Embracing the future:
the use of ChatGPT in Science Teacher Education



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On Generative Artificial Intelligence

Publicly available since 2022

Is a system trained on selected available data

Combines the data and the user expectation it was trained on to generate answers to prompts.

.... It gets more accurate every day.

Teacher education – Student teachers – High school students

Concerns about plagiarism, referencing, reaching learning goals on all levels.

So what do we know about gAI in STEM Teacher Education?

Friend?

Foe?

We decided to join forces with 4TU teacher education programs and find out.

‘Hang-on, the TU’s have Teacher Education programs?’

-Yes, since their beginnings.

What did we do?

Semi-structured interviews on the use of gAI such as ChatGPT

Invite all student-teachers and teacher-educators.

Ensure safety by using interviewers unknown to participants.

Using AI to help us transcribe the interviews

(AI coding was hopeless)

2023 November

	Experience gAI in TE	No-Experience in TE	No-Experience gAI	Total
Student-teachers	14	2	1	17
Teacher-educators	7	11	7	25











Preliminary results

Ghost writer:

from spelling and grammar to converting notes to legible sentences and diminishing word count.

Creative ever-present buddy to spar ideas for education of.

Finder of literature and sources (careful!!!)

Study buddy (careful!!)

Personal planner (hope you can count)

What did the gAI say?

In Science Teacher Education:

1. Content Review and Reinforcement
2. Lesson Planning Support
3. Pedagogical Guidance
4. Professional Development



In Science Teacher Education:

1. Lesson planning and resource creation
2. Pedagogical Support
3. Reflective Practice
4. Content Knowledge Enhancement
5. Professional Development



Preliminary results –gAi policy

Each examiner for the course or subject at hand writes a protocol formulated together with the students, every year, and be publicly available, especially to alumni. The protocol should contain:

- What gAI can and cannot be used for and why.
- Demands to describe the procedure taken when using a gAI for their work, the name of the gAI - properly cited-, and the prompts used to obtain answers.

Preliminary results – What students want to learn

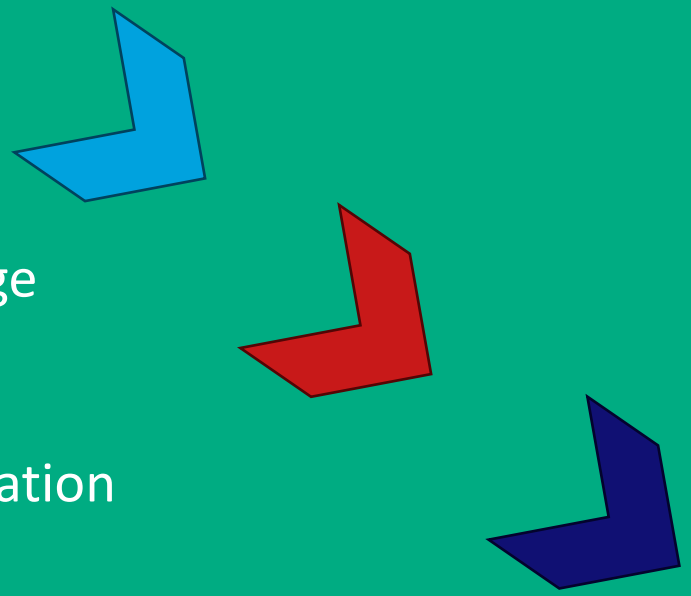
- How to use gAI in general, including decent prompts
- how to use gAI for your future job as science teacher, including subject specific options, use in the classroom, use by high school students, lesson preparations, creating assessments, activities and so on.
- How to check gAI answers for reliability, validity and quality
- When using gAI is beneficial (time, goals) and when it is not
- How to refer to having used gAI properly
- Learning to reflect on the ethics of using gAI
- What all the different gAI's are and what they are for
- What happens with data you enter into gAI, especially when dealing with privacy
- Changing teacher education from learning facts and writing reports to learning to think critically
- What are the limits for using a gAI in general, but also within teacher-education assignments
- How to handle conflicts with students and possibly their parents when you as a teacher suspect they used gAI but are not open about it.

To be continued .....

Write paper

Update results on project page

Change science teacher education



https://www.4tu.nl/cee/innovation/project/3865/embracing-the-future-the-use-of-chatgpt-in-science-teacher-education

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