

Opportunities and Limits of AI assisted Socratic Dialogues– Insights from a Custom GPT Used for research topic development in Bachelor-Level Research Education

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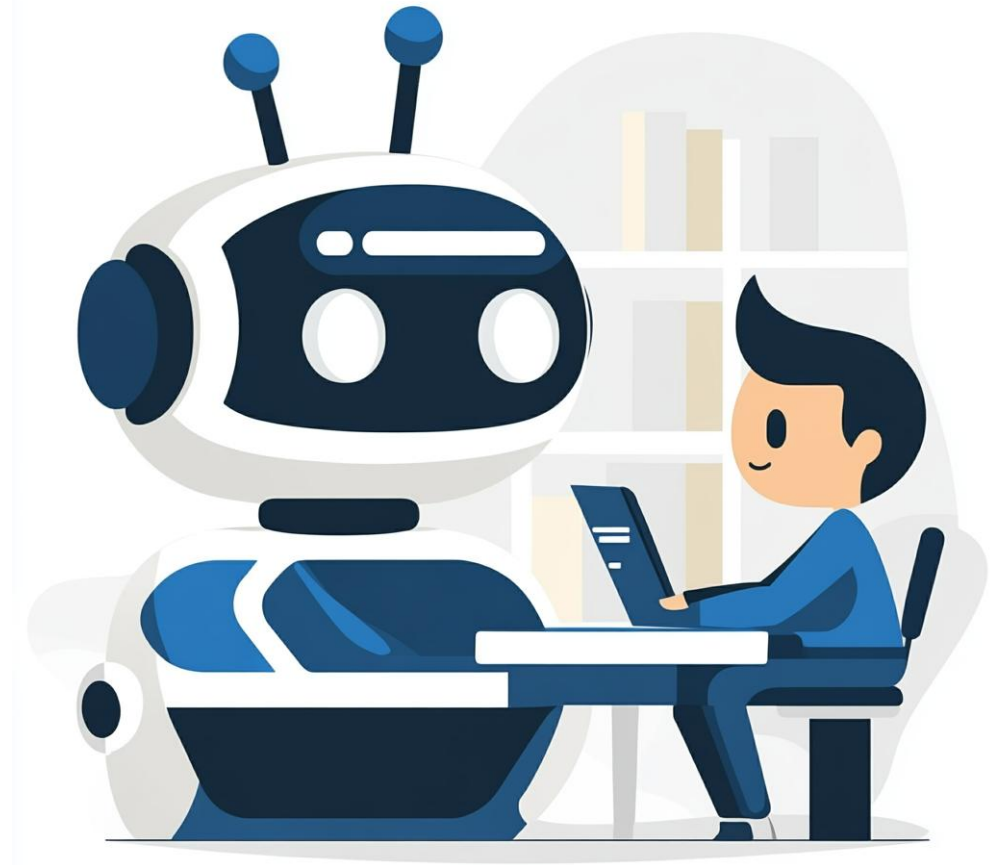
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“Master Propaedeutics – Bridging courses in Research Skills & Methods”

- **Content coverage:**
Entire CBC (Common Body of Competence) of the Research Skills & Methods module (Bachelor level) = 6 ECTS
- To date we have designed more than **30 interactive self-learning courses incl. 4 AI-assisted tutors**
- Adaptation as OER content (coming soon, German only!)

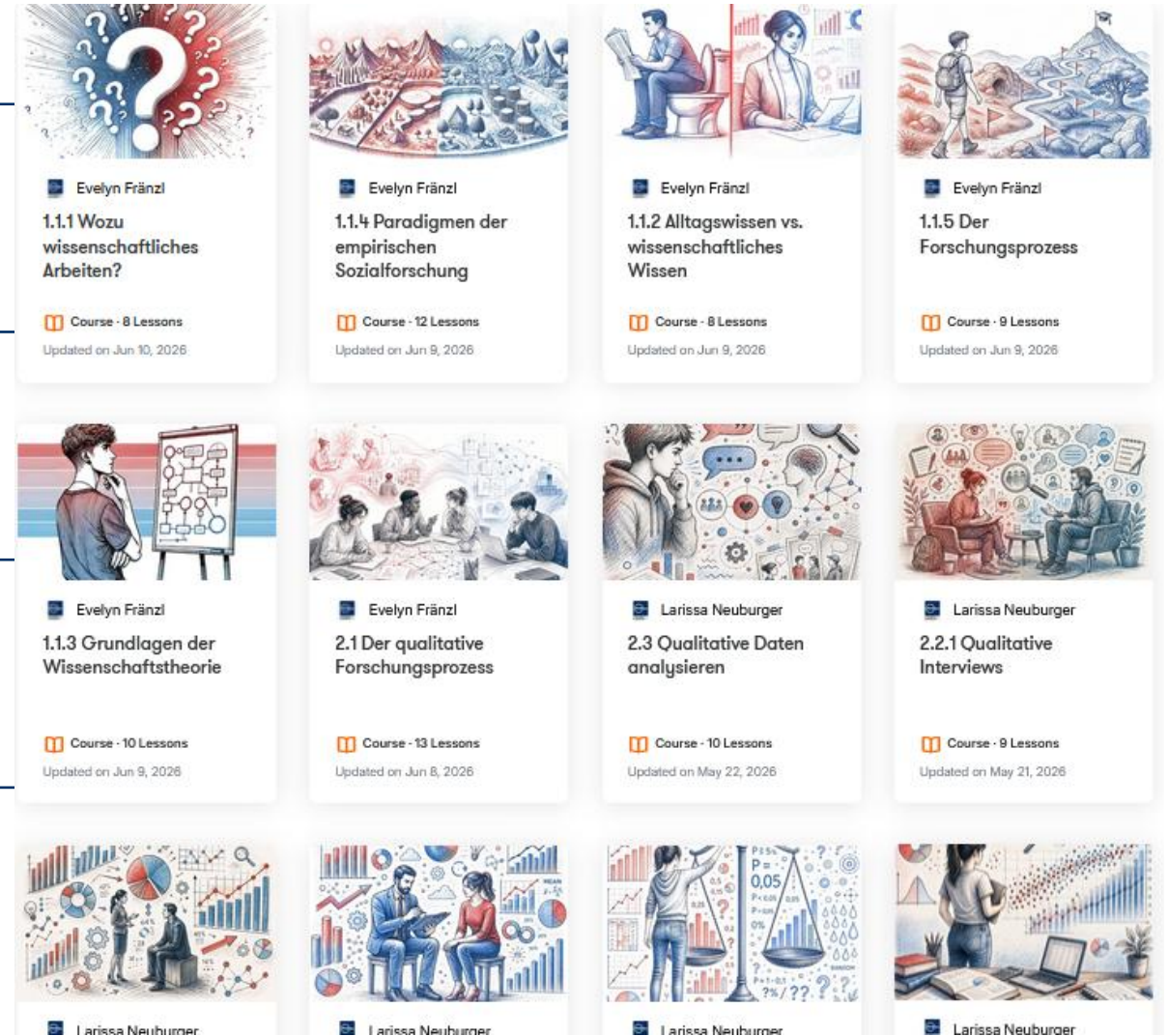
Key Features

Their didactive structure follows the concept of **constructive alignment**

They are as **interactive** as possible and follow the concept of **problem-based learning**

Their structure is **modular** and they can be used entirely or single chapters can be chosen

They work for **in-class-use** as well as for **100% self-learning**



“Writing Process & Topic Development”

BM Brückenkurse MA23

1.3.1 Schreibprozess & Themenfindung

KURS STARTEN



Try the chapter out here! (German only)


Donna, the Topic Buddy
Von Melanie Dejnega 🐼

Supports FHWien students in developing thesis topics and search terms.

- I have no idea what to write about. Can you help me get...
- I have a broad idea but need to narrow it down.
- I think I have a research topic. Can we examine it...
- My topic is defined. Can we identify literature search...

Socratic Dialogue

... is an interactive, student-centered form of dialogue, where tutors guide learners using open-ended questions while refraining from imposing their own views.
(Fakour & Imani, 2025)

Bachelor Theses writing process at the Department of Communication



Students elaborate (rough) topics for their Bachelor's theses as part of the course "Scientific Reading & Writing" at the end of the 3rd semester



They announce them via a Moodle platform



Department staff allocates (internal & external) supervisors according to expertise and capacities

But.. there is a problem:

The quality of the initial research topic strongly influences:

- Successful Literature search
- Fluency in the thesis writing process
- Overall thesis success

It is crucial that students receive individual support at this very early stage of their thesis!

Donna – The Topic Buddy

Purpose

Help students transform vague interests into focused research topics

Design Principle: Socratic Dialogue

Instead of providing answers:

- Donna asks questions
- Students refine their thinking & experience how their topics become more concrete

End Goal

3 focused search terms for starting literature search

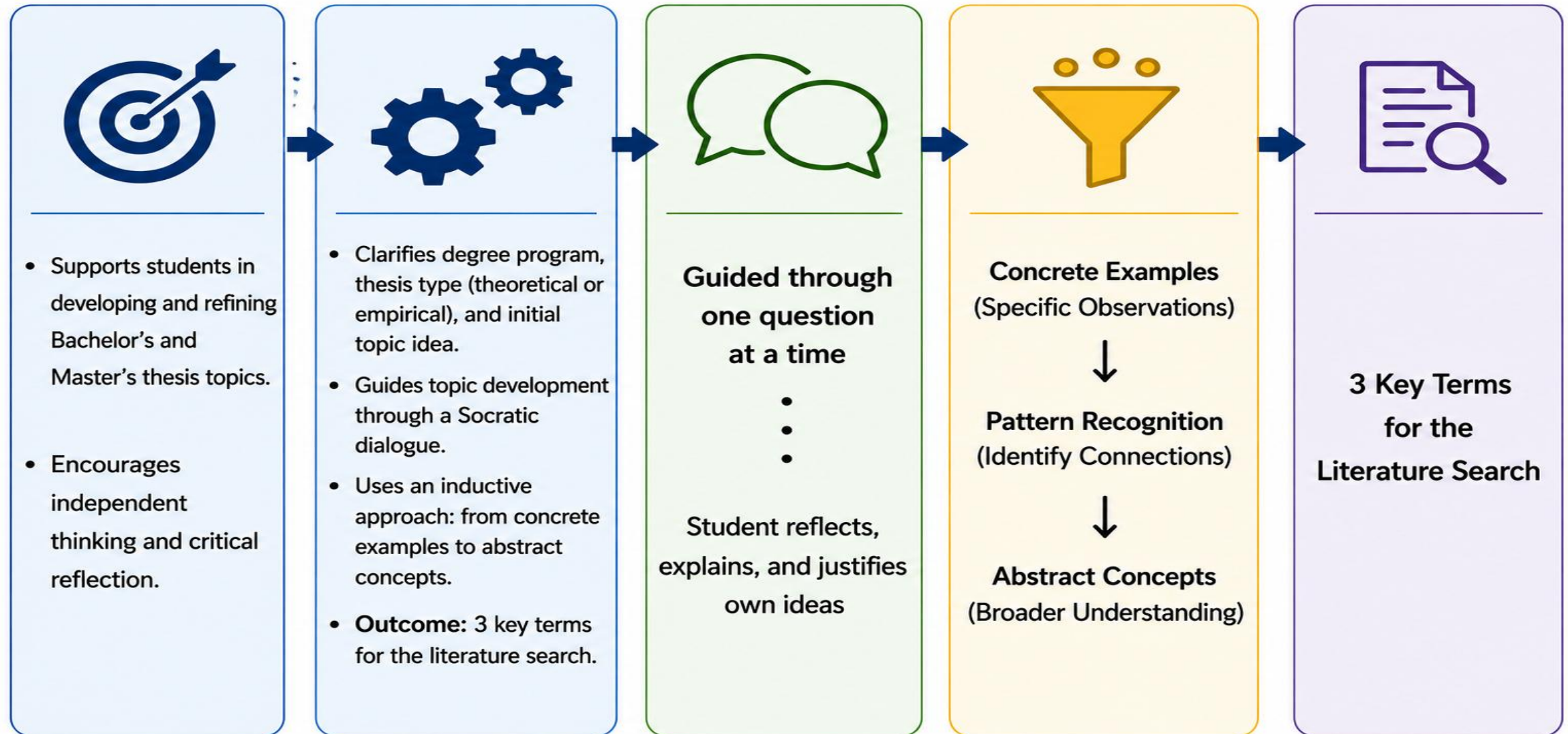


Starting the conversation

4 types of initial prompts students can choose from:

1. I have no idea what to write about. Can you help me get started?
2. I have a broad idea but need to narrow it down.
3. I think I have a research topic. Can we examine it critically?
4. My topic is defined. Can we identify literature search terms?

Donna Prompt Structure



Evaluation of Chatbot Donna

Following the implementation of Chatbot Donna in Winter Terms 2024 and 2025, feedback was collected through three complementary sources:

- 1. In-class student feedback** – After the asynchronous learning unit, in which students did the formative assessment with Donna, we discussed their experience.
- 2. End-of-Semester-Survey** on students' learning experiences with the self-learning modules, including perceptions of chatbot communication
- 3. Chatbot conversation logs**, which will be examined in a subsequent research project

In-class feedback

Student Acceptance

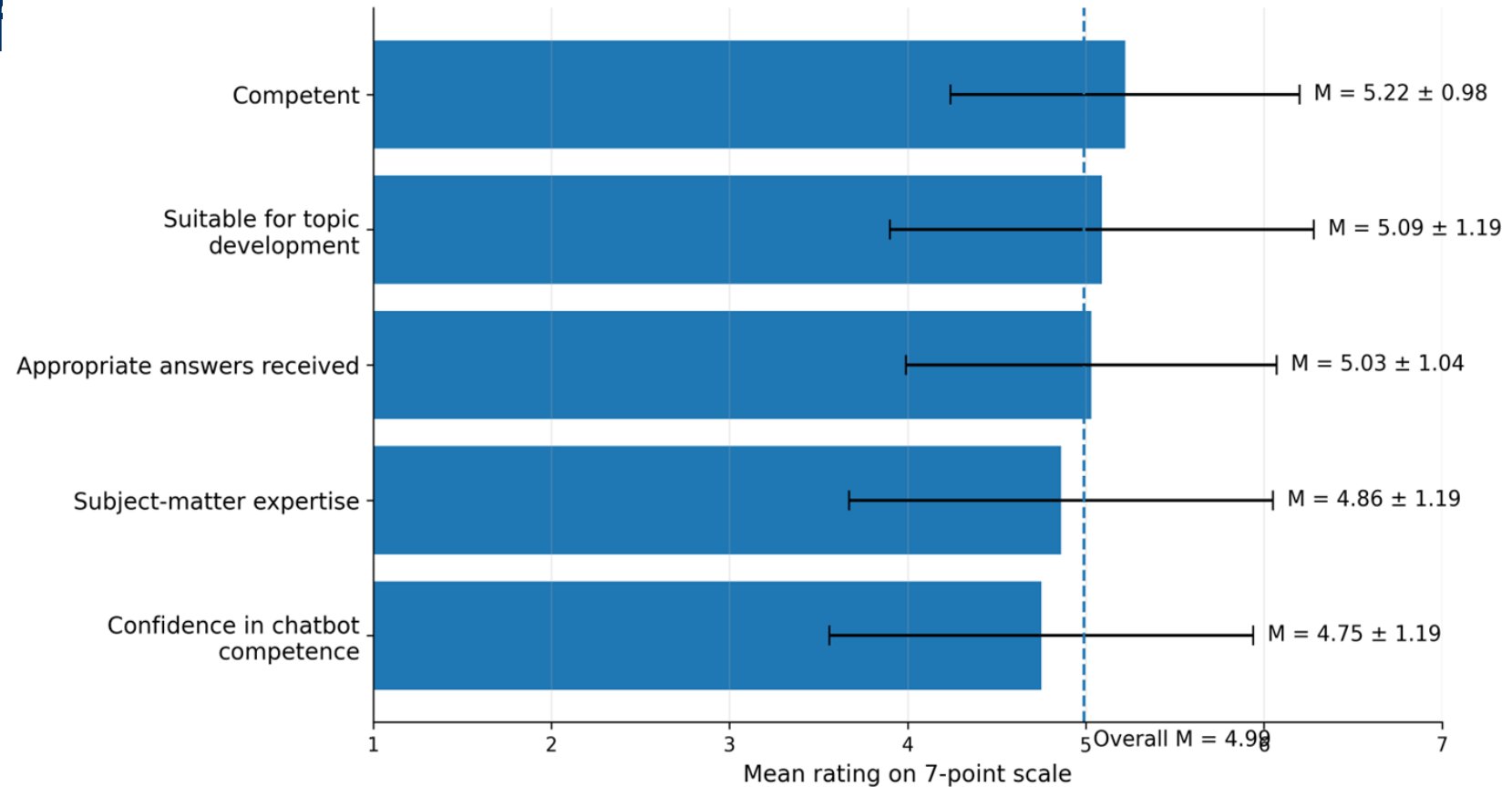
- Most students reported a positive experience.
- Many wanted continued access to the chatbot after the course.

Challenges

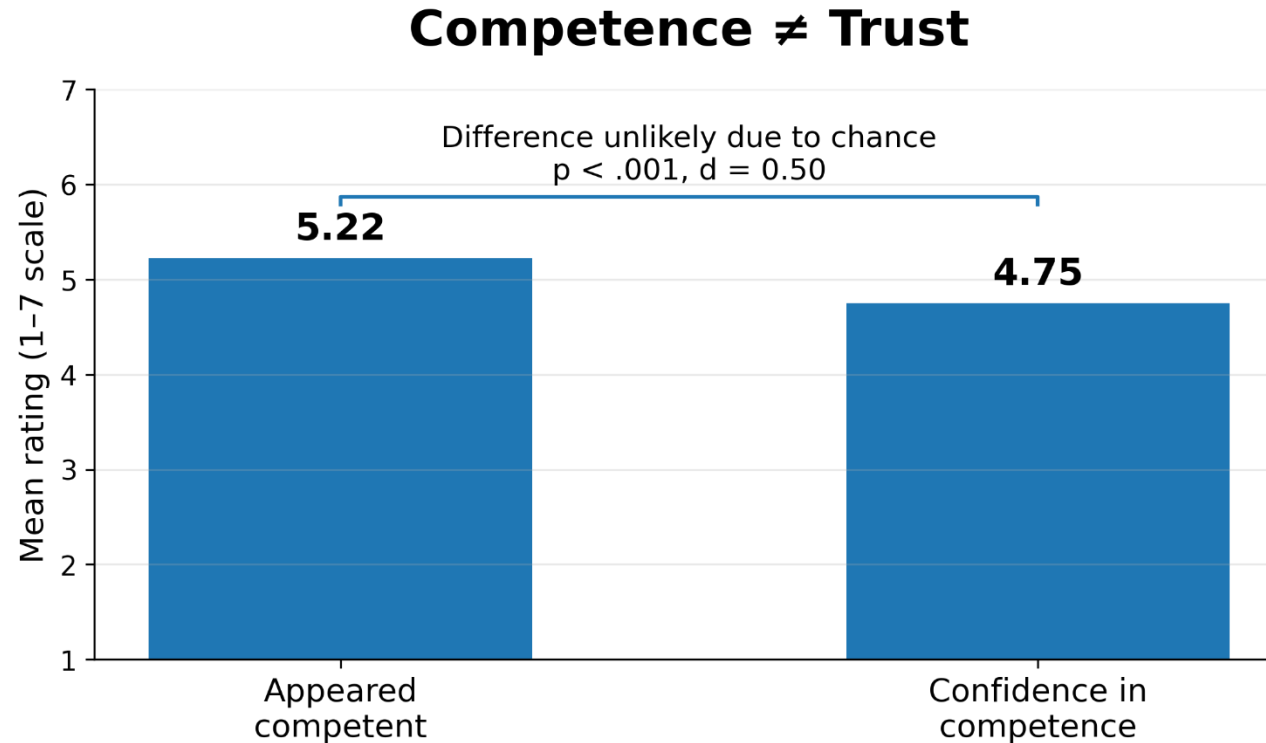
- **License Issues:** Users without a paid ChatGPT account often reached their token limit and had to spread their conversations over several days.
- **Preference for Human Support** - some students explained that they would have preferred discussing topics with lecturers or supervisors.
- **Dialogue Fatigue** - some students found the process time-consuming and tiring.

Survey results: Student perception of the communication with Donna

In general, students perceived the AI-assisted Socratic tutor as competent and useful (N = 69; $M = 4,99 \pm 0,94$). Mean ratings ranged from 4.75 to 5.22 on a 7-point scale



Perceived Competence vs. Confidence in Competence



Students perceived Donna as competent — but trusted her less.

What do the chatbot-related results of the survey tell us?

Acceptance	Mean < 5
Students perceived Donna as competent	Confidence ratings were lower
Responses were considered appropriate	Subject-matter expertise was rated more critically
Support for topic development was valued	

Students seem to view Donna as a facilitator rather than an authority.

Takeaway & Discussion

What kind of relationship do students have with other AI chatbots/LLMs, not based on Socratic Dialogue?

What level of authority should educational chatbots have in the learning process?

What relationship should students have with AI?

Try-Out: English Demo-Version of Donna



<https://chatgpt.com/g/g-6a1d930ea42081918de6e2a4a16fa5c8-donna-the-topic-buddy>



Sources & References

- Fakour, H. & Imani, M. (2025). Socratic wisdom in the age of AI: a comparative study of ChatGPT and human tutors in enhancing critical thinking skills. *Frontiers in Education*, 10:1528603. doi: 10.3389/feduc.2025.1528603
- Hu, Z. (2023). Promoting critical thinking through Socratic questions in health sciences work-integrated learning. *International Journal of Technology in Education Research*, 22. 137-151. doi: 10.26803/ijlter.22.6.8
- Le, N. (2019). How do technology-enhanced learning-tools support critical thinking? *Frontiers in Education*. 4:0126. <https://doi.org/10.3389/feduc.2019.00126>
- Neuburger, L., Pezenka, I., Dejnega, M. & Fränzl, E. (2025). AI tutor as Socratic Mentors: Transforming Student Learning in Research Methods. *Medienimpulse*, 63(2). <https://doi.org/10.21243/mi-02-25-15>
- Nordheim, C.B., Følstad, A., & Bjørkli, C.A. (2019). An Initial Model of Trust in Chatbots for Customer Service - Findings from a Questionnaire Study. *Interacting with Computers*, 31, 317-335.
- Oppel, K. (2025). Im Sokratischen Gespräch mit KI. Verfügbar unter: <https://hochschulforumdigitalisierung.de/im-sokratischen-gespraech-mit-ki/>
- Pitorini, D. E., Suciati & Harlita. (2024). Students' Critical Thinking Skills Using an E-Module Based on Problem-Based Learning Combined with Socratic Dialogue. *Journal of Learning for Development*, 11(1), 52-65. <https://doi.org/10.56059/jl4d.v11i1.1014>
- Santos-Guevara, A. et al. (2026). Fostering Student Engagement and Learning Perception Through Socratic Dialogue with ChatGPT: A Case Study in Physics Education. *Education Sciences*, 16(2), 184. <https://doi.org/10.3390/educsci16020184>

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OER content coming soon!



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