Teaching in the age of AI: Impulses and inspirations in dealing with generative AI tools

Content

What can I expect from this document?

With this addition to the handout "Recommendations for dealing with ChatGPT in the context of examinations at Saarland University", we would like to give you as instructors ideas and suggestions on how you can integrate generative AI tools, using ChatGPT as an example, into your courses. We would like to show you innovative ways in which chatbots can be used as a powerful tool to enrich university teaching in a competency-oriented way. Specifically, we want to give you ideas on how you can teach students (action) skills in dealing with chatbots so that they can operate successfully in a constantly changing world. We draw on a learning objective taxonomy (see Anderson et al., 2001; Bloom, 1974) and demonstrate how you can use the potential of this AI technology in university teaching and promote corresponding skills in your students.

> **What can I expect?**
>
> *I am provided with **ideas and suggestions** for integrating generative AI tools such as ChatGPT into my teaching and impart AI-related **(action) competencies** to my students.*

What needs to be considered when using generative AI tools?

To begin with, we would like to explicitly point out that generative AI tools, such as ChatGPT, are not a reliable scientific source, as they make mistakes and sometimes fudge sources. In addition, both instructors and students are required to comply with the rules of good scientific practice when using generative AI tools, for example, by independently and critically checking the sources provided.

As Saarland University has not yet formed a data processing agreement with the providers of such AI tools, you cannot require your students to use these tools as part of a course but instead must point out that their use is voluntary. In this case, students should not suffer any disadvantage.

Regarding data protection, you should inform your students that under no circumstances should personal and other sensitive or confidential data (e.g., real names, bank data) be entered as prompts, neither their own data nor data of other people. This is partly due to the fact that this data can be reused for training purposes of the AI tool and thus also indirectly passed on to other users.

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And how does it sound when ChatGPT (version 3.5) writes an "innovative and creative" summary that is supposed to create "a desire for more"?

Join us on an exciting expedition into the world of university teaching innovation! This document provides insight to the impressive potential of generative AI tools like ChatGPT. Here, you will discover not only theory, but also how you can promote skillful competencies in dealing with generative AI tools in your students. Learn how to creatively link knowledge and cognitive activities to design appealing learning objectives. The wealth of practical tips for the use of AI tools becomes tangible through joint exercises and clear criteria. Prompt engineering is particularly exciting – a guide to optimal results. Explore the fascinating terrain of chain-of-thought-prompting to master complex tasks with confidence. The profit after reading the entire document? The key to pedagogical success through innovative technologies in teaching – a wealth of knowledge that will revolutionize your teaching methods in the long run!

1 What significance do competencies and learning objectives have for my teaching?

Throughout their studies, your students will acquire subject-specific and interdisciplinary competencies in addition to specialized knowledge. Competencies are understood to be the cognitive abilities and skills available to individuals or that can be learned by them in order to solve certain problems, as well as the associated motivational, volitional and social dispositions and abilities to be able to apply the solutions successfully and responsibly in variable situations (Weinert, 2014). One goal of teaching is to provide students with skills that enable them to be capable of performing self-organized (and successful) actions in highly emergent organizational and practical contexts (Ehlers, 2020) in order to successfully master and solve scientific, professional and social problems (Arbeitskreis Deutscher Qualifikationsrahmen, 2011; Servicezentrum innovatives Lehren und Studieren, n.d.). Saarland University addresses a variety of qualification objectives with its portfolio of study programs. These include (in addition to the objectives of "research orientation", "interdisciplinarity", "international orientation", "individual qualification profile", "practical orientation" and "responsibility") the objective of "digital competencies". This objective is concerned with the extent to which graduates acquire fundamental specialized and/or interdisciplinary knowledge and skills that are essential for a profound use of information and communication technologies as well as digital media. With the "publication" of ChatGPT in November of 2022, digital competencies in particular have gained in importance and are regarded as key competencies for lifelong learning. They include a secure, critical and responsible application and handling of digital technologies regarding the areas of learning, working and social participation (Vuorikari et al., 2022; see Figure 1).

> **What are competencies?**
>
> Competencies comprise **the available and learnable cognitive abilities and skills** to solve problems, as well as the motivation, volition and social dispositions and abilities to apply these skills effectively and responsibly in variable situations (Weinert, 2014).

Figure 1

Overview of the digital skills of The Digital Competence Framework for Citizens (DigComp; EU Science Hub, n. d.)
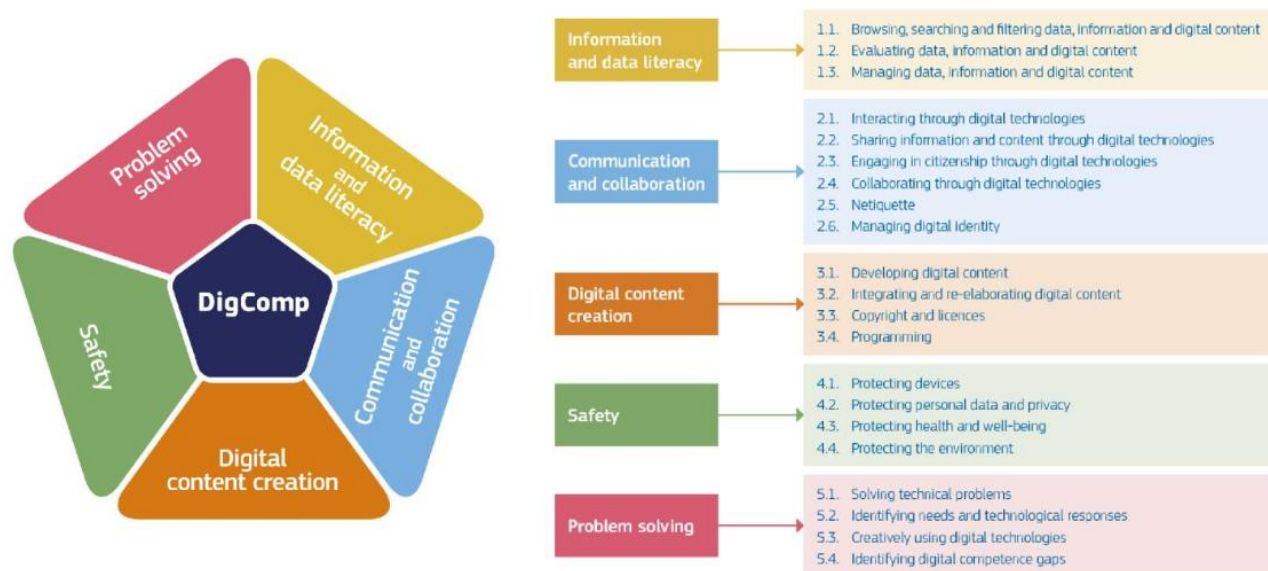
The learning objectives relevant to achieving the qualification objectives are defined in the module manual. It is recommended to formulate the skills to be acquired as operationalizable learning outcomes or learning objectives in the sense of output orientation: "In education, objectives indicate what we want students to learn; they are 'explicit formulations of the ways in which students are expected to be changed by the educative process' (Handbook, 1956, p. 26)" (Anderson et al., 2001, p. 3). One possibility to describe learning goals and associated competencies is offered through learning objective taxonomies. These are characterized by levels in which each level includes statements on what and to what extent students should have mastered at the end of a learning process. Higher taxonomy levels are characterized by higher requirements and build on the requirements of the taxonomy levels below (Baumann & Benzing, 2013).

One of the best-known learning objective taxonomies is the taxonomy of cognitive learning objectives, which was developed by Bloom (1974) and revised and further developed by Anderson et al. (2011). The taxonomy table according to Anderson et al. (2001) is composed of four knowledge dimensions (factual, conceptual, procedural and metacognitive knowledge) and six cognitive process dimensions (remember, understand, apply, analyze, evaluate, create). Each of these cognitive process dimensions is associated with two or more specific cognitive processes, which are also formulated and operationalized in the form of verbs (Anderson et al., 2001, see Figure 2).

A learning objective, which you can formulate in accordance with the taxonomy table, is composed of the knowledge contents the students engage with, as well as the cognitive activity that indicates how the students engage with the knowledge contents (Anderson et al., 2001), for example: The students can name (cognitive process dimension: remember; cognitive process: remember) three needs of the self-determination theory according to Deci and Ryan (1993; knowledge content) and explain their meaning using an example of their own choice (cognitive process dimension: understand; cognitive process: exemplifying). Please refer to How-to-Formulate-Learning-Outcomes for specific information on formulating competency-oriented learning objectives. In this document we focus on the six cognitive process dimensions, which we will briefly introduce to you below (see Figure 2).

> **How do I formulate competency-oriented learning objectives?**
>
> *I connect the*
> **knowledge contents** *the students engage with*
> *with the*
> **cognitive activity** *that indicates how students engage with the knowledge contents.*

Figure 2

Overview of the six cognitive process dimensions according to Anderson et al. (2001)

Own figure developed based on Anderson et al. (2001) using the operators from Bloom (1974) and Schermutzki (2007)

In the next chapter, we want to offer you suggestions and impulses on how you and your students can use chatbots such as ChatGPT in a competency-oriented manner in a course. The competency orientation is based on the cognitive process dimensions according to Anderson et al. (2001) presented above.

2 How can I use generative AI tools like ChatGPT effectively in my teaching?

In accordance with the handout "Recommendations for dealing with ChatGPT in the context of examinations at Saarland University" , we consider the use of generative AI tools such as ChatGPT in teaching and studying a tool for obtaining information (see also Ständige Wissenschaftliche Kommission der Kultusministerkonferenz [SWK], 2024), but not a replacement for academic work: "The key to successfully integrating AI into education lies in understanding that AI tools are not a replacement for human expertise but rather that they are tools that can augment and enhance it" (Sims, 2023, Paragraph 9). This approach is even more important since ChatGPT, for example., tends to make mistakes, has problems drawing conclusions, cannot prioritize information and at times freely invents sources (Thorp, 2023; van Dis et al., 2023). This leads to the conclusion that generative AI tools do not represent a reliable scientific source and users are encouraged to independently research and critically review the sources of generative AI tools. It is also essential to adhere to the rules of good scientific practice when using generative AI tools, for example, identifying the AI tool used as a source and documenting the prompts used.

The "successful" use of chatbots depends on your students learning to critically review and reflect on AI-generated content and the sources mentioned. This reflects the digital competencies mentioned above (see Vuorikari et al., 2022). The term of "AI literacy" can be used in connection with the use of artificial intelligence: "(…) a set of competencies that enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace" (Long & Magerko, 2020, p. 2; Laupichler et al., 2023).

In order for your students to be able to use AI tools in a competency-oriented manner in the sense of AI literacy, they need prior knowledge as well as basal competencies in scientific work such as researching scientifically reliable sources and their examination on the basis of scientific criteria inherent to the respective subject (SWK, 2024). Classic learning objectives in the area of scientific work also gain new relevance in this context. Critical thinking, source criticism, the ability to reflect as well as media competency overall can be mentioned as examples. These "classic" competencies combined with new, more specific competencies provide the tools necessary for students to meaningfully apply AI writing tools in an academic context (Salden & Leschke, 2023). If you would like to incorporate generative AI tools such as ChatGPT in your courses, we believe it essential to practice the application of these tools with the students in class and to develop and define criteria for their application (together).

In order to do this, you can use the learning objective dimensions as well as the associated operators mentioned above in two ways. First, you can use them in a way that enables you to formulate competency-oriented learning objectives for your course, as to transparently demonstrate the competencies your students will acquire in your course. This could also include generating learning objectives related to the use of AI tools, for example, regarding the use and handling of AI-based writing tools: Students can explain how AI-based writing tools work and assess the possibilities as well as the limitations of the support provided by such tools. Students can use AI-based writing tools in the sense of assistance systems for their academic text production, so that, if desired, they can provide support regarding formulation, sharpening ideas and arguments as well as with stylistic revision. This includes the competency to reflect, edit and integrate the text output of AI writing tools in their own text structures (Salden & Leschke, 2023).

> **How can I get started if I want to integrate AI tools into my course?**
>
> I **practice** the application of AI tools (together) with my students.
> I define **criteria** for their use:
> 1. I formulate **competency-oriented learning objectives** regarding the use of AI tools and use operators for this.
> 2. The **students** use **operators** to create **prompts**.

Second, your students can use the operators to generate prompts as input for the chatbot at use. In order for your students to communicate with the chatbot in a goal oriented and "successful" manner, it is important to precisely analyze the task in advance: What is the goal of the task? Which sub-steps are necessary to achieve the set goal? At which point in the goal achievement process can I integrate the chatbot? For this analysis, students must possess prior knowledge and be able to adopt a critical-reflective metalevel (Azaria, 2022; see SWK, 2024). In a second step it proves essential to work with the students on how they can formulate "good" prompts (for first ideas see How-to-Prompt-in-ChatGPT); in this case "good" is equivalent to task-relatedness and goal-orientation in terms of getting closer to solving the task with the support of ChatGPT.

The quality of the formulated prompts influences the quality of the answers generated by the chat-bot: The goal of "prompt designs" or "prompt engineerings" is to find the most suitable structure for a prompt regarding both, content and form, that allows the language model to solve the take in the best possible way. Minor additions to the prompt can lead to better quality output (Larsen & Weßels, 2022). For more complex tasks in particular it is recommended to first break them down into subtasks and then enter "refined" (sub)prompts in the sense of chain-of-thought-prompting: The additional aspect of "Let's think step by step" or any similar process has a significant impact, which emphasizes that a more gradual approach proves to be essential. In that, the language model is encouraged to demonstrate a gradual approach to solving a task and to visualize its supposed chain of thought (CoT) for the users (Larsen & Weßels, 2022).

> **What is prompt engineering and how can my students make use of it?**
>
> *In prompt engineering, the formal and content-related structure of prompts is **optimized** or **refined** in a way that allows the best possible output to be generated. The quality of the prompt has a significant impact on the **quality** of the answer.*

One possibility to generate a prompt that is suitable regarding its content in order to find the best possible solution to the problem is to formulate a so-called "mega prompt" (see Figure 3). The aim is to prepare the chatbot as accurately as possible for solving the task. At the same time, formulating a mega prompt facilitates an ongoing communication process with the user in order to refine the results. A mega prompt includes six sections: 1) the role the AI system is supposed to simulate, 2) the specific task or activity that is to be completed, 3) the defined steps in the order they are to be completed in, 4) the context including additional conditions and restrictions, 5) the precise goal of the dialogue as well as 6) the desired format for the bot's response.

Figure 3

Anatomy of a ChatGPT mega prompt according to Rob Lennon (2023)
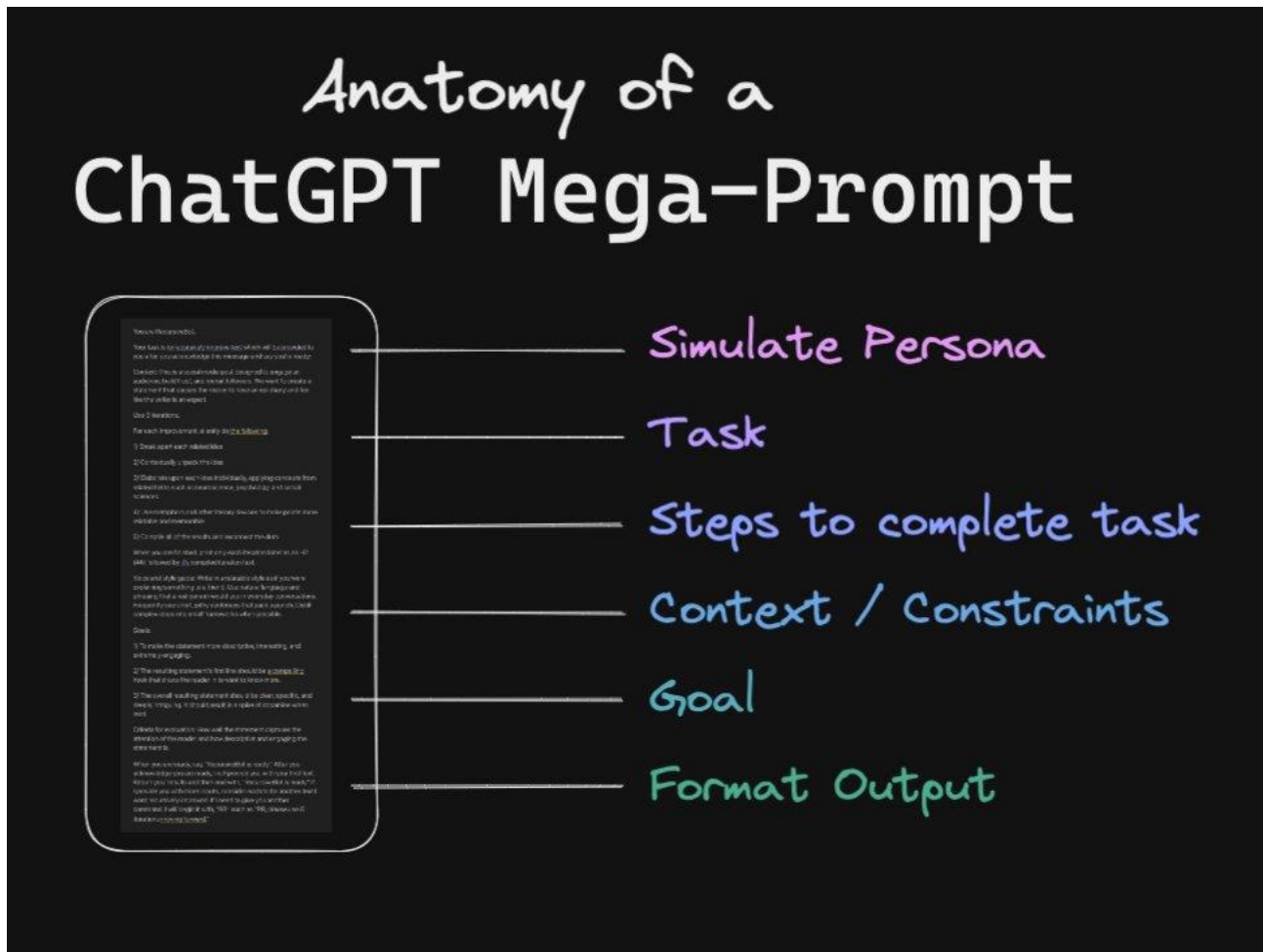
Students can also use the operators mentioned above for chain-of-thought-prompting by implementing operators of higher cognitive process dimensions and thus engage in a more "advanced" dialogue with the chatbot. It should prove interesting to see how the (gradually) optimized prompts affect the quality of the answers and how the results of your students' work on the same task will differ depending on the quality of the formulated (sub)prompts. The variety of answers from ChatGPT as a possible chatbot is due to the fact that they are based on an artificial neural network, which tries to generate answers based on statistical probability. ChatGPT will therefore provide different answers to different prompts and not give the same answer to the same question due to the complexity of the underlying statistical model (Fleischmann, 2023). In the interest of acquiring competencies, you can discuss the different results

> *What is chain-of-thought-prompting and how can my students use it?*
>
> *These are prompts optimized by operators in the sense of prompt engineering.*
>
> *A complex task is divided into sub-tasks, which are processed **step by step** (as a chain of thought) with the support of the AI tool.*

of your students and the prompts that led them to this result with the group and critically reflect on how "good" prompts should be formulated using the previously developed criteria. In the "Resources" section you will find suitable how-to concepts and links that you can also pass on to your students so that they can independently engage with the formulation of "good" prompts in the interest of acquiring competencies.

Below you will find first suggestions on how to implement chatbots based on the cognitive process dimensions discussed above into your courses. The ideas are largely taken from Fleischmann's article (2023, p. 20ff.).

Remember (Know)

You can…

- … use chatbots for an initial brainstorming session (Fleischmann, 2023).
- … generate reproducible factual knowledge with the help of a chatbot.

Understand

With the help of chatbots you can…

- … have scientific texts summarized for a quick overview.
- … have sections of a text that are difficult to understand rewritten.
- … have outlines or key questions created for scientific texts that give you and/or your students a structure while reading.
- … have short summaries of chapters written (Fleischmann, 2023).
- … have texts in a foreign language translated.
- … have the most important terms extracted from a chapter, which your students can then use to, for example, structure a mind map.
- … have examples or counterexamples generated on a topic, for example, to clarify statements (Mah, 2023).
- … have text passages shortened, corrected and formulated more sophisticatedly (Fleischmann, 2023).
- … have specialist contributions (articles, conference papers, etc.) reformulated to a "simpler" level (Fleischmann, 2023).

Apply

You can…

- … ask the chatbot to use the Socratic method so that it guides the students through a Socratic dialogue as a virtual discussion partner.

- … encourage your students to, for example, ask the chatbot to apply a method specific to your subject to a question or problem. The students can think of their own solution to the question or problem in advance and compare their answers to the answers generated by the chatbot. Activities on the cognitive process dimension "Apply" refer to applying a course of action (a scheme, a method) in a specific situation (Servicezentrum innovatives Lehren und Studieren, n. d.).

- … encourage your students to combine or mix their own content-related work or texts using chatbots in order to design subsequent work steps based thereof (Fleischmann, 2023).

Analyze

You can…

- … encourage your students to enter scientific texts or excerpts into chatbots and then check which content has been "dropped" or whether the "common theme" and line of argument are still reflected in the summary generated by the chatbot. The students' task is thus to critically examine the AI-generated summary.

- … encourage your students to have chatbots generate arguments for a pro-con discussion (Fleischmann, 2023).

Evaluate

You can…

- … give students, for example, AI-generated texts, answers or arguments on a subject-specific topic and have them evaluated based on criteria inherent to the subject. In this context, it is recommended to work out with your students in advance what assessment criteria they should use, for example, regarding technical correctness, line of argumentation or whether all essential elements of texts in the subject or genre are included.
- … get feedback on text passages based on evaluation criteria (Fleischmann, 2023). Your students can also use this function, for example, to have ChatGPT generate feedback on texts that the students have written on a specialist topic. For this purpose, the students can enter previously (collectively) developed evaluation criteria as prompts into the chatbot. In a further step, students can compare the AI-based feedback, for example, to peer feedback given by their fellow students.
- … have your students reflect on whether answers to openly formulated questions were given by people or by chatbots and have them justify their answers based on criteria (Fleischmann, 2023).

Create

You can…

- … use chatbots to produce scripts for explanatory videos and podcasts.
- … have texts generated from keyword lists or have text summaries or fill-in-the-blank texts created (Fleischmann, 2023).

In the table below (Table 1) you can find detailed suggestions on how you can use ChatGPT as a representative for chatbots or other generative AI tools in a way that your students can engage in learning activities on the six cognitive process dimensions (Anderson et al., 2001; see Figure 2).

Table 1

Impulses for the implementation of chatbots in courses using the example of ChatGPT based on the cognitive process dimensions according to Anderson et al. (2001)

| Learning Objective & Cognitive Process	Task Impulses for Instructors
Learning Objective Level Remember (Know)	
Recognizing	ChatGPT as a search engine or reference guide The students read an excerpt and use ChatGPT to clarify any ambiguities or obtain additional information. Their main task is identifying general concepts or principles, recognize the core message(s) and understand the content.
Recalling	ChatGPT as a reminder ChatGPT can, for example, be integrated into the group puzzle method: Each core group works on the entire topic, with each student being assigned only one subsection of the overall topic. They are thus an expert in this subtopic and at first develop the content of the subtopic individually. In a second phase, the student meets with the other experts for the same subarea in the expert group where the results are discussed and compiled. Back in their own core group, the respective experts pass on the acquired and optimized knowledge to the other members. With this method, the students alternately take on the roles of teachers and learners and piece together the various subareas of the overall topic. All members receive a well-founded overview. At the end of this method, the results should be compiled and secured in the plenary session.

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| Learning Objective & Cognitive Process	Task Impulses for Instructors
	ChatGPT can be implemented here, for example, to create reminder for the respective topic or subtopic, for example, as reminder lists or tables. These can be used for the presentation within the group or the final presentation in the plenary session.
Learning Objective Level Understand	
Interpreting	ChatGPT as a discussion partner When preparing for a discussion within the seminar, students can be asked to interpret a text and independently develop arguments for their own position. As an exercise for an upcoming plenary discussion, students can interact with ChatGPT in a first step to further refine their thoughts and thus develop a critical perspective. It is essential, however, to provide input about what position the AI tool should take during the discussion in advance. It can take on, for example, the role of the "devil's advocate" who basically provides counterarguments. By taking different positions into account, students train their own critical skills. This exercise with ChatGPT can help students to better structure, justify and defend their own interpretations and positions. After the discussion with ChatGPT, they can then present their arguments and perspectives in a real discussion with their fellow students.
Comparing	ChatGPT as support in comparisons Instructors can ask students to use ChatGPT to contrast two different approaches or models in their field, to highlight similarities and differences and to promote critical thinking.

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Learning Objective & Cognitive Process		Task Impulses for Instructors
Explaining		ChatGPT as a tutor Students can be asked to develop a complex topic or theory using ChatGPT. The students can use ChatGPT to better understand the chosen topic. They can ask questions to eliminate uncertainties, gather additional information and search for simplified explanations for difficult concepts. After the students have developed a deeper understanding, they should be able to explain the complex topic in their own words. Short lectures, videos, or podcasts, which then can receive feedback from fellow students, are suitable for this task.
Learning Objective Level Apply		
Executing		ChatGPT as a case simulator The students choose a practical project, for example, developing a mobile app. Step 1 Planning and design: They plan and design the software application by defining the requirements, the user interface design and the functionalities. Step 2 Development: During the development phase students put their knowledge into action by writing the code and creating the application. Step 3 Testing and troubleshooting: Once completed, the students test the application and use ChatGPT to identify major problems and errors and find solutions. ChatGPT works like a case simulator here. In this protected space, the students can make their first attempts at implementation. Serious errors in programming can thus be discovered more quickly.

Learning Objective & Cognitive Process	Task Impulses for Instructors
	Step 4 Deployment and operation: The students present the application in a real-world environment, for example, on a server or in an app store. They have to ensure that the application works smoothly and overcome technical challenges. Step 5 Maintenance and improvement: After the application is deployed, students take care of the maintenance and continuous improvement of their app.
Implementing	ChatGPT as a quiz master Students can use ChatGPT to implement an online quiz, for example, into MS Teams or Moodle, in which they create quiz questions and answers on a specific subject. The goal is to create a useful resource tool for themselves and their fellow students to support the learning process of the learning group. Their own knowledge of subject contents, question formatting, assessment and feedback will be applied.
Applying	ChatGPT as a patient In a case study, instructors can ask students to use ChatGPT to create a patient who approaches the students with various symptoms. The goal is to develop solutions to real-world problems and simulate the application of those solutions in real-world scenarios to promote the practical application of theory. For students of sports medicine, this could look as follows: Step 1 Selection of a case study: Each student selects a case study of an athlete. They ask ChatGPT to pose as a patient who shows various symptoms.

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Learning Objective & Cognitive Process	Task Impulses for Instructors
	Step 2 Anamnesis: The students carry out a comprehensive, systematic survey of their patient's medical history, including symptoms, previous illnesses, medications, allergies and other relevant information. Step 3: The students apply their prior knowledge to conduct a virtual consultation with their case study. During this consultation, they ask questions about their athletic goals, lifestyle, preferences and previous training routines to learn more about their case study's situation. Step 4 Creating individualized plans: Based on the information from the ChatGPT consultation, students create individualized training and health plans for their case study. These plans should include specific exercises, nutritional recommendations and feasible measures to prevent injuries. Step 5 Presentation of the results: The students present and discuss their individualized plans in front of the plenum and explain what difficulties they faced in the process.
Learning Objective Level Analyze	
Differentiating	ChatGPT as an interview/chat partner Instructors can ask students to use ChatGPT to analyze different variants or aspects of a topic and present them in a structured overview to practice differentiating information. For students of ethics, this could look as follows: Step 1 Choosing an ethical dilemma: Each student chooses an ethical dilemma from the field of applied ethics, for example, animal rights, environmental ethics or artificial intelligence ethics.

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Learning Objective & Cognitive Process	Task Impulses for Instructors
	Step 2 Using ChatGPT: The students use ChatGPT to collect different philosophical perspectives and arguments on the chosen ethical dilemma. They formulate questions and collect answers from given personalities, for example, those of various philosophers. ChatGPT must be assigned a certain personality role in advance. This could be a chat or interview with the person. Step 3 Differentiation of perspectives: Based on the answers from ChatGPT, students examine the different philosophical perspectives that can be applied to the ethical dilemma. They identify key arguments, ethical theories and views of various philosophers. Step 4 Analysis and evaluation: The students analyze and evaluate the quality of the philosophical views and arguments provided by Chat-GPT. They assess how well-founded and valid the different perspectives are. Step 5 Developing a philosophical essay: The students write an essay that summarizes their analysis of the various philosophical perspectives on the ethical dilemma. The essay should contain the most important findings, key arguments and possible solutions. Step 6 Group debate: In a group debate, the students exchange their results and compare their analyses. They discuss the advantages and disadvantages of different philosophical perspectives and represent their own point of view.
Organizing	ChatGPT as an organizational talent Students can collect research data and ask ChatGPT how it could be organized. The answers may vary depending on what the goal of the organization process is. The advantages and disadvantages of each aspect should be considered.

Learning Objective & Cognitive Process	Task Impulses for Instructors
	The students then have to choose the most suitable variant for them from the various suggestions that ChatGPT provides and implement it independently. This means that they then organize their previously collected data, for example, as tables, in graphics, in bullet points, with sketch notes or diagrams.
Attributing ⇄	**ChatGPT as a mouthpiece** The students learn how to effectively use ChatGPT to collect different standpoints from, for example, authors or certain population groups on a specific topic and to analyze the answers in relation to, for example, political views. With the support of ChatGPT they can receive different standpoints from the authors by assigning clear roles to the tool and asking questions. The answers should then be attributed to various political views offered by the instructor. The students justify their attributions and evaluate and discuss how these positions could impact political decision-making processes and debates.
Learning Objective Level Evaluate	
Checking	**ChatGPT as a learner** The students are asked to have ChatGPT generate an incorrect code. In this, ChatGPT should act as a learner. The students take on the role of the teacher and are supposed to critically review the generated code, identify the errors and improve them. The task is intended to promote the critical review of information as well as code analysis skills.

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Learning Objective & Cognitive Process	Task Impulses for Instructors
Critiquing	**ChatGPT as a test run** Students of teaching can be asked to set up a differentiated class assignment on a topic and to think about an assessment grid for the assessment. ChatGPT will then take on the role of three individual students, who will work on the assignment at the respective level of difficulty, representing three different levels of differentiation. The assignment can then be evaluated using the assessment grid created in advance. The results are discussed in a plenary session.
Learning Objective Level Create	
Generating	**ChatGPT as a writing workshop** The goal is for the students to develop the ability to generate creative texts and use ChatGPT as a creative writing workshop. This task is intended to promote generative thinking and creative writing skills. Step 1 Choosing a topic: The students choose a learning topic on which they would like to write creatively. This could be a literary text, a short story, a poem, a play or an idea for a project. Step 2 Using ChatGPT: The students use ChatGPT to initiate their first writing processes. They can ask ChatGPT for ideas, inspiration or similar texts. Step 3 Generative writing: Based on the inspiration provided, students initiate the generative writing process. Step 4 Feedback loop: Completed text passages can be reviewed regarding content and form using ChatGPT. The feedback from ChatGPT and decisions for or against the tool's suggestions are documented.

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Learning Objective & Cognitive Process		Task Impulses for Instructors
		Step 5 Reflection: The students reflect on the influence of ChatGPT on their creative process. They answer the following questions: Did the suggestions they received help? How did they perceive ChatGPT as a tool? How did ChatGPT influence the design of the text? Did they allow themselves to be tempted to fully copy the answers? Step 6 Presentation and discussion: The students present their texts in a plenary session and discuss their experiences with ChatGPT. Step 7 Evaluation: The students evaluate the results and justify their statements.
Planning		ChatGPT as a tool for planning The students are encouraged to design a creative product based on the learning objectives, for example, a podcast or blog. In this process, they use ChatGPT to structure, plan and organize the development of their podcast/blog. With the help of AI, they receive ideas, suggestions and inspiration for the script for their pod-cast or blog and can therefore focus on the learning objectives in their independent work.
Producing		ChatGPT as a feedback buddy Students of business management and creation are guided to develop innovative business ideas in a specific field by creating compelling presentations and pitches. In this process, they use ChatGPT to substantiate their own ideas and constantly obtain feedback. The goal is to gradually optimize the business idea up to the im-plementation of a pitch in front of a real audience. Either fellow students or real entrepreneurs will then eval-uate their pitch.

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4 Ressources

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5 Links

- GenAI Chatbot Prompt Library for Educators: https://www.aiforeducation.io/prompt-library
- Hochschulforum Digitalisierung: https://hochschulforumdigitalisierung.de
- How-to-Concepts from the DaTa-Pin team: How-to-Digitale-Kompetenzen
- KI-Campus: https://ki-campus.org, e.g., self-study course "Voice assistants as an opportunity for university teaching" (in German) (https://ki-campus.org/courses/sprachassistenzen-hochschule)
- Microsoft: Prompts for education via https://github.com/microsoft/prompts-for-edu
- An easy-to-understand introduction to more complex prompting strategies from the YouTube channel @DigitaleProfis.
  - YouTube playlist "ChatGPT Mega Prompts":
    https://www.youtube.com/playlist?list=PLD93Zs0BCugs9hSvTP16iACgdJkc_kiWI