Uniwersytet Komisji Edukacji Narodowej w Krakowie

Krakowskie Forum AI w Edukacji

Od badań do praktyki szkolnej

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From assessing knowledge to awakening the desire to learn

Teaching in the Age of AI



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Outline – my path from assessment to studying engagement

1. **A new examination model** to replace the take-home essay – assessment in an age of widespread access to ChatGPT.
2. **AI tutor** – four types of support for learning.
3. **Examples of tasks** that encourage students to be active and engaged.
4. **Beyond student–AI collaboration** – examples of tasks that use ChatGPT to encourage students, and people more broadly, to work together.
5. **Summary**.

Risks

Plagiarism and academic dishonesty – students can generate work that is not their own.

Unequal access – those with access to AI may have an advantage.

Difficulty assessing knowledge – AI-generated answers may not reflect a student's actual level of understanding.

Lack of originality – ChatGPT does not conduct original research and may reproduce existing material.

Source: Hodges and Kirschner (2024, pp. 197–199).

Timeline of the examination model

Stage	Description
1. Registration	Voluntary choice of a partner
2. Topic selection	Choice of areas of interest
3. Drawing lots	Thesis vs. Antithesis - When entering the exam
4. Preparation	30 minutes with ChatGPT and the internet
5. Debate	30 minutes; up to 3 minutes per speaking turn
6. Grading	Immediate numerical grade
7. Feedback	Written comments and a survey

Conclusions from the study

1. Students coped with the new examination format.

2. The students' debates provided a sufficient basis for assigning reliable grades.

3. Recordings, together with records of conversations with ChatGPT, provided valuable material for studying students' collaboration with AI.

4. Surveys and conversations with students revealed the important role of interactions between students while completing the task.

The AI-supported learning process (AI tutors)

AI can serve very different functions:

1. AI as a tool for completing tasks

Writing, calculation, analysis, design.

2. AI as a Socratic tutor

Questions, hints, step-by-step guidance.

3. AI as support for self-regulation

Identifying difficulties, planning, choosing next steps.

4. AI as a partner in discovering knowledge

Discussion, argumentation, brainstorming, simulation.

Gamification and initial training in asking questions

The child could select “I don’t know” or give an answer and rate their confidence in it. The child then practised formulating questions about short texts.

Two types of assistance

Both groups were given the beginning of a question. In one group, the child could also reveal a sample answer and formulate a question that would lead to it.

Independent exploration

Initially, the child chose one of three videos. After watching it, they could unlock another by asking a question of their own about something the video had not explained.

What was observed?

Children who received the additional hint during training explored the materials for longer.

Abdelghani et al. (2022)

AI literacy, or understanding the capabilities and limitations of AI

Before sending a prompt

Students were given the task goal and a suggested prompt for AI. They predicted whether the prompt would be sufficient to obtain the answer they needed.

After the model's response

They compared the response with the goal. If an important element was missing, they revised the prompt or asked the model follow-up questions.

Two days later

Students who had attended the workshop and a control group completed science tasks with AI. **The workshop students were less likely to accept overly general prompts. When they did use such a prompt, they were more likely to ask follow-up questions**

Clerc et al. (2026)

Self-criticism and metacognition

Everyone calculated angle measures with the help of the same computer-based tutor. Half received a paper card to help them identify the difficulty and choose the next step.

Student's difficulty	Choice of help
I don't know which angle to calculate.	I check the table for the next task goals.
I know which angle I need to find, but I don't know the rule.	I consult the glossary of geometric rules.
I know the goal, but I still can't make progress.	I ask the tutor for a hint on this task.

The group with the card completed the tasks in an average of 56 minutes; the other group took 70 minutes. **Among students with less prior knowledge, those with the card also performed better on a test of conceptual understanding.**

Schwonke et al. (2013)

Simulation and working with a tutor

Measurement

A high school student worked with a computer model of a protein. The student counted water molecules near different parts of the protein.

Interpretation

The student had to explain how the number of molecules related to the size of the protein surface accessible to water.

The tutor’s role

In the tutor chat, a researcher using GPT-4o played the role of the tutor. The researcher decided when to help the student use the software and when to encourage reflection on the result.

What was observed?

Interventions intended to stimulate curiosity were accompanied by more complex questions from students.

Demir et al. (2025)

Reversing roles — the student teaches AI

The problem

How can eight queens be placed on a chessboard so that none attacks another? Both groups watched the same instructional videos.

Reversing roles

ChatGPT played a novice programmer. The student explained how to solve the problem and then checked whether the program written by the model according to their instructions worked.

Comparison

In the other group, students wrote and tested the program themselves.

Result

Students who taught ChatGPT performed better on the knowledge test and expressed their own solution more clearly in pseudocode.

Chen et al. (2026)

Adversarial dialogue and debate between students (1/2)

For one year, 95 international relations students in Colombia participated in weekly debates. One group of 48 used ChatGPT, while 47 debated without AI.

1. Identifying the dispute

Students asked ChatGPT for different positions. They checked facts, looked for signs of bias and questioned doubtful arguments.

2. Preparing for the debate

They developed their own arguments and asked the model for counterarguments. They exchanged texts with other students to test their reasoning.

de la Puente et al. (2024)

Adversarial dialogue and debate between students (2/2)

3. Live debate between teams

In a simulation of a dispute in the South China Sea, each group represented a country. The delegations presented their arguments and negotiated with one another.

After a year of debates

The group using AI performed better on the final test of argumentation, critical thinking and understanding of international relations concepts.

de la Puente et al. (2024)

Limitations of existing research

1. Insufficient research on curiosity and cognitive engagement

The studies cited do not make it sufficiently clear to what extent the methods used stimulate students' curiosity and cognitive engagement.

2. Focus on human–AI collaboration

Research focuses primarily on human–AI interaction, leaving the role of collaboration and interaction between people in the background.

How do students work with material? Four modes in the ICAP framework

Cognitive engagement can also be described by observing what a student does with the material.

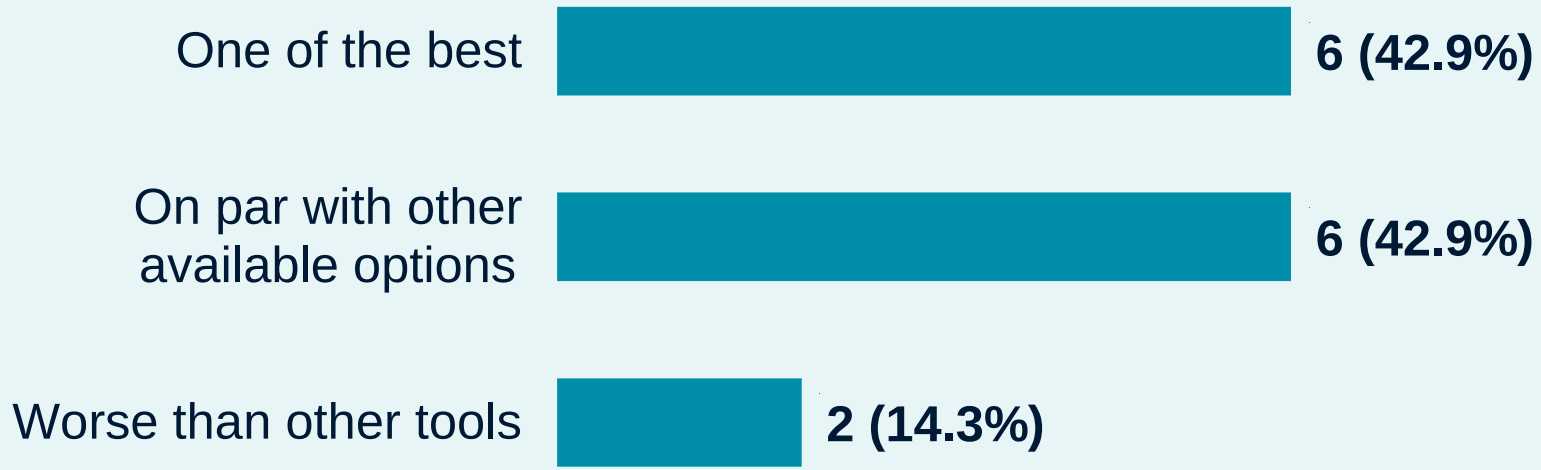
Mode of engagement	What does the student do?
Passive	Reads a text.
Active	Highlights important sentences or selects passages.
Constructive	Formulates their own explanation or conclusion that goes beyond the text.
Interactive	Responds to another person’s explanation. Together, they expand or revise it.

Chi and Wylie (2014)

ChatGPT in preparation for the debate

Question 8 / 14 responses

How do you rate ChatGPT as a tool for preparing for the debate compared with other methods of acquiring knowledge?

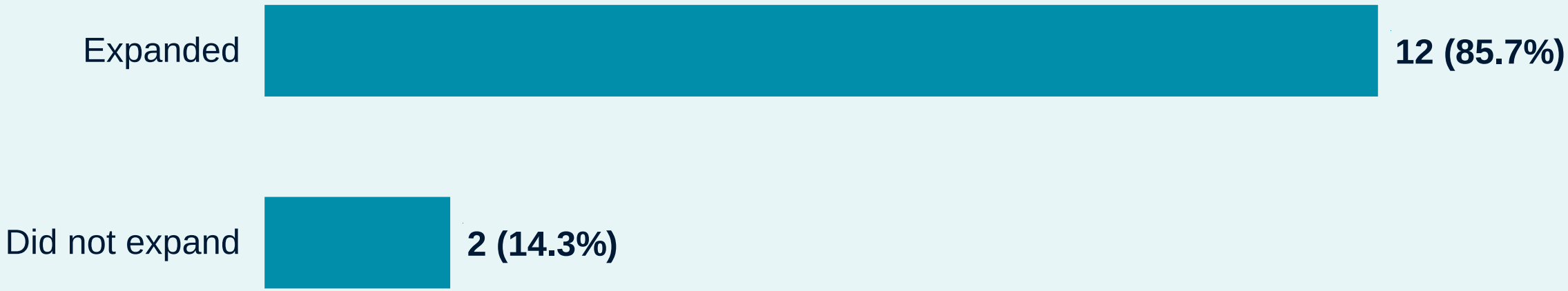


2025 examination surveys • Poetics of Drama (8) and Strategies of the Performing Arts (6)

Expanding opportunities to acquire knowledge

Question 10 / 14 responses

To what extent has ChatGPT expanded your opportunities to acquire knowledge compared with the tools and learning methods you have used before?



2025 examination surveys • Poetics of Drama (8) and Strategies of the Performing Arts (6)

What emotions did students experience during the debate?

In their responses to Question 13, students mentioned **stress**, as well as **excitement, confidence, curiosity, concentration and a feeling of being drawn into the topic.**

Signs of engagement can be seen in these descriptions. However, I did not compare these emotions with what the same students experienced during a different exam.

Post-exam surveys (2025). Question 13, 14 responses.

What did the other person contribute, and how did ChatGPT help?

Talking to someone they knew

> “A very pleasant exam, and the fact that I was with someone I like and could talk to them made taking the exam much easier for me.”

Defending the randomly assigned position

> “Because I disagreed with the position I had to defend, for the first five minutes I thought I wouldn’t be able to say anything. After asking the chat a few questions, something clicked, so the chat helped me remember other aspects, but after that I relied on my own knowledge and familiarity with the content of the work.”

Post-exam surveys (2025). Two of the eight responses to optional Question 15.

A high-stakes letter. What did students entrust to AI, and what did they decide together?

1. The situation and the recipient

The student acting as leader invented a situation in which a character had to write a letter. The future of their relationship depended greatly on how the recipient interpreted the character’s words.

2. Discussion before writing the letter

The author discussed the situation with a “support group.” Together they wrote down the sender’s intentions, agreed on the tone and only then formulated a prompt for ChatGPT.

3. Reading the letter together

ChatGPT wrote the letter. The group assessed whether they could recognize the sender’s intentions, as agreed earlier, in the finished text.

Socially situated knowledge (1/2)

How I understand this concept

Socially situated knowledge gains meaning and reveals its value through acting together. Participants recognize what this knowledge enables them to understand and do for themselves and others. An authentic task gives them a reason to acquire and use knowledge that goes beyond getting a grade.

In the debate

Students use knowledge to justify their position and respond to questions and counterarguments from the other person. They experience its significance in an encounter with someone else, which allows them to test and develop their own understanding.

Sources of inspiration: Newmann and Wehlage (1993); Barab, Squire and Dueber (2000); Dewey (1916, Chapters II and XXV); Wenger (1998, Chapter 1).

Socially situated knowledge (2/2)

After the debate — the planned next stage

I plan a group discussion about how students prepared for the debate and how they performed in it. Their self-reflection will cover ways of learning as well as new questions, topics and directions for exploration opened up by the debate.

While working on the letter

AI provides a text that sets the support group to work. Participants jointly evaluate and revise the high-stakes letter, considering the meaning and possible consequences of their choice of words. The value of their knowledge becomes apparent in helping another person and in reflecting more deeply on writing.

Sources of inspiration: Newmann and Wehlage (1993); Barab, Squire and Dueber (2000); Dewey (1916, Chapters II and XXV); Wenger (1998, Chapter 1).

Conclusions and recommendations (1/2)

1. Cognitive engagement and collaboration

It is worth developing ways of using AI that deepen students' cognitive engagement, encourage them to seek out knowledge independently and stimulate collaboration.

2. Teachers' time and the organization of work

The examples discussed show that new types of exercises and exams may require more time from teachers. We therefore need to identify the activities in which AI can help them save time.

In my view, students should complete some exercises that develop basic skills - for example, certain mathematics problems or writing exercises - with AI support, under the teacher's supervision.

At the same time, we need to determine which skills teachers should subsequently assess, and how, through students' independent work without AI assistance.

Conclusions and recommendations (2/2)

3. Aligning tasks and assessment with learning objectives

My experience suggests that new tasks, exams and tests should take widespread access to AI into account while also serving the learning objectives of the specific course and individual class sessions.

4. Sharing experience and building a shared collection of solutions

I propose creating a collection in which teachers could share solutions and observations about how they are used.

In Estonia’s AI Leap programme, school-based teacher groups serve this purpose by sharing their experiences.

We are at a stage when we need to experiment and gather experience from different subjects. Only on that basis will we be able to draw more general research conclusions.

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Thank you

Questions and discussion



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