

AI FOR MORE SUSTAINABLE AND INCLUSIVE COMMUNITIES_

ARTIFICIAL INTELLIGENCE IN EDUCATION

EVENT REPORT_



26th of February 2024
online



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ARTIFICIAL INTELLIGENCE IN EDUCATION

The seminar was the second one in a series of seminars under the initiative **SERN Thematic Wall (STW)**. The initiative is a thematic working approach that gives shape and substance to several of the priorities and activities foreseen by the SERN strategy.

In this case the theme chosen is **AI for more sustainable and inclusive communities**. **Four seminars** will take place during the period of February, March and April 2024. The focus is on **AI's integration into public administrations, educational systems, and into services for vulnerable groups**, which encapsulates SERN's commitment to explore the multifaceted ways in which AI can be leveraged for the collective good.

The second seminar addressed the **implementation of artificial intelligence in education**, particularly in upper secondary schools, and welcomed five speakers from Sweden and Italy.

This event report will first briefly present the speakers, then it will go on to present some key areas, and finally it will give some pointers for where to learn more.

TOPICS AND SPEAKERS OF THE SEMINAR



AI And education: looking beyond what chat GPT can do for teachers and students
Katarina Sperling, PhD student, Linköping University (SE)



Supporting Students and Teachers
Elizabeth Olsson, Academic Language and Writing Advisor, Gothenburg University (SE)



AI in Italian Classrooms, examples and perceptions
Jessica Niewint-Gori, Head of Research Department, INDIRE – National Institute for Documentation, Innovation and Educational Research (IT)



From Technology to Theory: Formulating Teacher Practice in the Age of AI
Kristin Egestål, Niklas Karlsson, Teacher leaders and Learning Technologists – Kunskapsförbundet Väst (SE)



WHAT WE FOUND

This report will go through **four topics** that the seminar found most central to the implementation of AI in education: **promising aspects**, some **practical examples**, some **challenges**, and **how to address the challenges**. Finally, the report will give some links to further resources.

PROMISING ASPECTS

The speakers all agreed on that AI is a very exciting tool that has a lot of promising aspects. Katarina Sperling underlined that it can be used in all levels of education, but that there is a need for a lot of research to do this in a sustainable way. Some potentials that she mentioned regarded facilitating and working with literacy (textual as well as visual), assessment help for teachers, different kinds of assistant and social robotics, and personalized learning and teaching.

Jessica Niewint-Gori added some other possibilities: content creation of teaching and learning materials, applications to support student learning in specialised subjects, search engines, text to image creation, translators, and tools for student activation. She also underlined that there is no need to use other hardware than the one that the students and teachers already have in most cases (computers, tablets, phones).

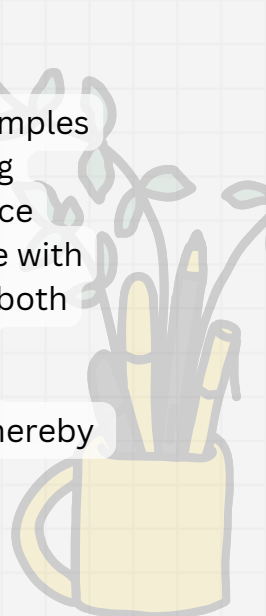
Kristin Egestål and Niklas Karlsson added that AI can help with efficiency (in that it facilitates administrative tasks, lesson planning and assessment) which then can allow for more time for student interaction and personalized teaching. They underlined the use of personalized teaching (for example that an AI can help finding customized learning paths, adapted to each student's pace and interests, and thereby give improved student engagement and learning outcomes).

Egestål and Karlsson also added that an AI can be seen as a collaborative expert that never tires, and it can also be a catalyst for deeper comprehension of theoretical knowledge, since it demands very precise input to produce the right output.

PRACTICAL EXAMPLES

Kristin Egestål and Niklas Karlsson contributed with some enlightening examples for how AI can simplify a teacher's job. The first one was creating a listening exercise in five minutes. With the help of Chat GPT and elevenlabs.io (a voice generator), it was possible to create first a manuscript and then an mp3 file with an AI-generated voice that sounded very lifelike. This way the teacher can both save time and adapt the listening exercise to the group they are teaching.

Another example is that the students could use AI as a study buddy, and thereby



get explanations and answers to their questions in real-time. In the example that Niklas and Kristin showed, the student got help understanding the grammatical building-blocks of a sentence.

It is also possible to create dynamic tests. Niklas and Kristin showed that the AI (in this case Chat GPT) can adapt the questions and ask for follow-up information until the student cannot demonstrate any further knowledge. The AI can also give feedback to the student. It is possible to feed a chatbot with the contents of a textbook for example, and then use it for testing the knowledge found inside.

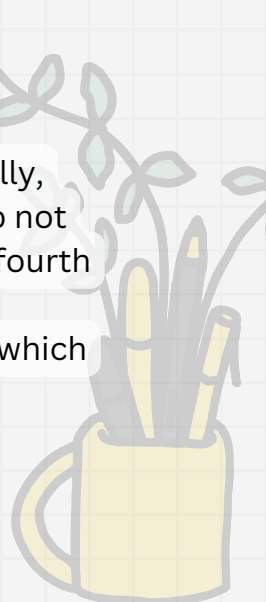
CHALLENGES

When using AI, there are a number of things to keep in mind. As Katarina Sperling pointed out, generative AI is not created for teaching, or for solving problems that teachers have formulated. It is also, like many other of the technical tools used in education, bound to change not just a small part of what education looks like, but the whole ecosystem. It is not “just a tool”. Just like we have not been able to predict all of the consequences of other technical innovations, we are not able to predict the results of AI. Sperling continued by underlining that this field of research is not new, but that there is a lot more to be done before we can grasp the full extent of the implications of AI in education. Jessica Niewint-Gori agreed that there is a lot more research in the classroom to be done before we can fully understand the uses and problems of AI. She also claimed that there is a methodological shift going on in the field of education, and that AI in large part is behind this.

Sperling also underlined that AI is not just chat GPT, not even just generative AI. It is a broad field of different tools, and they are already part of our children’s lives. She continued by underlining that even though there are seemingly endless possibilities for how to improve teaching with AI, technologies alone have not been able to resolve inequalities or reduce teacher workload in the past.

Together, the speakers pointed out some main dilemmas to keep in mind:

- 1) Data-privacy. It is nearly impossible to know what submitted data is used for – therefore, we need to be very restrictive with what data we provide to the system.
- 2) Accuracy. Generative AI is often wrong, and it can “hallucinate” facts or references (i.e. it makes things up).
- 3) Transparency. We cannot know how the AI makes its decisions. Additionally, generative AI is often trained with data that promotes bias or values that do not align with the values that we have acquired as teachers, which leads to the fourth point:
- 4) Objectivity. Generative AI can produce biased or uninformed responses, which leads to the fifth point:



5) Inequity. The AIs can, because of how they are trained, promote unintended inequity, which lead to point number six:

6) Extra work. Keeping up with policymaking and keeping an eye on what the students use the AI for is a lot of work, and not an easy task. However, forbidding it is nearly impossible since there are no detection-tools for AI-generated work.

Finally, we have point number seven:

7) Undermining teachers' confidence. It is possible that with AI-assessors, the teachers feel inadequate to do their job as well as the AI.

Then, there are some other dilemmas that concern not only the AIs, but many kinds of technology in schools.

1) The teachers lack knowledge to work with new technologies, often because they do not find the time, support or information to handle it.

2) Optimizing and using the technology for personalization is not always such a straight-forward task

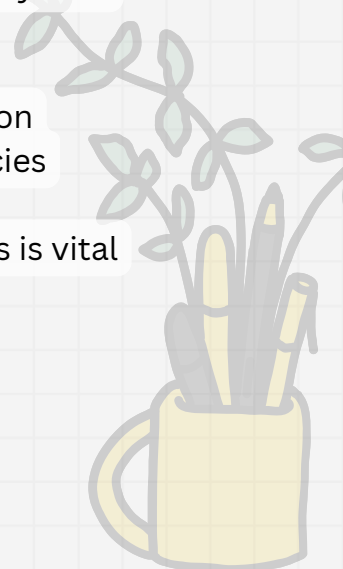
Finally, the generative artificial intelligence software are not very sustainable technologies, as they require a lot of energy to be trained. It will take time before the development reaches a point where the production of artificial intelligence becomes energetically sustainable.

The use of artificial intelligence in schools can indeed seem very complicated in light of all these issues, but there are things that can be done to tackle the difficulties. And, as all the speakers pointed out, generative AI can be a very useful tool. What is needed is therefore not a prohibition, but regulation and critically evaluated use. Elizabeth Olsson also pointed out that the use of AI (especially by the older students) is quite inevitable. Therefore, we will now turn our attention to what the speakers had to say on that matter.

HOW TO ADDRESS THE CHALLENGES

Katarina Sperling, the first speaker, was also the first to point out that a critical approach is needed for deciding when and when not to implement AI in teaching, and that regulations are highly important. The other speakers agreed fully with her, and added some other central points:

- The teachers need to have a coherent set of guidelines and a common approach to the use of AI as far as possible, to avoid disjointed policies (Elizabeth Olsson).
- Raising awareness of the risks with using AI in all users in our schools is vital to a sustainable and safe use (Elizabeth Olsson).



- The ethics that are already in place in theory need to be formulated into practice (Katarina Sperling).
- The teachers need time, information, support and training (all speakers).
- Whatever factual content-material that the AI creates needs to be something that you as an individual could create also without the use of AI (Elizabeth Olsson). You need to engage critically with the output, assuring that it is factually correct, objective and following the conventions of the context where it will be used (for example that of academical writing). This way the AI becomes a facilitator and not in control of your work.
- Instead of a juridical problem, can it be seen as a pedagogical problem? I.e. how can AI be used to support students? AI can for example be an excellent language support. How can the teachers build on that? (Elizabeth Olsson)

Katarina Sperling and Jessica Niewint-Gori also pointed out, that outside of what the teachers can do there is also a need for more research from the universities and research centers on the use of AI in classrooms and schools.

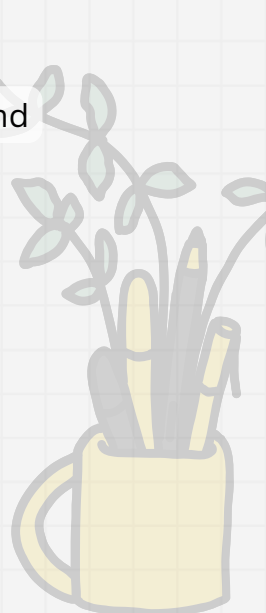
Some studies have of course already been conducted, and there are many ongoing projects around the world working on these issues. Some resources will be presented below for further reading.

FURTHER RESOURCES

Jessica Niewint-Gori, representing the European dimension alongside the Italian, presented som projects and resources on European level for teachers regarding AI.

- The first one is an Erasmus+ project ending now. It is called Artificial Intelligence for and by Teachers, and more information can be found here: <https://www.ai4t.eu/> Among other things, it presents research on the use of AI in the schools throughout Europe, and shows that AI is perceived as a very positive and simple tool to use by many teachers.
- There is also a MOOC (Massive open online course) available, produced by the above mentioned project: <https://inrialearninglab.github.io/ai4t/>
- The second one is the European Educational Digital Hub <https://education.ec.europa.eu/focus-topics/digital-education/action-plan/european-digital-education-hub> The hub is an online community and provides an overview of reports and resources that can be used for implementing AI in education.

THANK YOU ALL FOR AN INSPIRING SEMINAR!



A SPECIAL THANK YOU TO THE INSTITUTIONS AND ORGANISATIONS OF THE PARTICIPATING SPEAKERS_



UNIVERSITY OF
GOTHENBURG

li.u LINKÖPING
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