonstrate individual abilities. When using the GPT-Lab to complete an exam, the supposed exam performance may no longer be based on an independent and personal application of the skills learned and to be demonstrated, but on the use of generative AI. It is therefore crucial that students make a personal contribution. The GPT-Lab can be misused for attempts at cheating in unsupervised examination forms. Teachers are encouraged to control or integrate the use of the GPT-Lab by adapting examination formats to promote creativity and skills acquisition. The inclusion of reflection tasks and the analysis of students' individual development (e.g. in the form of portfolios) can help to ensure the independent completion of the examination and at the same time promote students' skills. You should set clear guidelines for the use of the GPT-Lab and educate students about the ethical and practical limitations of the tool. Students must be obliged to observe the handling of sensitive data, in particular personal and copyright-protected data, and to cite sources. As a rule, the following applies: The verbatim adoption of AI-generated text must be marked as a classic quotation. AI-generated text that was used for inspiration is noted in the resource information at the beginning or end of the paper in the same way as prompts used. However, teachers could also use the GPT-Lab to generate exam questions or case studies, as long as they are tested before use and the assessment of the results is done by yourself.

Can exams be evaluated with the GPT-Lab?

At TH Köln, the use of the GPT-Lab for evaluation purposes is prohibited. According to the EU-wide AI Regulation (AI Act), which comes into force in summer 2024, examination evaluation by or with AI is a high-risk purpose and must be carefully monitored and regulated so that human responsibility and decision-making power is not compromised and equal opportunities for students are maintained. The evaluation and decision on a student's performance must ultimately be made by a human examiner.

UNACCEPTABLE RISK

HIGH RISK

LIMITED RISK

MINIMAL RISK
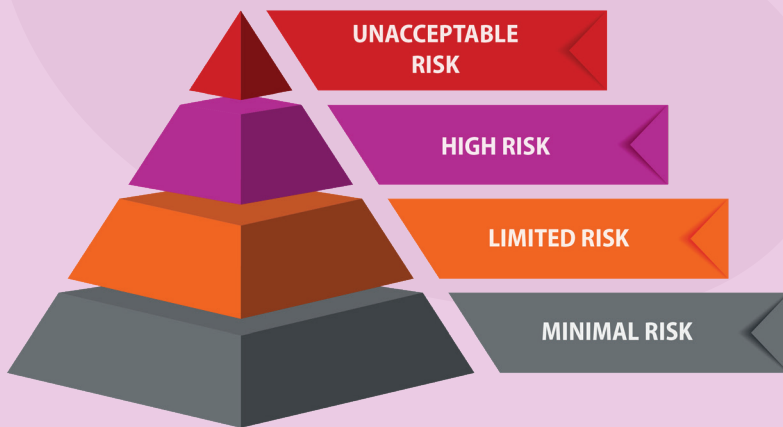
The AI Act, i.e. the EU's AI regulation, defines four risk levels for AI systems: According to Article 6(2) and Annex III No. 3 AI Act, high-risk AI systems are those that are used in sensitive areas such as education and evaluation and may have a significant impact on the rights and freedoms of individuals. For this category of **high-risk AI systems**, the AI Act sets out strict requirements and obligations to ensure transparency, accuracy, security and protection of fundamental rights.

The evaluation of examinations falls into this class according to Annex III No. 3 and is therefore considered a high risk for users. This means that examiners are not permitted to use AI systems, in particular ChatGPT or the GPT-Lab, for the evaluation of examinations, regardless of whether they are provided by the university, made available by other providers or purchased privately. Examiners bear personal responsibility and are accordingly liable if they use AI to assess coursework. This applies not only to the use of the GPT-Lab, but also extends to the use of any other AI tools. The risks exist (in future) not only in liability under the AI Regulation, but already now also in liability under the GDPR. Students can also take administrative action against examination evaluations by AI.

Support

Additional offers and resources (mostly in German) can be found, for example, on Lehrpfade, on the learning platform KI-Campus, in the link collection on ChatGPT in the university context of the Hochschulforum Digitalisierung or in the dghd topic series KI in der Hochschullehre.

Outlook

By the winter semester 2024/2025, the Center for Academic Development (ZLE) will use a survey to analyze how the GPT-Lab is actually used in teaching, which subject-specific and general skills are taught with and via AI technologies and what the usage behavior of users is like. The results will be used to determine which didactic application scenarios will be relevant for the use of AI in teaching. We therefore ask you to take part in our survey in order to drive forward further development in a meaningful way.

Sources (German)

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