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# AI and Higher Education Teachers: Expectations, Attitudes, and Ethics

Erkki Kaila
erkki.kaila@utu.fi

University of Turku

Katja Lempinen
katja.lempinen@samk.fi

Satakunta University of Applied Sciences

Matias Nevaranta
matias.nevaranta@tuni.fi

Tampere University

**Abstract**

In recent years, generative AI has become increasingly relevant since ChatGPT took the public by storm in 2022, prompting businesses to integrate it into their operations in 2023. The higher education sector is no exception. In 2024, we are implementing generative AI not only for our systems and services, but also for our curriculum, teaching methods, and learning experience. The situation of Finnish higher education institutions has not yet been extensively studied from these perspectives before. In the spring of 2024, we surveyed 178 Finnish higher education institution (HEI) teachers about their use of, expectations for, attitudes toward, and ethical considerations regarding generative AI. After analyzing the results, we found that, although teachers are moderately aware of current AI tools and well-informed about their secure and ethical use, few of them frequently use AI tools in their teaching. Nevertheless, teachers recognize the importance of educating students about AI-related topics. They are optimistic about the future of AI: although they believe AI will significantly transform education and work, they do not think AI will replace teachers entirely.

**Keywords:** e-learning; AI; generative AI; higher education; teaching, ethics

## 1. Introduction

Generative AI is a subset of artificial intelligence (AI) that refers to systems capable of creating new content based on patterns and data on which they have been trained. These systems can interpret and learn from external data to generate new content autonomously (Haenlein & Kaplan, 2019). Generative AI shows great potential for transforming education,

especially in higher education settings. Like everyone else, Finnish higher education has also begun integrating generative AI into its operations to take advantage of the technology. Generative AI offers opportunities to enhance learning experiences and outcomes. Leveraging this technology allows educators to create personalized learning experiences, identify student needs, provide targeted feedback, and facilitate the development of critical appraisal and inquiry skills (Boscardin, 2023; Alasadi & Baiz, 2023). Generative AI tools can also encourage creativity, connect sustainable design with academic integrity, and promote innovative thinking (Fathoni, 2023; Bozkurt, 2023).

Nevertheless, integrating generative AI into higher education presents challenges. Concerns have been raised about academic integrity, plagiarism, and the ethical use of AI-generated content (Lainjo & Tsoumche, 2023). When implementing AI in education, it is crucial for institutions to address these concerns (Akinwalere & Ivanov, 2022). Furthermore, policymakers and educators must adapt teaching and assessment practices to embrace the new reality of AI in education (Crompton & Song, 2021). Despite these challenges, generative AI has vast potential in higher education. It can stimulate new pedagogical approaches, improve learning outcomes, and enhance the quality and equity of education systems. Generative AI offers personalized learning experiences, improved academic outcomes, and innovative teaching methods, presenting an opportunity for higher education. However, institutions must navigate the ethical considerations and challenges associated with AI integration to ensure its responsible and effective implementation.

Since the public debut of generative AI in late 2022 in the form of OpenAI’s ChatGPT, businesses around the world have started to implement the technology into their operations (Lock, 2022). Higher education institutions have followed suit, and almost two years later, the implementation of generative AI appears to still be ongoing. In Finland, Helsinki University published the first set of guidelines for using generative AI in teaching and learning in early 2023, and most Finnish higher education institutions followed suit (Kurhila & Toivonen, 2023). While higher education institutions seemed to adopt generative AI quickly, most students have said that their university's policy on AI tools is still unclear in 2024 (Bairoh & Särelä, 2024).

In this study, we surveyed higher education teachers in Finland about their use of generative AI in their work and their associated attitudes and ethics. We shared the survey among several universities via national professional networks and collaborative university groups. Our goal was to create a snapshot of the state of generative AI in Finnish higher education in spring 2024. This will help us better understand the current state of AI integration in Finnish higher education. The survey questions were based on the research group's previous inquiries regarding expectations, attitudes, and ethics related to AI (see e.g. Nevaranta et al, 2022).

## 2. Background

The potential of generative AI extends beyond creative domains; it has applications in fields like medicine, where AI systems are being developed to assist in diagnosing and treating medical conditions (Mintz & Brodie, 2019). As generative AI develops, considerations around

ethics and fairness become crucial. Researchers are developing differential fairness frameworks to ensure that AI systems respect fairness criteria and promote equitable outcomes (Islam et al., 2023).

Despite its potential benefits, integrating generative AI into education presents challenges. Issues related to academic integrity, information accuracy, and ethical considerations must be addressed to ensure the credibility of AI-generated content (Simms, 2024; Cingillioglu, 2023). Additionally, using generative AI for assessments raises concerns about unethical practices, such as passing off generated answers as one's own (Tenakwah, 2023). Educators must develop strategies to prevent misuse and maintain academic integrity while harnessing the power of generative AI. To realize generative AI's full potential in education, it is crucial to explore best practices, engage with AI systems using innovative methods like ethnography, and conduct further research to optimize its educational applications (Michel-Villarreal, 2023). Establishing frameworks that consider desired outcomes, automation levels, ethical considerations, and effectiveness evaluation can guide the effective application of generative AI in educational settings (Su & Yang, 2023). Additionally, it is crucial to understand the proficiency of generative AI in different languages and its ability to answer complex questions for educational purposes (Sallam, 2024).

Notable ethical issues regarding the use of generative AI in education include algorithm transparency, data ownership, privacy, bias, and plagiarism (Farrelly & Baker, 2023). Additionally, the AI's lack of social understanding can create ethical problems. AI does not inherently care if its answer is unacceptable as long as it fulfills the task, which can lead to AI misuse (Sharples, 2023).

In summary, generative AI is a significant advancement in AI technology. It has the capacity to transform teaching and learning in higher education by offering personalized experiences, fostering creativity, and improving learning outcomes. However, to fully harness its potential in education, educators must address challenges related to academic integrity, ethical considerations, and validating the accuracy of information. As generative AI becomes more accessible to the public, the question arises as to how widely it is being used in education, an area where the technology seems to be most beneficial for students and teachers alike. AI will play an important role in the future, especially in specialized jobs. Therefore, banning its use could have far-reaching implications for future student employment.  From this perspective, ensuring teachers' AI competence is also crucial (Arene, 2023).

# 3. Methodology

The study used a survey to collect quantitative and qualitative data from higher education teachers in Finland. A total of 178 higher education teachers from various Finnish institutions participated in the study. The anonymous survey aimed to collect data from teachers who had experience using AI tools in their teaching practice.

It was distributed through select channels in higher education institutions, networks, and groups via an online survey platform. The survey was distributed to universities in the research group and other higher education institutions via national networks. Each university

decided how to share the survey within its institution. The survey was open for three weeks in spring 2024, and weekly reminders were sent to encourage participation.

In addition to covering the necessary background information, the survey was designed to have four main sections. The first section addressed the respondents' experiences with AI usage in education and their familiarity with typical AI tools. The second section addressed the instructions teachers received for using AI tools. The third section explored respondents' attitudes and expectations regarding the current and future use of AI in education. The final section addressed ethical questions related to AI usage. Most questions were answered using a 1-to-5 Likert scale. Additionally, every section included open comment fields to enable respondents to explain their choices or provide additional information. Respondents could opt out of answering any of the statements. The open answers were manually grouped into three or four categories depending on the section. For instance, in the usage section, each response was placed into one of three categories: "I use AI," "I do not use AI," or "I use AI extensively." Similar answers were tagged and discussed in the results if a theme arose in a section.The data was exported as an Excel file and the basic analysis was done in Google Sheets to enable the easy sharing of the results to all authors. Next, the data was transformed into a CSV file, and the Python programming language with SciPy library was used to execute more detailed analysis, such as filtering the data according to different background variables or calculating Pearson correlations between all survey items.

## 4. Results

178 teachers answered the survey. 136 teachers (76.4 %) were from universities and the rest were from the universities of applied sciences (abbreviated as UAS from now on). Most of the respondents had at least 6 years of experience in teaching at university level (Figure 1).

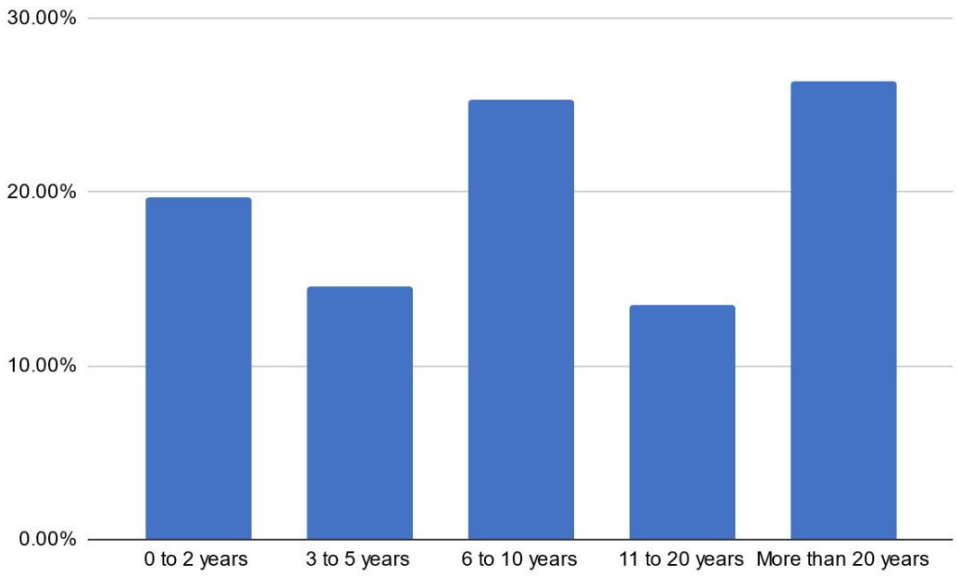


Figure 1. Respondents' teaching experience.

Almost all teachers reported on having some number of pedagogical studies (Figure 2). Notably, this is not mandatory in universities, but the studies are still recommended. The 60 ECTS threshold value was chosen because that is the amount required for a permanent position in UAS.

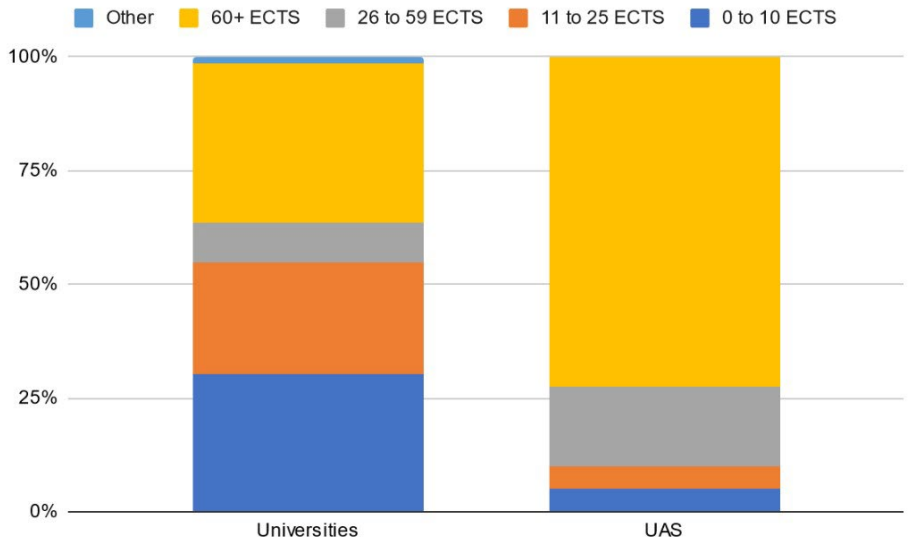


Figure 2. Respondents' formal pedagogical training.

Respondents' fields of teaching are displayed in Figure 3.

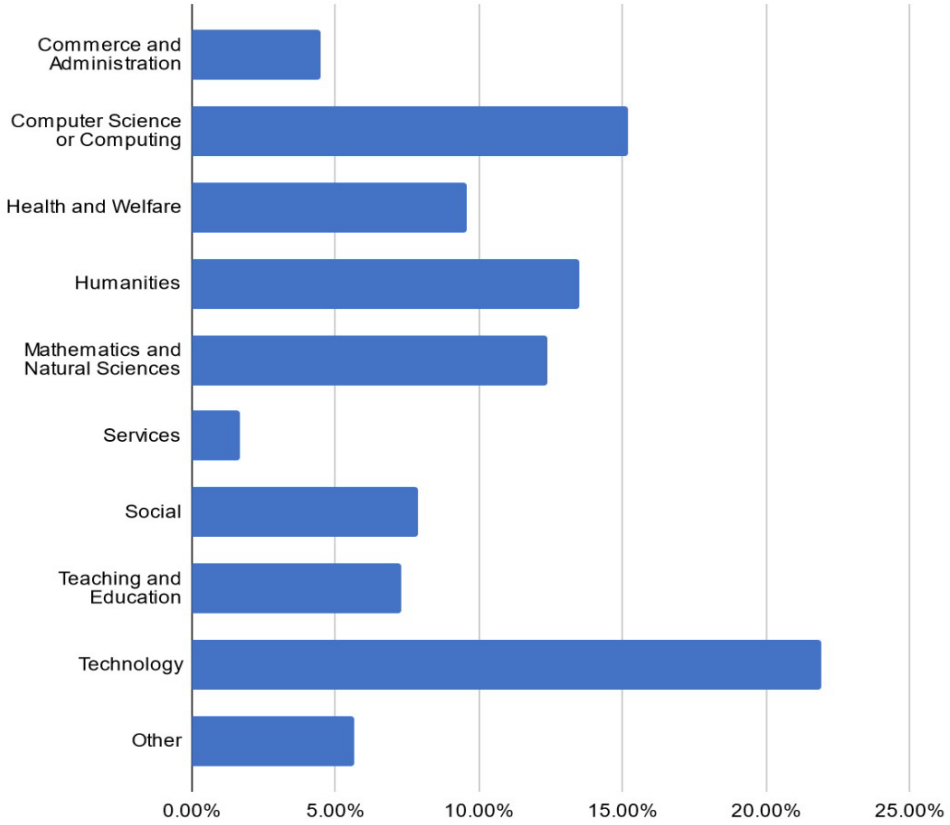


Figure 3. Respondents' fields of teaching.

Respondents were instructed to select "Technology" only if their technical field was not Computer Science or Computing, which had their own entries. However, it is possible that some computer science or technical teachers selected "Technology" as their field. Due to the anonymity of the respondents, this could not be confirmed. Teachers were also asked if they had work experience in their area of expertise outside of universities. 70% reported having at least some experience, and 30% reported having more than six years of experience.

AI Usage in Teaching and Familiarity with the Tools

The answers to survey questions 1 to 7 concerning the usage of AI tools in education are displayed in Table 1.

| | Mean | Std.dev. | UAS Mean | University Mean | p-value |
|---|---|---|---|---|---|
| I have used AI to create lecture materials | 2.08 | 1.19 | 2.76 | 1.88 | < 0.01* |
| I have used AI to create assignments | 1.99 | 1.19 | 2.93 | 1.71 | < 0.01* |
| I have used AI to assess assignments | 1.38 | 0.84 | 1.51 | 1.34 | 0.18 |

| | | | | | |
|---|---|---|---|---|---|
| I have used AI to guide students | 1.34 | 0.79 | 1.63 | 1.25 | < 0.01* |
| I have used AI to grade my students | 1.26 | 0.70 | 1.44 | 1.21 | 0.03* |
| I have used AI to create lecture videos | 1.24 | 0.74 | 1.32 | 1.21 | 0.15 |
| I have used AI to search for information | 2.82 | 1.38 | 3.27 | 2.69 | 0.01* |

Table 1. Answers to statements about using AI in teaching. All questions were answered on a Likert scale of 1 to 5 where 1 indicated no usage at all, and 5 very much usage. The statistical differences between UAS and University teachers were calculated with the Mann-Whitney U test. An asterisk denotes a statistically significant difference with p-value less than 0.05.

As seen in the table, teachers, on average, have little experience using AI tools for teaching. The most popular methods were using AI to create lecture materials and assignments. However, using AI for general information retrieval seemed to be more popular. Interestingly, UAS teachers appear to have used AI for teaching more frequently than university teachers. Statistical differences in responses between university and UAS teachers were calculated using the Mann-Whitney U test. A value smaller than 0.05 indicates a statistically significant difference.

Teachers in the field of services reported using tools more often to create lecture materials and assignments than other teachers did. Notably, technology or computer science (CS) teachers did not seem to use AI tools more than teachers from other fields. Work experience or pedagogical training did not significantly affect usage; however, teachers with the most pedagogical training used all tools slightly more than other teachers.

There were also 77 open responses that provided further details about the use of AI tools. Of these, 51 stated that they actively use generative AI in their work as teachers. Seventeen more stated that they had either tried or recently started using generative AI tools. Although the open responses seemed to favor the use of AI, concerns were still voiced about the technology's ethics, legality, and practicality. Of the 77 open responses, only eight respondents said outright that they had not used generative AI at all. The reasons given again voiced ethical considerations about using AI to do the work, as well as a lack of time to learn and concerns about copyright infringement. Overall, it seems that those who use generative AI in their work have formed a habit of using it for all types of content creation, as mentioned above.

We also asked teachers how familiar they were with typical AI tools. It should be noted that, while the listed tools were probably the most widely used, openly available tools at the time of the survey, the field develops rapidly, so today's list would probably look a little different. The results are displayed in Table 2.

| | I use regularly in teaching | I have tried in teaching | I have tried but not in teaching | I have heard but not tried | I have not heard |
|---|---|---|---|---|---|
| ChatGPT | 23 | 59 | 72 | 23 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| Dall-E | 4 | 17 | 44 | 50 | 61 |
| Google Gemini | 0 | 4 | 25 | 90 | 56 |
| Microsoft Copilot | 9 | 44 | 75 | 34 | 15 |
| Midjourney | 0 | 5 | 17 | 65 | 89 |
| Personal assistant Pi | 0 | 0 | 1 | 30 | 145 |
| Github Copilot | 1 | 3 | 9 | 65 | 97 |
| DeepL (or another translator) | 13 | 12 | 29 | 46 | 76 |
| Copilot for M365 | 4 | 12 | 37 | 73 | 50 |
| Adobe Express | 2 | 6 | 17 | 45 | 106 |
| Total | 56 | 162 | 326 | 521 | 696 |

Table 2. Teachers' familiarity with different AI tools. The number indicates the number of teachers who responded in that category.

ChatGPT seems to be the most well-known tool for teaching and other activities, which makes sense given that it has been the most discussed AI tool since the release of version 3.5. In addition to ChatGPT, the tools most commonly used for teaching are translators and Microsoft Copilot. Other tools only have random mentions.

Technical and computer science teachers were the most familiar with the various tools, though health and wellness teachers also used them quite regularly. Work experience did not significantly affect the results, though teachers with more pedagogical training adapted different tools for teaching more often. Other generative AI tools that were mentioned several times in the comments, outside of the provided list, were Grammarly, Gamma, Canva, Perplexity, Trinka, Stable Diffusion, and "some image creation application; I can't remember the name."

## Instructions for AI Usage

In the second section, we asked the teachers to indicate how much instructions for AI usage their institution had provided them. The results are displayed in Table 3.

| | Mean | Std.dev. | UAS mean | University mean | p-value |
|---|---|---|---|---|---|
| I have familiarized myself with guidelines of my organization about the use of AI | 3.94 | 1.18 | 4.000 | 3.926 | 0.37 |

| | | | | | |
|---|---|---|---|---|---|
| I have received guidance on the use of AI to create teaching materials | 2.10 | 1.15 | 2.024 | 2.118 | 0.22 |
| I have received guidance on the use of AI to check assignments | 1.38 | 0.75 | 1.146 | 1.449 | < 0.01* |
| I have received guidance on the ethical use of AI in teaching | 2.43 | 1.30 | 2.341 | 2.463 | 0.36 |
| I have received guidance on the application of AI in my university | 2.35 | 1.22 | 2.122 | 2.434 | 0.04* |
| I have other guidance on the use of AI | 2.44 | 1.28 | 2.341 | 2.485 | 0.28 |

Table 3. Teachers' answers to statements about receiving instructions on using AI in teaching. The statistical differences between UAS and University teachers were calculated with the Mann-Whitney U test. An asterisk denotes a statistically significant difference with p-value less than 0.05.

Most teachers are familiar with the instructions provided by institutions, but they feel that they have not received enough practical guidance on how to use AI in teaching. Teachers from commercial and service fields were the most familiar with other institutions' guidelines, while those from the health field were the least familiar. Teachers from the service field also reported receiving some ethical training (mean 3.34). Notably, all the other teachers reported having little to no training in this area (all means <3.0). Work experience had no effect on the results. However, teachers with the most pedagogical training were the most familiar with the institutions' instructions.

Of the 76 open responses about the instructions, 28 stated that they had attended more than one AI training session, webinar, or workshop provided by their institution. On the other hand, 12 said that they had not received any guidance on using generative AI. Some open responses highlighted teachers' proactive search for additional information beyond their institutions to improve their capabilities. This was mostly done because guidance was lacking or nonexistent, or because the respondent could not participate due to work-related time and/or location constraints.

## Attitudes and Expectations towards AI

In the third section, the teachers were asked to reply to statements concerning attitudes and expectations towards AI in an educational context. The answers are displayed in Table 4.

| | Mean | Std.Dev. | UAS mean | University mean | p-value |
|---|---|---|---|---|---|
| AI has already changed my work significantly over last year | 2.965 | 1.342 | 3.641 | 2.767 | < 0.01* |
| I believe AI will significantly change my work in coming year | 3.485 | 1.155 | 4.049 | 3.308 | < 0.01* |

| | | | | | |
|---|---|---|---|---|---|
| AI will replace me as a teacher | 1.434 | 0.715 | 1.610 | 1.368 | 0.03* |
| I will be able to automate significant part of my work in future | 2.512 | 1.116 | 2.769 | 2.435 | 0.02* |
| AI will replace humans in my field in future | 1.503 | 0.787 | 1.854 | 1.383 | < 0.01* |
| Development of AI supports learning for all | 3.166 | 1.137 | 3.512 | 3.055 | 0.01* |
| Organizations know how to make the best use of AI already | 1.509 | 0.757 | 1.561 | 1.489 | 0.38 |
| It is essential to teach students AI skills | 4.195 | 1.090 | 4.333 | 4.157 | 0.13 |
| Usage of AI increases cheating in studies | 4.047 | 1.031 | 4.179 | 4.015 | 0.22 |

Table 4. Teachers' attitudes towards AI now and in the future. The statistical differences between UAS and University teachers were calculated with the Mann-Whitney U test. An asterisk denotes a statistically significant difference with p-value less than 0.05.

As shown in the table, teachers have already noticed some changes in their work, but they believe that the changes will be more significant in the future. UAS teachers seem to view the changes as significantly larger. Nevertheless, teachers in general do not believe that AI will replace them or other professionals in their field anytime soon. Most teachers agree that teaching students proper AI skills is important, but they also think that AI usage likely increases cheating. Teachers also agree that organizations are not currently using AI well enough.

Teachers from the service field were the most certain that the nature of their work would change. Otherwise, there were no significant differences in attitudes based on field of expertise, work experience, or pedagogical training.

## Ethical Aspects of AI in Education

In the final section of the survey, the teachers were asked to respond to statements concerning the ethical usage of AI in the educational context. The answers are displayed in Table 5.

| | Mean | Std.dev. | UAS mean | University mean | p-value |
|---|---|---|---|---|---|
| I always consider ethical use of AI from perspective of my field | 3.982 | 1.148 | 3.892 | 4.008 | 0.19 |
| I consider data protection when using AI | 4.253 | 1.009 | 4.111 | 4.295 | 0.12 |
| I consider privacy when using AI | 4.263 | 0.987 | 4.167 | 4.293 | 0.15 |
| I consider copyright when using AI | 3.921 | 1.105 | 3.629 | 4.009 | 0.03* |

| | | | | | |
|---|---|---|---|---|---|
| I read the TOS and privacy policies when using AI | 2.264 | 1.236 | 2.053 | 2.328 | 0.18 |
| I assess the accuracy of content produced by AI | 4.619 | 0.673 | 4.425 | 4.680 | 0.09 |
| I am honest and transparent about my use of AI | 4.364 | 0.832 | 4.103 | 4.447 | 0.03* |
| I use AI to support automated reviews | 2.415 | 1.266 | 2.519 | 2.389 | 0.12 |
| AI increases equality | 2.088 | 1.115 | 2.345 | 2.011 | 0.14 |
| I guide students in ethical use of AI | 3.722 | 1.286 | 3.389 | 3.820 | 0.04* |
| I guide colleagues in ethical use of AI | 3.033 | 1.369 | 2.382 | 3.218 | < 0.01* |
| Students report using AI honestly and transparently | 2.217 | 1.060 | 1.935 | 2.306 | 0.04* |
| I know when I use service that uses AI | 2.808 | 1.182 | 2.973 | 2.754 | 0.23 |

Table 5. Teachers' answers to statements about the ethical use of AI. Again, the statements were answered on a Likert scale of 1 to 5 (1 = totally disagree, 5 = totally agree). The statistical differences between UAS and University teachers were calculated with the Mann-Whitney U test. An asterisk denotes a statistically significant difference with p-value less than 0.05.

It seems that teachers carefully consider data protection and privacy issues when using AI tools. They also seem to agree that the accuracy of AI-generated content should be assessed beforehand, and that honesty and transparency about AI usage is important. However, teachers do not seem to think that students are as honest or transparent as they are. University students seem to value ethical issues more than UAS teachers do.

Teachers in the service, teaching, and humanities fields seem to consider the ethical use of AI tools more important than other teachers do. Work experience or pedagogical training does not seem to influence this perception.

The open comments mentioned other issues that varied vastly. Generative AI has become so popular in such a short period of time that education and educators have not yet had time to adapt to it. While some shun the technology, others embrace it. However, most agree that generative AI will make data literacy, privacy, and ethics more prevalent in higher education. There were many concerns related to generative AI, ranging from a loss of creativity and effort among students to an ecological burden resulting from people outsourcing their thought processes to server rooms. Respondents worried that generative AI would dull the innovation and originality of new students who look for an easier way through their studies and that this would affect society in the long term. A more positive outlook sees generative AI as a way for students and teachers to work more efficiently. This view holds that it is the mission of

educational institutions to teach the public how to use generative AI productively rather than depend on it.

### Connections Between Items

We calculated the Pearson correlation coefficients and p-values for all the numerical survey items (excluding the open comments, of course) to determine if there were any unexpected positive or negative correlations. We did this to verify the survey's validity. As expected, there was a very high correlation ($r > 0.9$, $p < 0.01$) between similar items, such as "I consider privacy when using AI" and "I consider data protection when using AI." Furthermore, teachers who regularly used AI to create course materials also used it to create assignments ($r > 0.6$, $p < 0.01$). Teachers who used AI to generate assignments also reported the greatest change in their work ($r > 0.5$, $p < 0.01$). Teachers who reported always checking the validity of AI-created content were also most likely to report AI usage honestly ($r > 0.55$, $p < 0.01$). Finally, teachers who thought AI would replace them also thought AI would replace everyone else in their field ($r > 0.5$, $p < 0.01$), which seems logical.

## 5. Discussion

The survey was completed by teachers from various fields and backgrounds, including many technology teachers, providing a comprehensive view of Finnish university teachers' attitudes. The analysis revealed that the use of artificial intelligence tools in education is not widespread yet. UAS teachers used the tools more than teachers from scientific universities, but usage was still rare. For example, almost all teachers had heard of ChatGPT, but only 23 of them (12.9%) used it regularly in their teaching. The numbers were significantly lower for all other tools. This may be partly due to a lack of knowledge on how to use them. Although the teachers reported being aware of their institutions' guidelines for using AI, they typically lacked specific instructions on how to use the tools for teaching purposes.

OpenAI’s ChatGPT and Microsoft Copilot are the most popular generative AI tools, a finding supported by the EUNIS AI benchmark survey conducted in early spring of the same year. The EUNIS AI benchmark is also in line with our results regarding AI instructions and guidelines; most institutions have guidelines for AI use in teaching (EUNIS, 2024).

However, the change may be coming: most respondents thought AI would significantly impact their work in the future. However, teachers remained optimistic about not being completely replaced by AI. They considered teaching students AI skills highly important. On the other hand, most teachers believe that AI is already increasing cheating in academia. This suggests that teaching the ethical use of AI should also be an important part of the curriculum.

Ethically speaking, teachers are well-informed. They consider data protection, privacy, and copyright issues when using AI, and they find validating the accuracy of AI-produced materials particularly important. However, few teachers thought that AI increases equality. In fact, using AI may create new forms of inequality regarding AI skills and access to paid tools. This underscores the importance of educating students on the proper use of AI.

# 6. Conclusion and Future Work

Overall, teachers have a moderate knowledge of AI tools and are well-informed about their safe and ethical usage. However, they lack the skills or tools to frequently incorporate them into their teaching. Since teachers believe that AI will transform teaching in the future and that it is important to teach students AI-related skills, institutions must recognize this. Teachers need to be educated on what kinds of tools can be used for teaching and how to use them productively. Teachers at UAS seem to be better informed on this topic than teachers at scientific universities, so collaboration between institutions would be useful.

AI has already impacted the field of higher education. Institutions already have or are creating guidelines for using AI, and AI tools are being incorporated into teaching methodologies. In the future, generative AI will become more widespread and standardized, so higher education institutions should adjust their teaching practices accordingly to achieve the best outcomes. When used correctly, generative AI will boost students' skills and teachers' ability to convey the necessary skill set to the next generation of professionals.

We plan to extend the study to other levels of education and further expand the current study by including teacher students in the survey, for example. It would be interesting to explore how AI becomes part of teachers' pedagogical training in universities and universities of applied sciences. Teachers play an important role in teaching the ethical and effective use of AI in learning and working life.

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