

# Chapter 11: Creating instruction using generative AI (CS-411)

Tanja Käser

December 2, 2025

# Opportunities & Challenges of LLMs in education

	Opportunities	Challenges
Teachers	<ul style="list-style-type: none"><li>• Help generate <b>material</b></li><li>• <b>Assess</b> student work</li><li>• Generate <b>personalized feedback</b></li><li>• Have students <b>explain concepts</b></li><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• Can lead to <b>homogenization</b> of content</li><li>• Model does <b>not</b> have <b>pedagogical knowledge</b></li><li>• <b>Overreliance</b> on AI (e.g., in assessments)</li><li>• <b>Exposure</b> of sensitive student data</li><li>• Possible <b>inaccuracies</b></li><li>• <b>Potential bias</b> in the model</li></ul>
Students	<ul style="list-style-type: none"><li>• Use as a <b>personal tutor</b></li><li>• Help <b>summarize</b> information</li><li>• Generate <b>ideas</b>, brainstorm</li><li>• Generate <b>practice tasks</b></li><li>• <b>Practice</b> exam situations</li><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• Ease of using AI tools for learning can <b>undermine intellectual growth</b></li><li>• Possible <b>inaccuracies</b></li><li>• <b>Potential exposure</b> of sensitive data</li></ul>

# Creating learning experiences with generative AI

- Create the instruction for your I-PS versus PS-I project using generative AI
- You will be in your project teams
- You will be able to choose between three different tools:
  - Notebook LM
  - Gemini + Canvas
  - Custom GPT (requires GPT Plus)

# Activity Timeline

- 1) Implement the instruction part of your PS-I vs I-PS project with one of the three mentioned tools **45 minutes**  
Should work as a plug-in replacement for your actual implementation
- 2) Test the implementation of another group (one group member stays for the demo) **15 minutes**  
You can also do the posttest to see if you learn something
- 3) Present your tool and share your honest impression **1-2 minutes**
- 4) Final discussion

# Task 1: Create the instruction

- NotebookLM: Pipeline from input sources to learning material  
<https://notebooklm.google.com>
  - Gemini + Canvas: Interactive user interfaces for learning  
<https://gemini.google.com>
  - Custom GPT: Chatbot with access to files and subject-specific system message  
<https://chatgpt.com>
- ➡ Moodle: Instruction on the tools  
[Activity Handout](#)

## Task 2: Test the instruction of another group

- Is the provided tool easy to use and to follow?
- Would you use the tool again?
- Have you enjoyed the interaction with the tool?
- Do you feel that you learned something by using the tool?

 Be critical and thoroughly test the learning experience

 You can also do the posttest to assess your learning

# Task 3 & 4: Presentation & Discussion

- Presentation: 1-2 minutes per group
- Discussion:
  - What are the affordances of the GenAI tool for creating learning experiences?
  - What are limitations and risks of the GenAI tool from the teacher / student perspective?
  - Will the learning experience help learning? How could you show that experimentally?
  - Were you able to enforce your learning goals with the GenAI tool?