Academic teaching: Local university policies for generative AI and students' use of generative AI as a personalized tutor

Holm, Jacob Rubæk; Peltonen, Jaakko; Timmermans, Bram; Henning, Martin

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Nordic AI-BEST Reflection and Further Development workshop; December 2023, Aalborg. Summary report and preliminary recommendations

Jacob Rubæk Holm, Aalborg University Business School, Aalborg University. jrh@business.aau.dk

Jaakko Peltonen, Tampere University

Bram Timmermans, Norwegian School of Economics

Martin Henning, School of Business, Economics and Law, University of Gothenburg.

Introduction

The intended result of the reflection and further development workshop was to "discuss ideas for the ensuing spring semester based on the new experiences from the fall [semester]". These experiences showed that two issues have come to dominate the focus of educators in higher education when it comes to AI: the local framework, especially the institution's policy towards the use of generative artificial intelligence (AI), and students own use of generative AI.

Compared to this focus, the focus at the first workshop in Nordic AI-BEST was somewhat broader. At that time, four issues were identified but with overlap to the issues at the second workshop.[1] Students' own use was discussed in terms of AI as a personalized tutor, while the local framework for using generative AI was discussed in terms of the legal limitations to AI use. At the second workshop these two issues were discussed in detail as described below. Each of these discussion takes the recommendations of the first workshop as the point of departure with the aim of qualifying the recommendations.

The remaining two issues identified at the first workshop, generative AI in class teaching and generative AI in assessment, were also discussed at the second workshop albeit with less emphasis compared to the first two issues. The additional insights and qualifications of the recommendations from the summary report from the first workshop can be found in this report.

Institutions' policies for the use of generative AI

At the first workshop in Nordic AI-BEST three preliminary recommendations regarding the local institutional context were developed:

Initial recommendations:

1. Explore solutions for local AI services so students do not need to create profiles with third parties, and the contents of prompts remain local.
2. Train students in ethical and responsible use of AI from the first semester.
3. Have a clear institutional level policy on what is the right and what is the wrong way to use AI.

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[1] The summary report from the first workshop can be downloaded here:
https://vbn.aau.dk/da/publications/academic-teaching-what-existing-problems-can-ai-help-us-solve-and

During the fall semester 2023 the participating institutions have made various types of progress on point 3, an institutional level policy. The first two recommendations have been developed as important elements of students' own use of generative AI. There have also been developments concerning point 3, where several of the participating institutions have signed subscriptions for Bing (Chat) Enterprise.

Initial institutional policies on using generative AI tended to ban specific uses but more developed policies also point to ways that AI use is allowed or even encouraged. Some participating institutions started centrally with a common policy, while others decentralized the policy formulation with an expectation that the right policy differs across fields. This can be a problem for students if it happens that faculties have different policies and education programs span different faculties. Students then do not know which policy to follow.

Students respond to policy ambiguities in two generic ways, which can be used to group students conceptually. The first group consist of those that find the lack of policies, or the multiple policies, confusing and avoid using generative AI to ensure they cannot be accused of cheating. The second group consist of those students that use generative AI despite the lack of clear policies and maybe see the lack of policy as an indication that breaching the policy will not have severe consequences. It would be illuminating to collect data on the use of generative AI across the participating institutions to compare to the varying policies and speed of policy development across the institutions.

Unlike the abovementioned responses to the local policy among students, educators do not appear to respond in a significant way to the local policies. This can reflect that some educators exhibit a status quo bias from heavily routinized teaching and therefore avoid changes such as using AI, while others exhibit a technological curiosity and experiment with new teaching methods. As is well known from the economics of innovation, experimentation among employees is hampered by resource constraints for the task in question. The two ideal patterns of behavior thus also reflect the amount of resources devoted towards teaching at the institutional level, and status quo bias can be expected in resources scarce institutions. The Nordic AI-BEST project includes resources for teaching development for the participating educators, which allows participants to be among the lead users at their respective institutions.

Use among educators is covered in more detail in the section on "AI in class teaching" later in this report. However, it is more than likely that use among educators can also be furthered by policies that include not only limitations but also suggestions for the use of AI. One real hurdle faced by educators has been the legality of using generative AI and of asking students to use AI. This includes both concerns regarding the possibility of asking students to create profiles with third party websites, and the treatment of data fed to the AI.

Updated recommendations:

1. Have a clear institutional level policy on what is the right and what is the wrong way to use AI.
2. Let the policy contain limitations but also suggestions and encouragement for use. User examples are helpful for students and educators.
3. The policy should contain guidelines on which generative AI to use and which to avoid.
4. Institutions should devote additional resources towards teaching development to facilitate that educators can experiment with AI in teaching.

5. The policy should contain guidelines on what educators can demand from students and what cannot be demanded.

Students' own use of generative AI and personalized AI tutors:

Regarding students' own use of generative AI as a personalized tutor the recommendations from the first workshop were the following.

Initial recommendations:

1. Students need to be aware that the ability to evaluate the output from an AI and decide on its practical usefulness only comes with being able to do the same task yourself. You only know if an AI-generated or AI-assisted essay on a given topic is any good if you have the skill to write an essay yourself.
2. Students need to know both limitations and potentials of AI. Using AI simply as a database both misses the potential of AI and creates a risk that the data extracted from the database can be dated or misleading.
3. Avoid training students to solve problems only with access to an AI: While AI can assist with problem-solving, it's important to recognize that students should not rely solely on the technology to provide answers, and thus not be able to solve a problem without access to an AI.
4. Notice that competitiveness between students can lead them to be reluctant to share tips and tricks for using AI as a tutor. Incentivize sharing through e.g. peer grading and group work.

To use generative AI as a personalized tutor requires inspiration for tasks that the AI can handle. One source is the use of AI in class. This means giving students assignments that requires the use of AI, cf. the list of inspirations for using AI in teaching that can be found in the Nordic AI-BEST summary report from the Development workshop in August 2023 (see footnote 1). Depending on the context, not least the course module in question, it will differ whether AI use is required, encouraged, or merely suggested (or even banned). There is to be expected a period where AI is novel, and this in itself generates interest but as the technology becomes more commonplace and interacting with it becomes an everyday event, students and others will become more critical and will not use generative AI for tasks so simple that using AI is more work than just doing the task without AI. Initial observations are showing that this is already happening among students. Another source of difference in willingness among students to use generative AI comes from differences associated with the field of study. It is observed that students in more technical fields are more willing to apply generative AI. While this may to some extent explain the differences observed across fields, there are also differences observed within groups of students in the same field. It appears that some students are afraid to be perceived as potential cheaters by other students if they are seen to use generative AI. This can be expected to be particularly the case in study programs where students work in groups to produce joint output for which they are jointly responsible. In such cases, students that use generative AI can be perceived as a liability for the group or as not having an equal share of the workload. The problem would obviously be mitigated by clear institutional policies on the use of generative AI.

Another source of such inspiration is other students, and it is therefore necessary to encourage knowledge sharing and experience sharing among students. For example, by requiring students to explicitly list in hand-ins how generative AI has been used, and then apply peer-grading so that other students get access to the hand-in. This is of course in addition to any other learning and capacity benefit from peer-grading. An alternative or supplement is for the educator to demonstrate the use of generative AI as part of class, for example as part of an introduction to working with assignments. When the educator demonstrates AI use it

is important to demonstrate relatively advanced use, for example arguing with the generative AI about a definition instead of just asking for a definition.

Currently, generative AI is new to students as well as to educators but before long it can be expected that students have experience with generative AI before they commence their studies at university. By then, assignments with encouragement for AI use will have less relevance. Rather, it will be important that students are introduced to the institution's policies early, for example when being introduced to other resources and regulations at the university shortly after commencing their studies. Additionally, some inspirations for AI use in university-level learning tasks can still be relevant and differ from students' AI experiences in other contexts.

In as much as the use of generative AI creates an advantage it will be necessary that all students have access to it and have access to the skills to use it. One current hindrance is that some generative AIs require a paid subscription while others can be used at no cost, except for sharing the user's data. One solution is that the institution provides access to a generative AI. It is important to find a solution that does not hold back the most ambitious students in the name of inclusion. Initial empirical evidence collected by a group of students at the Norwegian School of Economics, who were invited to give a talk at the workshop, suggests that generative AI has diffused faster among students compared to educators, and that students prefer human interaction and feedback. This may however change over time as students become more accustomed to using generative AI.

Updated recommendations:

1. Students need to be aware that the ability to evaluate the output from an AI and decide on its practical usefulness only comes with being able to do the same task yourself. You only know if an AI-generated or AI-assisted essay on a given topic is any good if you have the skill to write an essay yourself.
2. For as long as the use of generative AI is relatively novel, students need to know both limitations and potentials of the AI. Additionally, use of AI in university-level learning contexts can have different depth of use and best practices than AI use in other contexts. The limitations and potentials can be taught through examples in class by educators, relatively structured assignments leveraging AI, and by peer learning among students.
3. Teachers should avoid training students to solve problems only with access to an AI: While AI can assist with problem-solving, it's important to recognize that students should not rely solely on the technology to provide answers, and thus not be able to solve a problem without access to an AI.
4. Notice that competitiveness between students can lead them to be reluctant to share tips and tricks for using AI as a tutor. Incentivize sharing through e.g. peer grading and group work.
5. Explore solutions for local AI services so students do not need to create profiles with third parties, and the contents of prompts remain local.
6. Train students in ethical and responsible use of AI from the first semester. This specifically means giving them knowledge on the institutional policy on using AI and available AI software, if any. The training could be part of an existing introductory module introducing students to other policies and facilities at the institution.

AI in class teaching

At the first workshop a four-step model of AI in class teaching was developed and a catalogue of inspirations was developed for the summary report. Some ideas in this catalogue have been applied in the intermediate period and this has suggested updates to the preliminary recommendations.

Initial recommendations:

1. Using AI to prepare teaching is a ladder of four steps. Do not get stuck at the first step: "Initial Shock".
2. Using AI can provide a large benefit to students so ensure that it is equally accessible.
3. AI can have low legitimacy in the eyes of students and steps can be required to mend this.

The four steps of the four-step model are: 1. Initial Shock. 2. Efficiency Enhancement. 3. Teaching Solutions. 4. Paradigm Shift. Moving beyond the first step (recommendation 1) can be hindered by insufficiently taking recommendation 3 into account. An experience that was already discussed at the first workshop but appeared again in the second workshop is that students can have a lack of trust in generative AI. This means that they may not, for example, be willing to discuss definitions produced by an AI because they are afraid that the AI is producing wrong definitions or examples. This problem appears to vary across classes, and it is not clear whether this is because of differences between institutions, programs, or students. It is possible that students' trust in AI can increase with their experience working with the AI, which can be furthered through their own use of AI as a personal tutor, c.f. the earlier section on AI tutors.

An example of efficiency enhancement is that generative AI can be used to write cases that can substitute the use of news articles as a basis for class discussion. The educator can then adapt the case so that it touches upon all of the professionally relevant topics. This is comparatively arduous if done by searching through news articles. Another option with cases, demonstration the possibilities for moving to step 3 is to develop a case into a game. For example, students can be assigned roles in the case creating instead a game, and generative AI can then create random effects for the case that the participants must react to.

Moving yet further up the ladder can be constrained by relatively restrictive module curricula. Within a given curriculum it is often possible to increase efficiency (step 2) but applying new teaching solutions can be more difficult. Relatedly, it has been experienced that it is relatively easy to leverage generative AI to increase students' knowledge of a specific topic while it is less straightforward to leverage AI to increase students' skills and competencies for a topic. This could be furthered with a workover of the course curriculum. Thus, moving to step 4, paradigm shift, can also be furthered by an updated curriculum.

The use of generative AI for theses and other student projects is so far under-explored in Nordic AI-BEST compared to the use of generative AI in courses. The implications for assessing the final student output are clearly significant. In particular, the challenge of evaluating the student's own contribution in the thesis or project when portions may have been produced by AI, and the challenge of evaluating the student's achieved mastery of the topic. In disciplines/programs where a project or thesis is partly evaluated by an oral presentation, the obvious solution is to emphasize students' oral presentation of their work for grading instead of grading mostly based on the written output. But there is also scope for improving the students' project work, for example by nudging them towards using generative AI in the early idea generation phase before first contact with the supervising educator.

Updated recommendations:

1. Using AI to prepare teaching is a ladder of four steps. Do not get stuck at the first step: "Initial Shock".
2. Using AI can provide a large benefit to students so ensure that it is equally accessible.
3. AI can have low legitimacy in the eyes of students and steps can be required to mend this in the context of applications where AI could be useful.
4. Moving up the four-step ladder can be furthered by a change in curriculum. What these changes should be and the degree to which they are specific to each course needs to be explored.
5. A promising venue for efficiency enhancement that can lead into new teach solutions is to leverage the creative power of generative AI to create cases and games. These can substitute empirical cases, although the educator can then need an alternative way of demonstrating that the course material is practically relevant.
6. The role of generative AI in students' written output, including theses, needs further experimentation and discussion.

AI in assessment

The period between the first and second Nordic AI-BEST workshop has been a period of relatively limited new experiences with assessment (August 2023 to December 2023). The updated recommendations do therefore not differ from the initial recommendations except for some slight rewording and qualifications reflecting the increased experience of the Nordic AI-BEST participants:

1. The most practical assessment where students cannot benefit from using AI may be the oral exam, or written exams in a controlled environment disallowing personal devices.
2. It is important to be careful if using AI to prepare an exam – including oral exams – as each student should have the same precondition for undertaking the exam. A teacher may produce different questions for different students' oral exam – and indeed is likely to do so because students are different and respond differently – whereas the randomness introduced by letting AI prepare an exam individually for different students without effective curation by the teacher is less defensible.

As pointed out in the section on AI in class teaching the use of generative AI in thesis writing and in other written student outputs has so far not been explored in depth in Nordic AI-BEST. Participants who will give courses in spring 2024 have however used experiences from the first workshop to re-consider assessment methods. It is completely clear that the assessment of such student output cannot rely on the written hand-in in the same manner as previously. More weight must necessarily be given to the student's oral presentation of his or her work. In some situations, for example those where student assessment has previously relied on take-home exams without oral presentations, a transition to sit-in exams could be considered. While it is an important ambition for AI-BEST to identify best-practice solutions to the use of AI in teaching, an equally important outcome of AI-BEST is a clearer picture of when AI prohibits the use of some previously popular forms of assessment.

Outlook

The third workshop in the Nordic AI-BEST project is scheduled for May 2024 in Bergen. At this workshop the use of AI over the spring semester will be evaluated, and the experiences with AI in teaching, in assessment, as tutor, and with legal limitations on AI use will be updated accordingly. A final publication scheduled for October 2024 will collect the recommendations developed in the summary reports from each of the three

workshops and present a finished set of guidelines for AI in teaching based on experiences across a broad range of programs in Nordic universities.[2]

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Workshop participants

University of Tampere, Finland:

- Jaakko Peltonen
- Suvi-Päivikki Ikonen

Norwegian School of Economics, Norway:

- Bram Timmermans
- Vidya Oruganti
- Björn Schmeisser
- Tommy Karlsen (student)
- Daniel Rasmussen (student)

University of Gothenburg, Sweden:

- Martin Henning

Aalborg University, Denmark:

- Jacob Rubæk Holm
- Kristian Nielsen
- Pernille Gjerløv-Juel
- Roman Jurowetzki
- Birgitte Egeskov Jensen

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[2] There is also the possibility that Nordic AI-BEST receives additional funding and will be extended until 2025, in which case there will be an additional two workshops and summary report before the final publication in October 2025.