Artificial Intelligence in Teaching and Assessment Contexts[1]

The Guidelines for using generative AI tools at the University of Tübingen[2] outlined the initial, basic dimensions of a critical, reflective, transparent and responsible approach. This handout now explicitly focuses on the use of generative AI in assessment and teaching contexts. It has emerged from the discussions of the interdisciplinary Generative AI Working Group.

The text below presents the framework conditions and options for the use of generative AI in teaching and assessment contexts. This is not a legal opinion. To date, AI has not been subject to any regulated legislation. More information on the planned AI law (the EU Artificial Intelligence Act, AI Act), which is being prospected by the European Parliament, may be found here[3].

The following explanations are intended to serve teachers, examiners, and module coordinators as a basis for discussion and decision-making in their own subject-specific contexts.

1   Generative AI in Teaching Contexts

University teaching must constantly adapt to changing social and technological conditions in order to adequately prepare students for their future career and research activities (future skills). Since AI is increasingly impacting all areas of life and is clearly a part of everyday life, it is the responsibility of universities to enable students to confidently interact with AI and to provide them with the necessary skills (AI literacy). For this to succeed, it is equally important to support teachers in dealing with AI and integrating AI into teaching.[4]

1.1   Exploring the Opportunities of AI

Generative AI systems which are adapted and accessible for the general public have only been around for a short time; therefore, it is currently difficult to reliably assess their potential for education and

---

[1] The current version was approved by the President´s Office of the University of Tübingen on April 30, 2024.

[2] https://uni-tuebingen.de/en/255287

[3] https://www.europarl.europa.eu/news/de/headlines/society/20230601STO93804/ki-gesetz-erste-reguli-erung-der-kunstlichen-intelligenz
https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2024/02/20240202-eu-framework-for-artificial-intelligence-in-place-ai-regulation-gains-unanimous-approval.html

[4] There are already numerous services regarding AI within the University: The Diversity-Oriented Writing Center offers lecturers support on the topic of AI as part of an individual consultation. The Center for Teaching and Learning organizes both department-specific and interdisciplinary workshops on AI. Individual higher education didactics advice is also available, e.g. on the appropriate integration of AI into your own course. The University Library training program includes, e.g., training in AI-based literature research. Furthermore, the courses offered by the KI-Campus are suitable for individual continuing training (e.g. the self-study course "Sprachassistenzen als Chance für die Hochschullehre").

research. There is little experience of their use in a university environment to date. However, a wide variety of applications and surplus value is already emerging, as described by Fleischmann (2023): Teachers can use AI to create teaching and exercise materials more quickly or adapt them to students' specific needs, thereby addressing student diversity more effectively. Audiovisual teaching materials can be generated from written documents using AI and everyday correspondence can also be partially automated. Feedback processes can be supported and carried out more easily and frequently.[5]

The current discussion about AI in studying and teaching offers the opportunity to not only deal with technical, didactic and legal aspects, but also to think about how the distribution of roles between teachers and students may change in the current situation. Teachers should embrace the latter as an opportunity to test the potential of AI in their disciplines along with their students and become learners themselves again: "Teachers are usually not experts in the field of AI writing tools; sometimes students have more declarative and procedural knowledge here - but teachers do not have to be experts in this area to integrate AI writing tools into their teaching. This is a great opportunity to learn from and with each other and to exchange ideas with students about different (subject-specific) AI writing tools and their use."[6] The same applies, for example, to AI tools for image generation, software development, qualitative data analysis, or research.

As part of the process, all participants can reflect together on the meaning and purpose of academic writing: what role it plays in their own teaching and learning, how it changes via the use of generative AI and how the skills acquired through writing may be maintained or strengthened even if AI was used in the writing process.

A study conducted by Stuttgart Media University in 2023 shows that AI has arrived in everyday student life.[7] In the survey, students stated that they use AI daily or several times a week for the following purposes:

- Formulating texts (20% of respondents)
- Revising texts (19%)
- Translating texts (29%)
- Programming (15%, up to 75% in technical degree programs)
- Information research (36%)
- Researching sources (8%)

---

[5] Fleischmann, Andreas. „ChatGPT in der Hochschullehre: Wie künstliche Intelligenz uns unterstützen und herausfordern wird". In *Neues Handbuch Hochschullehre*, ed. by Brigitte Berendt, Andreas Fleischmann, Gudrun Salmhofer, Niclas Schaper, Birgit Szczyrba, Matthias Wiemer, and Johannes Wildt. 110, Mai 2023. https://www.nhhl-bibliothek.de/media/263cce49cd3391acb6fb6b8ca603b68b541f1986/064f1a3e3b0b581f2835cb6852d369ad50dde3a4.pdf

[6] Sarah Brommer et. al., „Wissenschaftliches Schreiben im Zeitalter von KI gemeinsam verantworten: Eine schreibwissenschaftliche Perspektive auf Implikationen für Akteur*innen an Hochschulen", Diskussionspapier Nr. 27 (Berlin: Hochschulforum Digitalisierung, November 2023), 8, https://hochschulforumdigitalisierung.de/wp-content/uploads/2023/11/HFD_DP_27_Schreiben_KI.pdf.

[7] Tobias Seidl and Cornelia Vonhof, „Studieren mit ChatGPT & Co. Wie Studierende KI-Tools nutzen und was das für Bibliotheken bedeuten kann", BuB: Forum Bibliothek und Information 11 (2023): 555-57.

1.2 Critically Scrutinizing AI

In order to take advantage of the opportunities offered by AI, it is essential that AI is used in a critical and constructive way, in addition to testing various possible applications. This concerns issues such as academic integrity, equal opportunities and deskilling, as well as legal aspects such as authorship of AI and data protection. In addition, computationally intensive technologies such as generative AI entail considerable energy consumption and therefore the environmental footprint must also be taken into account.

Academic Integrity/Good Scientific Practice

Academic integrity is a fundamental prerequisite for academic and scientific activity. The functionality and trustworthiness of academic institutions can only be guaranteed if teaching, studies and research are carried out in accordance with the values and rules of good scientific practice. Informed, reflective and transparent use of AI tools is therefore crucial in order to avoid academic misconduct (see also the [DFG statement](#)[8]).

For example, it must be clearly communicated to students whether and, if so, how generative AI may be used in studies and assessments and how this must be indicated. It must also be made clear that students are ultimately responsible for their own work. Like all tools, generative AI has its limits. AI language models can produce incorrect, ambiguous or misleading results, invent sources and reproduce prejudices and biases contained in the training data. It is therefore important to critically review the results and impulses and modify them if necessary before continuing to work with them.

Furthermore, structural or idea plagiarism may (unknowingly) occur if the structure of an academic work or other people's trains of thought are adopted without this being indicated. As it is not possible for users to trace the origins of the results, it cannot be ruled out that passages of another person's protected writing are integrated into the AI output without permission or mention of their authorship.

Copyright and Authorship

Under the provisions of the German Act on Copyright and Related Rights(UrhG), AI-based tools may not generally be regarded as the authors of the results they generate.[9] They therefore do not themselves enjoy copyright protection. However, it cannot be ruled out that the training data of the AI applications may contain protected works or parts of works of third-party rights holders. Even if these copyright infringements initially occur on the part of the providers of generative AI, they may become relevant when AI-generated texts are adopted.

The same applies to the prompting itself: Uploading copyrighted material, e.g. to generate an explanation or a summary, may also be considered a copyright-relevant act.

---

[8] https://www.dfg.de/resource/blob/289674/ff57cf46c5ca109cb18533b21fba49bd/230921-stellungnahme-praesidium-ki-ai-data.pdf

[9] Salden, Peter, Nadine Lordick, Maike Wiethoff, and Thomas Hoeren. „Didaktische und rechtliche Perspektiven auf KI-gestütztes Schreiben in der Hochschulbildung". Zentrum für Wissenschaftsdidaktik, März 2023. https://hss-opus.ub.ruhr-uni-bochum.de/opus4/frontdoor/deliver/index/docId/9734/file/2023_03_06_Didaktik_Recht_KI_Hochschulbildung.pdf.

Data Privacy

The providers of generative AI process personal data such as given and family names, email addresses and the like when you register. Use must therefore be voluntary. The wording of the prompts also allows conclusions to be drawn about the respective user, e.g. about his/her family situation and work environment, but also about the user's political, religious and ideological interests. How this data is processed by the AI providers is currently unclear.

The same also applies to the input of personal data at the prompt: Since the way the data is processed by AI is not transparent and this data is presumably used to improve and further train the AI, it is not advisable to enter third parties' personal data.[10]

Equal Opportunities

The application or use of AI tools must be in line with the principle of equal opportunities. As not all students have equal access to AI resources, some of which are paid for, a digital divide may arise, excluding some students from the education benefits that AI-based tools can offer.

Deskilling

One fear often associated with AI is that students will no longer achieve the qualification objectives set out in the curricula due to the use of AI. Against this backdrop, there needs to be an open discussion in the departments, but also between teachers and students, as to why certain skills do need to be acquired and must be mastered without AI in order to successfully complete a degree program. Qualification objectives may need to be reconsidered, adapted and reformulated (e.g. AI literacy).[11]

2   Generative AI in Assessment Contexts

The transformative potential of generative AI also raises questions for assessment contexts that will continue to occupy universities for some time to come. (Subject-specific) discussion and negotiation processes will have to be conducted on an ongoing basis against the backdrop of current developments. It is important to take advantage of the opportunities that generative AI can offer for higher education while maintaining the quality and validity of fair assessment processes. The following information on dealing with generative AI in assessment contexts sheds light on framework conditions and highlights options for action. It is intended to serve teachers, examiners and module coordinators as a basis for subject-specific discussions and soundly-based decisions.

---

[10] Fleischmann 2023, 10-11.

[11] On deskilling in general, cf. Reinmann, Gabi. „Deskilling durch Künstliche Intelligenz? Potenzielle Kompetenzverluste als Herausforderung für die Hochschuldidaktik". Diskussionspapier. Berlin: Hochschulforum Digitalisierung, 2023. https://hochschulforumdigitalisierung.de/wp-content/uploads/2023/10/HFD_DP_25_Deskilling.pdf

2.1 The Framework Examination Regulations as a Basis

The existing framework examination regulations (KRPO/BRPO/MRPO)[12] do not currently need to be amended. They already provide the necessary legal regulations to allow or prohibit the use of AI in assessments. The following aspects are crucial in this context:

- All University of Tübingen framework exam regulations provide the option of allowing tools when completing coursework and exams.
- If, in assessed work, students use tools that are not expressly permitted, this must be regarded as cheating (see § 23 of the applicable framework exam regulations). All study and exam regulations provide for specific sanctions for cheating.
- During assessment as part of their studies, students must perform independent coursework and work for assessment that is based on their own thought processes and intellectual achievements.
- In general, it is important to ensure/establish the validity of assessment in relation to learning and qualification objectives.

For the possible use of AI, this means that generative AI may generally be admitted as tools. However, a prerequisite for any such admission is that, despite the use of AI tools, there is still an autonomous performance by the examinees, which is to be assessed by the respective examiners. It is the responsibility of the lecturers/examiners to design assessments that enable students to perform autonomously and make visible their competences. In the case of admission as an aid, it is possible and, depending on the specific assessment context, may also be necessary to clearly define the permitted manner of use and to exclude certain tools or purposes of use (see subchapter Autonomy).

Various Examination Forms and Generative AI

Not all forms of examinations require equal reconsideration in the context of the influence of generative AI. Not affected or only slightly affected are supervised exams in which students do not have the opportunity to use the relevant tools. These include supervised written exams as well as oral and practical exams.

The most affected are unsupervised written coursework and assessment, because the work is not carried out in a protected/controllable exam room and therefore cheating cannot be prevented. This includes:

- Unsupervised written assessments such as seminar papers, open book exams, Bachelor's and Master's theses, but also laboratory reports, etc.
- Exercises, if they serve as an admission requirement for an exam or are included in the exam grade
- Presentations/lectures, as their content can be generated with AI support

In the case of unsupervised written assessment, there is a risk of undetectable use of AI tools by students. The burden of proof always lies with the examining authority (usually the examiners). Plagiarism/AI detection software is not recommended due to high error rates and also for data protection reasons (examinee data).

---

[12] Combi-degree framework exam regulations, Bachelor's degree framework exam regulations, Master's degree framework exam regulations

2.2 Subject-specific Considerations

Originality

The definition of relevant and assessable autonomous performance is significantly linked to the examination content, examination formats, learning objectives and assessment criteria of the various subjects. Whether and to what extent AI may be used in unsupervised written work is at the discretion of the faculties/subjects/examiners and requires a carefully-considered decision, which must be discussed in the subject-specific contexts and made by the responsible bodies in the subject (module coordinators/examiners or departments/examination boards).

Key questions that need to be considered in these discussion and decision-making processes are similar to those already considered in the design of degree programs, including:

- What competences should be taught in the coursework and assessment specific to the subject/discipline/module to ensure that professionally-qualified graduates are trained?
- How can the attainment of these required competencies be tested? What content and what type or format of assessment can ensure this?

The question of whether and under what conditions the use of generative AI constitutes an autonomous performance is also subject-specific. A restriction on the scope of use of AI tools may also be considered here. This can be done, for example, through a whitelist of approved tools or by excluding certain functional categories of tools. For example, AI-supported literature research could be permitted, but not the transfer of formulated text passages. The use of translation tools or co-pilots, e.g. for programming, may also be unproblematic or it may contradict the intended qualification objectives, depending on the subject.

Adaptation of Assessment Content and Formats

If the use of AI tools means that students' autonomous performance can no longer be clearly recognized and assessed in unsupervised written coursework and exams, the assessment content or format must be adapted. This may mean, for example, reflecting on the intended qualification objectives on the basis of the above-mentioned questions and adapting them to the new reality. If a valid review of the learning objectives of an examination can only be guaranteed if no tools are used, this may mean that unsupervised written coursework and assessment are replaced by oral or written examinations under supervision.

One option could also be to define the use of AI as a qualification objective in its own right and to test these competences in an exam requiring the completion of suitable tasks. These topics and competences must of course have been the subject of teaching beforehand.

2.3 Transparency

There must be clear communication to students in advance as to whether generative AI is permitted in examinations and to what extent; or whether it is entirely prohibited. In addition, clear guidelines for the documentation of AI use should be drawn up, made available as a guideline, and discussed

with students. Declarations of academic integrity (taking into account the respective requirements of the relevant study and exam regulations) are an effective means of achieving this. A sample declaration of academic integrity is presented in the appendix of this document. However, it should be discussed on a subject-specific basis and adapted to the respective examination.

A discussion paper by the Higher Education Forum on Digitalization (Hochschulforum Digitalisierung) describes the responsibility of lecturers as follows: "Responsible action by lecturers is demonstrated by making their considerations transparent to students and clearly communicating not only specific requirements, but also the reasons for (any limited or lacking) permission to use AI writing tools".[13] As already outlined, this opens up an opportunity to discuss learning objectives, qualification objectives and competences with students and to make them transparent.

---

[13] Brommer et al 2023, 8.

Appendix: Declaration of Academic Integrity Template[14]

How to use the Template

This declaration of academic integrity serves as a model, must be adapted to the respective subject context and can be integrated into existing declarations of academic integrity.

The faculty, the department or the individual lecturers decide in advance which option (option 1 or option 2) is to be selected for the respective coursework and exams, because it must be made clear to students in a uniform and transparent manner, particularly before the start of an exam, which approved aids may be used to complete the specific exam, therein enabling it to be considered the student's autonomous work.[15] Accordingly, only one option is listed in the respective declaration of autonomy; the other option is omitted.

If option 2 is selected, this must also be adapted to the respective subject. <u>Italicized and underlined text passages</u> in the template show the possible options.

Declaration of Academic Integrity

1. I hereby declare that I have written this work myself and have not used any sources or resources other than those stated. I have identified texts, ideas, concepts, graphics, etc. taken directly or indirectly from external sources as such and have provided complete references to the respective sources.
2. Use of generative AI:

    ☐ **Option 1: Use of generative AI not permitted**
    I confirm that I have written this thesis completely autonomously, i.e. that I have not used any generative AI tools.

    ☐ **Option 2: Labeling obligation if use of generative AI permitted**
    I am aware that the use of texts or content created by means of generative AI does not guarantee their quality and that I am responsible if the use of such tools results in incorrect content, violations of data protection law, copyright law or academic misconduct (e.g. plagiarism).
    I also confirm that:
    o   I have used generative AI tools as an aid only and that my creative influence predominates in the present work,

---

[14] This template is based on the draft declaration of autonomy produced by the Hochschule RheinMain, University of Applied Sciences, and may be found at https://www.hs-rm.de/fileadmin/Home/Services/Didaktik_und_Digitale_Lehre/Eigenstaendigkeitserklaerung_HSRM_6_23.pdf (updated December 2023).

[15] It is initially irrelevant whether the use of generative AI tools is actually verifiable. Instead, the first step here is a binding determination by the examiners/faculty/department as to whether and, if so, to what extent, which AI tools may be used. Only in a second step - if there is suspicion of the use of non-approved (additional) tools - should the question of the verifiability of the use of additional (non-approved) tools and thus the lack of autonomy be addressed. If a lack of autonomy is proven, the cheating must be punished by the relevant consequences (cf. the current version of the respective study and exam regulations). With option 1, it is then irrelevant which aids are used, because strictly no aids may be used. This must be clearly communicated to the students.

- o   that I have indicated which generative AI tools I have used, for what purpose and to what extent [citation proposal, prompts used (and results) if applicable]. [*Students must be informed a) how AI tools are to be cited (citation rules), b) how and to what extent the use of AI tools is to be additionally documented: For example, it is possible to include a table in the appendix in which the tools used, the type and manner of use (form of use, e.g. translation, text generation, creation of graphics) or the prompts used as well as the sections of the work concerned are documented in a comprehensible and transparent manner. In addition, a written reflection on the use of AI tools could also be required.*]

Make a selection here:

- o   that I have not used the following resources, the use of which was explicitly prohibited by the examiner(s) or the examinations office.
  [*List of tools/resources prohibited (by examinations office/examiners)*]
- o   that I have used only the following tools/resources and have used them in their permitted functions only; such use was explicitly permitted by the examiner(s) or the examinations office. [*List of possible tools, resources / type and manner of permitted use to be ticked by examinations office/examiners*]

3. This work has not been submitted in the same or a similar form to any other examination authority in Germany or abroad.

4. I am aware that a violation of the above points may have consequences under exam law and, in particular, may result in the assessed work being graded as "fail" or the coursework being graded as "failed" and, in the event of multiple or serious attempts at cheating, may result in termination of my enrollment or the initiation of proceedings for the withdrawal of any academic title awarded.