WP2.1b What do we think about GenAI and TEACHER COMPETENCES for the future – focus on group discussions

TE_REG Teacher Education Regenerated (TE_REG)

Beyond Competencies. Rethinking and redesigning teacher education curricula in the GenAI era.

Report on "Integration of GenAI in Teacher Education", R

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Introduction

This report brings together several discussions to present a holistic view of the current situation regarding GenAI in our teacher education institution at the University of Helsinki, Finland.

First, focus groups are introduced. Second, the current GenAI landscape is described based on the focus group discussions, covering basic education (grades 1 to 9), upper secondary education (grades I-III), and teacher education. Third, navigating experienced challenges is examined. The summary section concludes the report by outlining key findings, focusing on implications for teaching and the teacher's role for conceptions of learning, and for teacher education and the teaching profession.

1 Focus Groups

The focus groups included discussions with teacher educators, student teachers, and education leaders and experts. These group discussions were held on 5-6 March 2025 and during the TE_REG Viikki Reflection Day event on 20 March 2025. Discussions provided important insights and revealed both differences and similarities in participants past experiences as well as in future thoughts regarding GenAI and teacher competences.

The focus group members varied in their familiarity with GenAI. At one end of the spectrum were teachers for whom AI had long been a familiar and integral part of the teaching and learning process, *with GenAI tools used since their early stages*. This was the case with some upper secondary school subject teachers in chemistry, mathematics, and languages. At the other end were teachers for whom *GenAI was a relatively new topic, still under exploration in terms of potential applications*. The focus group members also differed in how frequently and in what ways they used GenAI ranging from *"heavy users"* — who used Chat GPT and/or several GenAI tools daily and described it as "terrible to stop using it" —to *"light users"*, who used GenAI occasionally.

2 The Current GenAI Landscape in Schools

In the discussions, it was acknowledged that AI has been a part of teachers' lives for decades, for example, in the form of computer assisted workflows. However, the unexpectedly rapid development of generative AI calls for thoughtful reflection: How do we perceive it? How should we address it in education?

The teacher participants had primarily used ChatGPT (the paid version was considered effective), and some had experimented with Microsoft Copilot, although its content was not yet sufficient to meet their needs at the time of the discussions. Google Gemini had also performed reasonably well in some cases. Other tools mentioned included Julius AI, Perplexity AI, DeepL (for translation), Grammarly (perceived as an improved version of MS Word text editing), Scite.ai, Rayyan, Research Rabbit AI, CurreChat (the University of Helsinki portal for ChatGPT), and DeepSeek, which was described as currently the fastest. However, situations change rapidly in this field.

GenAI had been used in various ways to support planning and teaching, including the following applications:

- **Creating teaching materials**, such as generating claims related to photosynthesis or designing quizzes (e.g., Kahoot).
- **Speeding up planning processes**, for example by assisting in the creation of PowerPoint presentations and slides.
- **Serving as a source of inspiration**, offering new ideas and pedagogical approaches for teaching specific subject matter.
- **Acting as a planning assistant or cognitive sparring partner** during the ideation phase (using prompts like: this much time, this situation, these students) thus providing structured starting points for further development (providing suggestions, generating ideas, giving pedagogical ideas, providing needed visuals easily.
- **Modifying tasks**, including support for differentiation and language-supported learning.
- **Assisting with language and conceptual understanding**, accommodating various language levels.
- **Enabling quick creation of exercises**, which allows teachers to dedicate more time to engaging directly with students.
- **Supporting assessment**, for example by helping to identify areas of improvement.

Some participants explained that they begin their planning by generating ideas with the help of generative AI, as one noted: "I'm not rich in ideas—it speeds up my work." Others reported using GenAI primarily to *further develop their own initial ideas* (for example by exploring additional or different pedagogical approaches) or using GenAI as a tool to ask, "Could it be like this?" based on their own concepts.

So far, most participants had been learning the use of GenAI by doing and experimenting. They emphasized the need for continuous learning in response to rapidly evolving technologies—a theme that emerged repeatedly throughout the discussions. Teachers expressed a desire for opportunities to discuss and share ideas about using GenAI during regular working hours. At present, learning about new technologies largely depends on individual initiative and personal time.

A lack of reliable and clear guidelines was also noted. Some participants had attended the BETT Fair (Bett UK: Leading EdTech Event | 21-23 Jan 2026, ExCeL London) which was regarded as a key event for staying updated on the latest AI developments. For example, Google and Microsoft demonstrated there how AI can support teachers' planning processes. Some participants also mentioned national events such as the annual Finnish e-learning ITK Conference and the eNorssi event for teacher educators, both seen as valuable forums for professional learning and dialogue. Additionally, a free online MOOC on AI (A free online introduction to artificial intelligence for non-experts) was mentioned.

Secondary and Upper Secondary School

Some teachers in upper secondary school had conducted teaching experiments within various subjects, primarily in the sciences and mathematics. These experiments are documented in a blog titled Hyvin toimiva lukio II – Digitaalinen osaaminen Viikin normaalikoulussa, which shows very promising results.Also, events such as an AI-themed afternoon have been organized, featuring expert presentations by Dr. Teemu Roos, participation from student teachers, seminars, workshops, and other activities.

In upper secondary school, many teachers encourage students to use AI—for example, by teaching them how to seek AI support when solving challenging homework problems. This means teachers assign tasks that can be completed only with the help of AI, making AI an essential tool in the learning process. Consequently, this requires designing learning tasks differently from traditional approaches. It was observed that the more generative AI is integrated into learning, the better students and teachers become at using it responsibly.

Teachers considered that attempting to prohibit the use of GenAI offers no benefit. Discussions also reflected on a similar pattern when the internet first emerged: initially banned for homework use, it has now become a natural and integral part of learning.

We are currently in a transition phase: *"Everything is so much quicker now—you can get everything ready in a second, but it may all be incorrect. You <u>have to</u> know."* Teachers have observed that, fortunately, students do not blindly trust all information generated by GenAI and often approach it with healthy skepticism. Critical reflection and the competence to evaluate the accuracy of information are essential. This situation is like with the internet, where vast amounts of information—some accurate, some misleading or incorrect—are readily available.

<u>Primary Grades:</u>

Classroom teachers and student teachers expressed that the current situation regarding GenAI is somewhat confusing, with uncertainty about how to respond appropriately.

Some teachers had experimented with AI but were concerned about the correct age limits for using GenAI applications. Age restrictions vary by country—while some set lower limits, others require users to be 18 years or older. A similar situation occurred with WhatsApp, which remains widely used by pupils despite age limits. It was acknowledged that age regulations will likely change in the future. For example, in the EU/ETA area, users must be at least 13 years old to use ChatGPT, and those under 18 require parental permission. In primary grades, teachers have modeled GenAI use by operating the applications on their own devices. In some countries, there are no explicit restrictions on GenAI use, though network regulations or other policies may apply.

In the discussions, it was suggested that with younger pupils, it would be beneficial to introduce the concept of generative AI through teacher-led modeling—demonstrating how to give prompts, interpret responses, and learn how to follow AI-generated advice. As one teacher noted, *"I would not use it directly with the kids, but we can demonstrate and exemplify."* Additionally, learning by doing—through arts, drama, and writing—was seen as a valuable way to help pupils understand the concept of GenAI.

Many older primary school students are already aware of what GenAI is (at least in general terms) and know how to interact with it. However, its instrumental value is not always clear to them and should be explicitly addressed in school. GenAI should be presented as a tool—students need to learn to ask: What should I expect from it? Did it work as intended?

Is the information accurate? Knowing how to use GenAI effectively is crucial; otherwise, users' risk being passive recipients of fragmented or incorrect information. It is essential to ask: Who provides the information? Developing **critical literacy**—including the ability to critically assess GenAI outputs—is a vital skill that must be fostered in education.

Teacher Education:

In current teacher education programs, generative AI has been acknowledged to some extent, though its role could be significantly expanded. Some didactic tasks have been deliberately designed in a way that prevents reliance on GenAI, requiring students to solve problems through independent thinking and personal experience. During teaching practice periods, GenAI has been used by many student teachers as a planning tool—for example, to explore alternative teaching methods, develop lesson structures, design individual tasks, and consider diverse assessment strategies. However, only a few student teachers reported using GenAI directly with pupils during their practicum.

3. GenAI – Navigating the Challenges

Although GenAI offers numerous opportunities, it also presents significant challenges. Focus group discussions revealed that current practices vary widely depending on the teacher and the grade level they work with. The main challenges identified were as follows:

Challenge 1: Will we lose creativity?
 "Creativity arises from your experiences, your thoughts—you bring your life and mind into it." Teachers expressed concern that GenAI does not yet produce truly creative outputs. For example, they described its writing as *"very basic, not surprising, not original."* They emphasized the importance of nurturing students' own creative capacities. One teacher reflected: *"It would be a terrible thought to externalize creative writing. I want to start from nothing—to be the actor from beginning to end."* Students' creative abilities should be supported.

Challenge 2: Shall we keep moving along the circumference of a circle?
GenAI is a product of its time: it often reflects the racism and chauvinism still present in our world. If we uncritically accept content generated by GenAI, we risk perpetuating

existing biases—essentially continuing to move in circles, especially when it comes to issues of equality. After all, someone chose the data, and someone trained the machine.

Challenge 3: Forgetting ethical issues?
 Ethical considerations are often overlooked in the current use of GenAI. There is a clear need to give greater attention to these concerns in the future (for example, when it comes to creating ethically responsible art or respecting copyright and intellectual property rights).

Challenge 4: Are we responsible for the future?
 Focus groups emphasized the importance of promoting the responsible use of GenAI, rather than banning it. Prohibition, they noted, has rarely been an effective approach. However, responsibility remains crucial. As one teacher student put it: *"I would try to stop using ChatGPT (even though I use it a lot), because it has a significant climate impact— much more than a Google search*."

Challenge 5: Do we need to know?
 It is essential to have sufficient subject knowledge in order to critically assess the validity of GenAI-generated content. Teachers noted that the information provided by GenAI can sometimes be inaccurate—hence, the is a need for *"critical lenses."* It is also the teacher's responsibility to help students to develop this evaluative mindset. Given how quickly GenAI delivers answers, there is a temptation to rely on it uncritically. However, it is crucial to question the accuracy of its responses and consult multiple sources of information to ensure a well-rounded understanding.

Challenge 6: How do we evaluate?
 The shift related to GenAI calls for a re-evaluation of how we assess learning and what kinds of tasks truly support student development in the age of AI. Teachers need the competence to design tasks that encourage *utilizing GenAI* for learning, as well as tasks where it cannot be used—such as assignments based on students' personal experiences or oral communication. It can be difficult to determine whether a task has been completed with or without the help of GenAI. Thus, some traditional tasks may have lost their relevance; for example, writing translation sentences might no longer be meaningful, as GenAI can generate them instantly. Teachers' familiarity with their students plays a crucial role, as GenAI tends to have a distinctive writing style, whereas students typically have their own. Therefore, the type of tasks assigned becomes a central issue.

Moreover, both assessment practices and the matriculation examination should be critically reviewed and revised. Some teachers have suggested that writing may no longer be as essential as it once was, and that communication skills are becoming increasingly important. By incorporating diverse tasks that challenge students' cognitive abilities, GenAI can be used as a supportive tool—while keeping students' own thinking at the center.

4. Summary

4.1 Implications for Teaching and the Teacher's Role

The participants did not view GenAI as a threat to teachers or to the teaching profession. Human interaction remains a vital component of education. GenAI was also not perceived as a challenge to the teacher's role as a source of knowledge. Teachers do not need to know everything—they never have—and neither does GenAI.

Teachers expressed a desire for the flexibility to use GenAI as a tool when appropriate, rather than feeling obligated to incorporate it into every subject. For example, its application in the arts differs significantly from its use in chemistry. They noted that students will naturally acquire GenAI skills through exposure in various subjects and with different teachers.

However, it was recognized that the scope of teachers' responsibilities is expanding, and GenAI may serve as a valuable support—particularly in areas such as special education, multilingual classrooms, and differentiated instruction. For example, AI can provide instant translations and generate tailored learning tasks with ease, helping teachers meet diverse student needs more efficiently.

While reading and engaging with texts remains important, the overwhelming volume of information available today can be challenging to navigate. In this context, GenAI's ability to summarize and condense content can be a meaningful aid—provided it is used thoughtfully and with critical awareness. Overall, GenAI was seen as a potential asset and source of relief, rather than a threat—especially in the upper grades. It was described as a tool that can help both teachers and students reflect on their current knowledge and

learning. Ultimately, teachers' professional judgment remains key in evaluating the accuracy of AI-generated content.

4.2 Implications for Conceptions of Learning

"Definitely, we need to teach that GenAI is not intelligent; it is only a more advanced form of autocorrection."
"GenAI is not smart—it needs smart prompts."

The conception of learning is changing. We have information literally at our fingertips, but is that information accurate? In discussions, it was emphasized that GenAI seems to save a lot of time, and as a result, one does not have to think as much. However, this is not enough, because it is essential to "chew" knowledge—it is not simply "ready-made." Consequently, decisions must be made about when the information found is "good enough and ready," and critical literacy skills are needed to determine whether that knowledge is correct.

It became clear in the discussions that it is important to incorporate GenAI into teacher education as part of the learning process. It is wise to use GenAI since it is efficient at many tasks—for example, creating lists and models. The teachers agreed that GenAI should not be regarded as something wrong or forbidden. Students should learn to use GenAI where it is useful, and they should also learn to ask wise questions and use precise prompts. GenAI's outputs often need to be modified, specified, and refined with more targeted prompts and guidance. AI simply does what it is asked to do. Therefore, personal reflection and critical thinking remain valuable skills for the future and must be nurtured.

Knowledge is still seen as power. If you *know*, you have the ability to make informed decisions. To wield power effectively, you must learn to ask questions, evaluate information, and make choices. Essential questions include: Why are we doing this? What competencies are needed?

Broad-based learning competence, especially "learning to learn" (FNCC, 2014), remains crucial in education. Teachers currently face the challenge of explaining to students:

- Why it is important to use their brains,
- Why they need to do the basic work to truly understand a concept, and
- Why learning requires effort and intentional engagement.

Literacy competences are evolving, and we no longer need to read in the same way as before. Students, including those at the university level, are reading less, which complicates the understanding of larger concepts. Yet certain skills remain essential—algorithmic thinking, understanding abstract concepts, models, and phenomena, and learning the mechanisms of thinking. Although it is easy to request a ChatGPT summary, this does not develop one's own thinking or holistic understanding. One of the key challenges in teaching is how to encourage effort in learning and do "*brain muscle work*."

As the conception of learning transitions, so must assessment. It was seen as necessary that assessments go beyond traditional tests to include tasks that require understanding and explanation—such as experiential work, essays, and descriptions. GenAI could also be utilized to enrich assessment processes by creating tasks that promote original critical thinking.

Ethical considerations were frequently raised. It was discussed that GenAI should never be fully responsible for assessment, but AI can be helpful in planning evaluation criteria and designing assessments. For instance, one participant described a group assessment used in 9th grade where materials were available and discussions were encouraged. This approach led to strong student engagement and thoughtful reflection during evaluation, with students wanting to continue the discussion even after the lesson ended. Evaluation practices require critical reflection in the era of GenAI, alongside sharing of experiences among educators.

4.3. Implications for Teacher Education and the Teaching Profession

In Finland, teachers have traditionally enjoyed great autonomy in their profession, with the freedom to choose methods and materials based on their students' needs. Teachers emphasized that this autonomy should also apply to the use of GenAI. Furthermore, different subjects vary in their opportunities and requirements for using GenAI, and different age groups have distinct needs and, as discussed, restrictions on its use (especially in primary grades).

Teachers and educators should receive training on GenAI during work hours; it should not be assumed or mandated that they learn it independently in their own time. Instead, there should be an internal motivation to engage with GenAI, supported by professional development opportunities that teachers can choose to participate in.

Alongside the AI Ethical Guidelines (2025), focus group discussions also raised ethical concerns and emphasized the need for ongoing professional learning. Participants expressed uncertainty about age-appropriate use of GenAI, noting that this area remains unclear. It was evident that sharing experiences and continuous teacher education are essential. Simply sharing reading materials for self-study is not sufficient, although some good resources already exist (e.g., Tekoälyohjeet, eNorssi / GenAI advice, eNorssi).

5. Conclusion

The teaching profession was not seen as being "in danger" because of GenAI. Instead, GenAI was viewed as a helpful tool for both teachers and students in the teaching-learning process—provided it is used wisely and ethically. Human interaction remains central to education, with GenAI serving as an assistant that, at best, enables more time for meaningful interaction and collaboration. Concerns about GenAI focused on the risks of relying on inaccurate information from quick or unclear sources, and on a potential decline in using one's own thinking and making intentional learning efforts.

Thinking competence is essential—content is merely a tool. It is important to understand that language models like GenAI operate by recycling existing data—do we want to settle for that? When aiming to create something new, connections must be made, effort must be invested, and creative input is necessary. Creativity is absent from text-based AI systems; innovation remains a human endeavor. While GenAI edits and condenses information, our minds are needed to drive true innovation. We must cultivate the motivation to work, as the process of working itself can be rewarding and can lead to achievements that would otherwise be impossible. Although GenAI provides instant ready-made answers, the thinking and writing processes can be valuable and fulfilling in their own right.

The potential use of GenAI also requires teachers to develop new assessment methods focused on students' creative and critical thinking. These types of assessments are more challenging and time-consuming to evaluate than traditional tests with uniform answers. Thus, although GenAI may reduce teachers' workload in planning and material creation, it could substantially increase the workload for evaluation.

It is vital to include GenAI in education because it is here to stay—and more advanced, faster versions are coming. Schools and teaching must remain connected to the real world.

"Definitely, GenAI should be allowed in schools. It should be brought into schools and taught."

"Schools need to keep pace with time; there should be no gap between school and society. We can't go back to the old ways, but that doesn't mean we have to give up everything—we should develop alongside the time."

"We need to understand what GenAI does, how it works, and why, and know where it can and cannot be used. We shouldn't glorify it—it probably won't bring world peace."

In conclusion, teaching and learning with active brain work remains essential. It is not enough for students to simply ask ChatGPT for a summary—they must understand, know, and truly learn. One focus group member quoted Foucault's idea:

"Knowledge is power. Make informed choices."

References:

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