

„Innovatives Lehren und Lernen mit KI: Theorie und Praxis“  
**Prompting (Wie sag ich's meinem KI-Chatbot?)**

**Beginn 17:00 Uhr**

# Themen

20.03. - Aktuelle KI-Systeme und ihre Anwendbarkeit auf akademische Prozesse

27.03. - Kompetenzverlust und Kompetenzgewinn durch KI

10.04. - Prompting

17.04. - KI und lehrbezogene Tätigkeiten

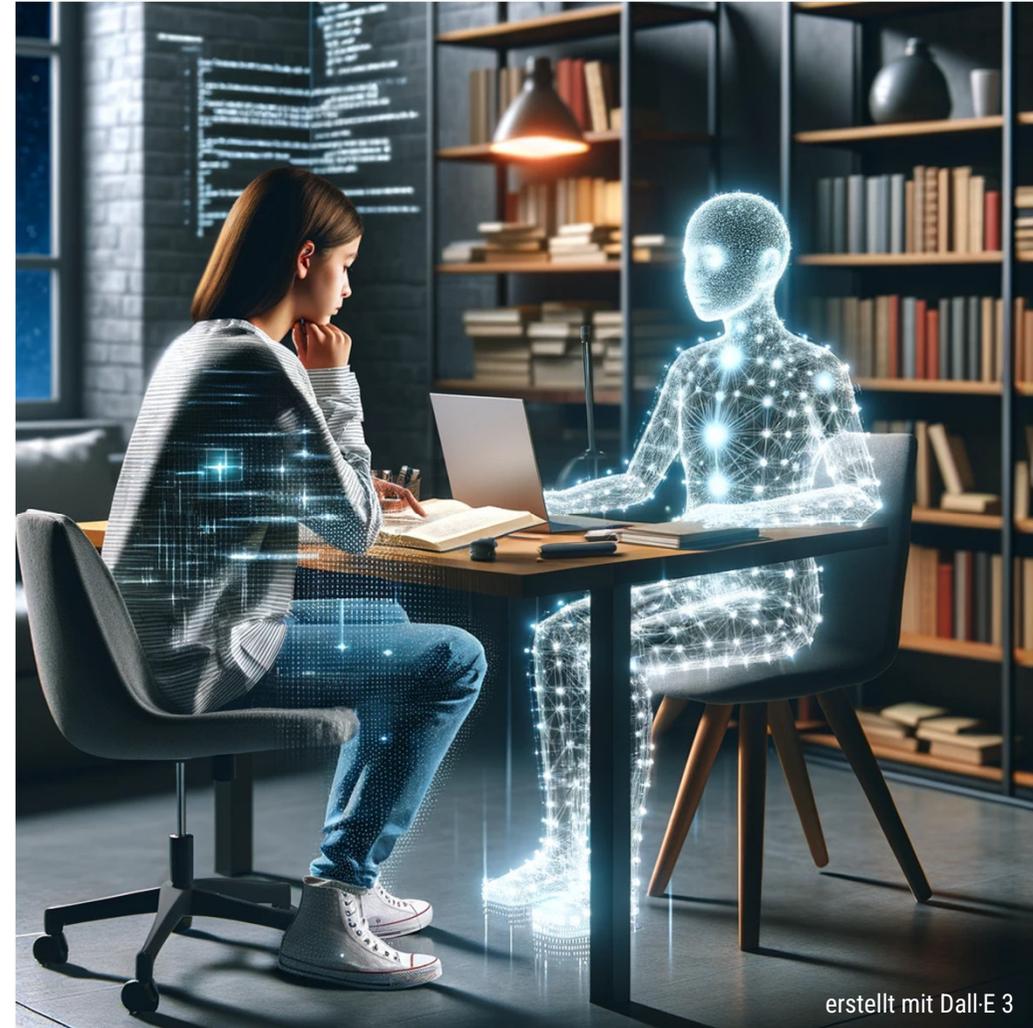
24.04. - (studentisches) Forschen mit KI

08.05. - (studentisches) Lernen mit KI

15.05. - ...

# Prompting

- generative KI als ein „digitaler HiWi“
- Einfluss der Qualität der Anweisung auf die Ergebnisse meines „digitalen HiWi“



erstellt mit Dall-E 3

## Beispiel

Welche Forschungsmethoden kann ich einsetzen?

## CO-STAR Framework

### Context

Gib Hintergrundinformationen zur Aufgabe an.

### Objective

Definiere, welche Aufgabe das LLM ausführen soll.

### Style

Gib den Schreibstil an, den das LLM verwenden soll („Du bist Sigmund Freud“, „Du bist CEO eines Automobilzulieferers“ usw.).

### Tone

Lege den Ton der Antwort fest (formal, humorvoll, einfühlsam, akademisch usw.).

### Audience

Gib an, für wen die Antwort bestimmt ist (Experten auf einem Gebiet, Anfänger, Kinder usw.).

### Response

Gib das Antwortformat an (Liste, Tabelle, Stichpunkte, „Absatz mit 300 Wörtern“ usw.).

# Beispiel

Du bist ein erfahrener Forscher im Bereich „Informatik und Gesellschaft“. Ich soll ein kleines, studentisches Forschungsprojekt durchführen. Ich habe bereits eine Forschungsfrage gefunden: Warum ist der Anteil von Frauen in der Informatik viel geringer als der Anteil von Männern? Ziel ist es nun, ein methodisches Vorgehen zu finden. Bitte hilf mir dabei. Das Projekt ist für meinen Studienerfolg sehr wichtig.

Schlage mir Forschungsmethoden vor, mit denen die Forschungsfrage bearbeitet werden kann. Unterscheide zunächst in empirische und theoretische Ansätze. Frage mich, was mir von den Vorschlägen am besten gefällt und welche weiteren Ideen ich habe. Warte meine Antworten ab.

Benenne mögliche Vor- und Nachteile zu den gewählten Forschungsmethoden und bitte mich um meine Einschätzung. Warte meine Antworten ab. Schlage dann Varianten zur gewählten Forschungsmethode vor und bitte mich um mein Feedback. Lass uns erst zum nächsten Schritt weitergehen, wenn ich zufrieden mit der getroffenen Auswahl bin.

Beschreibe die gefundenen Forschungsmethode in einem kurzen Abschnitt von ungefähr 150 Wörtern. Verwende dabei einen knappen, präzisen Ausdruck und einen akademischen Sprachstil.

# “Chain of thought” & „Few-shot” (Kojima et al. 2022)

## (a) Few-shot

Q: Roger has 5 tennis balls. He buys 2 more cans of tennis balls. Each can has 3 tennis balls. How many tennis balls does he have now?

A: The answer is 11.

Q: A juggler can juggle 16 balls. Half of the balls are golf balls, and half of the golf balls are blue. How many blue golf balls are there?

A:

(Output) The answer is 8. **X**

## (b) Few-shot-CoT

Q: Roger has 5 tennis balls. He buys 2 more cans of tennis balls. Each can has 3 tennis balls. How many tennis balls does he have now?

A: Roger started with 5 balls. 2 cans of 3 tennis balls each is 6 tennis balls.  $5 + 6 = 11$ . The answer is 11.

Q: A juggler can juggle 16 balls. Half of the balls are golf balls, and half of the golf balls are blue. How many blue golf balls are there?

A:

(Output) The juggler can juggle 16 balls. Half of the balls are golf balls. So there are  $16 / 2 = 8$  golf balls. Half of the golf balls are blue. So there are  $8 / 2 = 4$  blue golf balls. The answer is 4. ✓

## (c) Zero-shot

Q: A juggler can juggle 16 balls. Half of the balls are golf balls, and half of the golf balls are blue. How many blue golf balls are there?

A: The answer (arabic numerals) is

(Output) 8 **X**

## (d) Zero-shot-CoT (Ours)

Q: A juggler can juggle 16 balls. Half of the balls are golf balls, and half of the golf balls are blue. How many blue golf balls are there?

A: **Let's think step by step.**

(Output) There are 16 balls in total. Half of the balls are golf balls. That means that there are 8 golf balls. Half of the golf balls are blue. That means that there are 4 blue golf balls. ✓

# Prompting (Bsharat, Myrzakhan & Shen 2023)

## → 26 Leitprinzipien

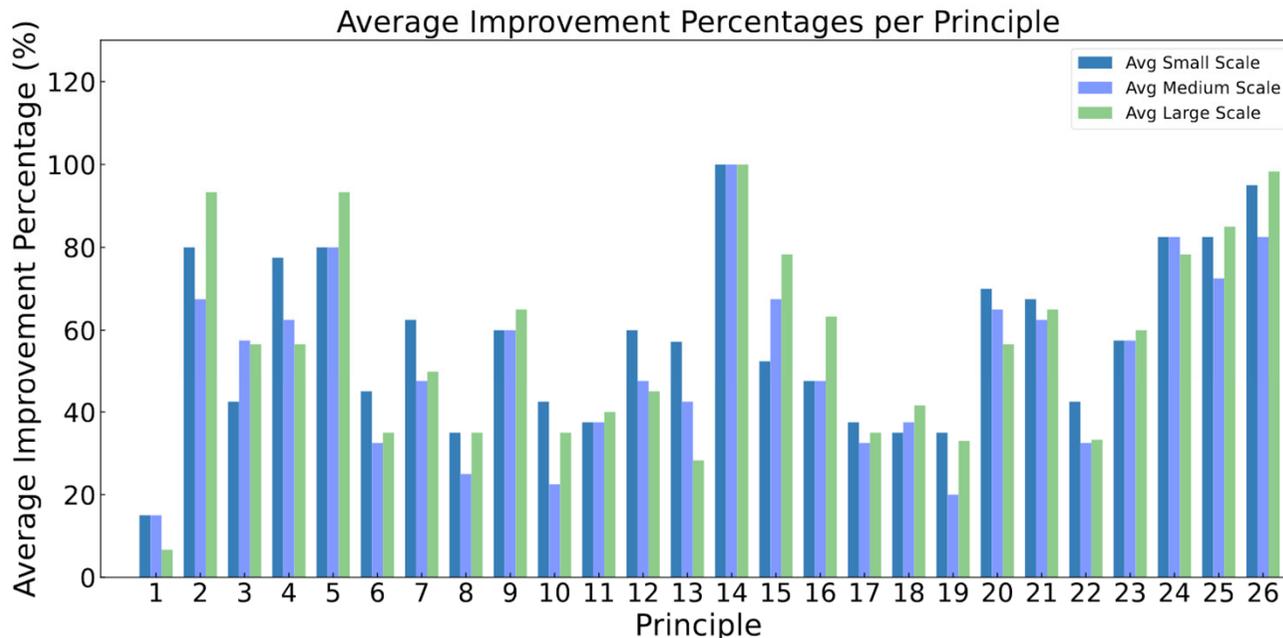


Figure 4: Boosting of LLM response quality after employing the introduced principles on prompts. *small-scale* indicates the 7B models, *medium-scale* indicates the 13B models and *large-scale* indicates the 70B and GPT-3.5/4 models.

#Principle	Prompt Principle for Instructions
1	If you prefer more concise answers, no need to be polite with LLM so there is no need to add phrases like "please", "if you don't mind", "thank you", "I would like to", etc., and get straight to the point.
2	Integrate the intended audience in the prompt, e.g., the audience is an expert in the field.
3	Break down complex tasks into a sequence of simpler prompts in an interactive conversation.
4	Employ affirmative directives such as 'do,' while steering clear of negative language like 'don't'.
5	When you need clarity or a deeper understanding of a topic, idea, or any piece of information, utilize the following prompts: <ul style="list-style-type: none"> <li>o Explain [insert specific topic] in simple terms.</li> <li>o Explain to me like I'm 11 years old.</li> <li>o Explain to me as if I'm a beginner in [field].</li> <li>o Write the [essay/text/paragraph] using simple English like you're explaining something to a 5-year-old.</li> </ul>
6	Add "I'm going to tip \$xxx for a better solution!"
7	Implement example-driven prompting (Use few-shot prompting).
8	When formatting your prompt, start with '###Instruction###', followed by either '###Example###' or '###Question###' if relevant. Subsequently, present your content. Use one or more line breaks to separate instructions, examples, questions, context, and input data.
9	Incorporate the following phrases: "Your task is" and "You MUST".
10	Incorporate the following phrases: "You will be penalized".
11	Use the phrase "Answer a question given in a natural, human-like manner" in your prompts.
12	Use leading words like writing "think step by step".
13	Add to your prompt the following phrase "Ensure that your answer is unbiased and avoids relying on stereotypes."
14	Allow the model to elicit precise details and requirements from you by asking you questions until he has enough information to provide the needed output (for example, "From now on, I would like you to ask me questions to ...").
15	To inquire about a specific topic or idea or any information and you want to test your understanding, you can use the following phrase: "Teach me any [theorem/topic/rule name] and include a test at the end, and let me know if my answers are correct after I respond, without providing the answers beforehand."
16	Assign a role to the large language models.
17	Use Delimiters.
18	Repeat a specific word or phrase multiple times within a prompt.
19	Combine Chain-of-thought (CoT) with few-Shot prompts.
20	Use output primers, which involve concluding your prompt with the beginning of the desired output. Utilize output primers by ending your prompt with the start of the anticipated response.
21	To write an essay /text /paragraph /article or any type of text that should be detailed: "Write a detailed [essay/text /paragraph] for me on [topic] in detail by adding all the information necessary".
22	To correct/change specific text without changing its style: "Try to revise every paragraph sent by users. You should only improve the user's grammar and vocabulary and make sure it sounds natural. You should maintain the original writing style, ensuring that a formal paragraph remains formal."
23	When you have a complex coding prompt that may be in different files: "From now and on whenever you generate code that spans more than one file, generate a [programming language] script that can be run to automatically create the specified files or make changes to existing files to insert the generated code. [your question]".
24	When you want to initiate or continue a text using specific words, phrases, or sentences, utilize the following prompt: <ul style="list-style-type: none"> <li>o I'm providing you with the beginning [song lyrics/story/paragraph/essay...]: [Insert lyrics/words/sentence]. Finish it based on the words provided. Keep the flow consistent.</li> </ul>
25	Clearly state the requirements that the model must follow in order to produce content, in the form of the keywords, regulations, hint, or instructions
26	To write any text, such as an essay or paragraph, that is intended to be similar to a provided sample, include the following instructions: <ul style="list-style-type: none"> <li>o Use the same language based on the provided paragraph/title/text /essay/answer].</li> </ul>

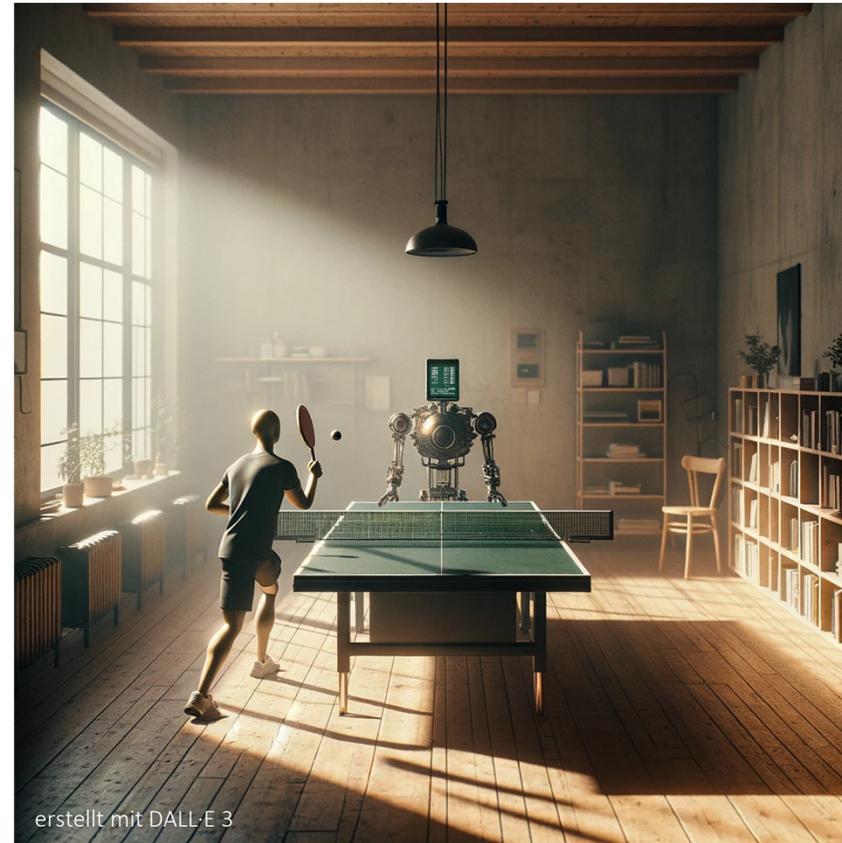
Table 1: Overview of 26 randomly ordered prompt principles.

# Prompting

Orakel  
(Human-on-the-loop-System)



„kognitives Ping-Pong“  
(hybrid intelligence)



# Prompting

Im Sokratischen Gespräch mit KI...



## Beispiele

<https://chat.openai.com/share/c3974560-4ec0-4be7-898e-eddf76055944>

<https://chat.openai.com/share/0f6b3575-9549-41cf-9b59-ebf0d803c931>

<https://hochschulforumdigitalisierung.de/im-sokratischen-gespraech-mit-ki/>

# VIELEN DANK FÜR DEN AUSTAUSCH



Stefan Müller

WHZ/HDS

[stefan.mueller@hd-sachsen.de](mailto:stefan.mueller@hd-sachsen.de)