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Teaching Day FB PolVer – AI in teaching

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14:20 - 14:35	Coffee Break
14:40 - 15:40	Group Work Group 1: literature research & writing Group 2: methods, coding & data analysis Group 3: exams, evaluation & feedback
15:45 – 16:30	Collection of Results
16:30 – 16:45	Conclusion

Participants: 30 people (teachers, students and academic support staff)

The following summarizes insights from the discussions in the plenum and in the groups regarding the main topics of AI tools in the context of different teaching aspects.

Literature research and writing

Key points

- How useful are written assignments, from essays to BA theses?
  - It is still important for students to learn to write (essays), among other things to know where the limits of AI are and what constitutes good and bad writing. Reflection together with the students on what AI can and cannot do.
  - KI for “fluff”; value of original, innovative arguments rises, raise the bar there

- How can learning objectives (especially concerning information literacy and writing skills) be combined with the use of AI tools? What is important in teaching? What basic skills should students acquire?
  - Building competence - for students and lecturers
    - "Teachers need awareness first in order to teach it"
    - Support for students to be able to assess the quality of the delivered output
  - how can we build up AI literacy, systematic inclusion in the seminar plan?
  - Is there time for this? Should this be in a different course? within or outside the course / discussion in parallel to the proseminar discussion "time for content vs. time for methods and tools”
  - Use of AI tools strongly depends on the type of seminar
  - Challenge of dealing with internationals / heterogeneous students, especially in the Master's program
  - Students expect clear communication

- What is the aim of the studies? What should be learned and what should be prioritized? → E.g. how to structure an argument properly / "red thread" / derive a conclusion from the premises. Possible task type: Write an argument on XY / Analyze this argument (AI is not yet good in innovative arguments and their analysis).

- We need a base in the BA and MA program:
  - AI as mandatory part in Proseminar II (BA level): how to use AI in academic writing; it has to be ensured that teachers are familiar with the subject of using AI in academic writing; idea to create standardized material which can be used in each Proseminar (analogous to the standardized learning tools currently developed for proper citing)
  - Needs to be integrated also at the MA level e.g. in the basic seminars (Grundlagenseminare) (“How to Konstanz style”) or by adding a course in the “Schlüsselqualifikationen” (KI Werkstatt already exists but has limited spots; offer can be expanded)

- Imparting of AI-Literacy as part of Exzellenz-Strategie

Open questions

- How to teach students the logical structure of arguments, there are various possibilities (analytical philosophy // further methods for empirical work // logic // learning by doing - failing - doing it better again)?

- How to foster creativity? - a question worth thinking about. Research design with examples?

- Are literature reviews still up to date? Is it sufficient as a course achievement? different views within the department
    - pro: it must be understood what connections there are and how they came about in order to produce new content and ideas; necessary in order to understand where the state of the art is; learn to forge connections between writing and thinking
    - contra: no more literature reviews needed; standard must be raised and creativity must be encouraged

- How will this be developed further in the FB - should there be a working group? And who can participate?

Experiences – practice tips

- Topic AI and essays: Specific, exact instructions for writing, e.g. at least six sources from 2018-2023. Exercise with the (bad) AI-generated texts/arguments to reflect on how an argument must be structured. Disadvantage: Clear instructions = prompt; AI learns from the answers = better performance of AI

Methods, coding and data analysis

Key points

- Coding, debugging, simulation – what are your experiences with using AI to work with data?
  - AI good for new coding. Not easy: debugging.
  - Student view: used every day (ChatGPT; API); automation of things; paid version: 4 > very good at coding, can generate meaningful output with few prompts; free version: 3.5 > does not create good codes; output codes must be understood; it is not enough to just use the code blindly; more important than writing code is evaluating or interpreting code; AI tools are very efficient at debugging and using them saves a huge amount of time
  - the advantages outweigh the disadvantages in troubleshooting; students and teachers agree on this
  - AI cannot understand the data; does not take the context into account in which the data was gathered

- How can we teach students to use AI when working with data? What skills do we want them to acquire? What are the challenges in evaluating students‘ empirical work involving the use of AI-tools?
  - coding does not require creativity; different from scientific writing - Code may or may not work and this can be checked; the negative aspects from other areas do not apply so much in this context
  - there is a certain level of programming language that students need to reach to use AI tools in a useful way; more demanding tasks can then be solved
  - Problem: Students should also be taught how to write code themselves; there is a risk that students will get around this and not learn the skill of coding
  - Focus on free accessible LLM (equity issue).
  - it has to be differentiated whether the student created the code by herself/himself or not when it comes to evaluating their assessment

- How can students be transparent about their use of AI-tools? Can we think of guidelines and best practices?
  - Code completely generated by AI tools has to be marked. If the tools were only used for debugging etc., it does not count as plagiarism.
  - AI-safe assignments: Interpreting code?

- What does it change about our methods training? What does it change about the relationship between methods and theory?
  - data has to be collected and it has to be interpreted; not sure whether an AI can ever do this
  - as statistician you have to understand what happens in the black box; goal is in the analysis part; students have to know how to adjust the code when they want to change the analysis
  - data analysis is based on statistical theory; imbalance between data management and data analysis

    - both have to be taught: the methodology and the application; there is a gap between the courses which are taught at the moment
    - when looking at the benefits of AI there is a difference between Social Scientists, Data Scientists and Statisticians
    - in the future, students do not have to become programmers themselves, but they have to have fundamental mathematical and statistical knowledge e.g. regression analysis
    - student's perspective: one possible attempt would be that students have to correct a given code
    - it has to be ensured that each student can use ChatGPT, so that all are on the same page; but this cannot be the standard for teaching
    - crucial point would be that not all the students have to solve the same problem, but that each student has to solve his or her own problem; then, you have to think for yourself

- Less ethical questions in methods and data analysis than in academic writing; code works or it doesn't; task is to interpret, debug and explain codes; AI is good in writing new codes; what level of proficiency do students need to have in order to work properly with AI generated codes; it has to be taught how to use AI/LLM in methodological research; LLM allow to concentrate more on theoretical aspects

- should we continue to use freeware, such as R? Prevent lock-in effect

- it is hard to prevent students from using AI in Bachelor's/Master's thesis; some will be able to use it and others not and this will cause inequality among students.

- AI good as translator between languages, including natural languages and code

Open questions

- Should an element “how to deal with AI” be integrated in all courses?

- Teach students how to write good prompts? If yes, how?

Experiences – practice tips

- Task for students: “Take the code which ChatGPT created and make it better”

- Limit the sentence number of students' answers; if you really understand the code you can do it in two sentences; ChatGPT is very wordy

- exemplary output for students in order to encourage them to do it better (“or you will be replaced by the machine”)

Exams, evaluation and feedback

Key points

- Either the exams in a secure environment (e.g. in presence / on specified Chromebooks). Or oral exams (e.g. presentations without reading).
- Are there good AI detectors? None of them are good. According to the tests there are too often false positive and false negative outcomes.
- Where do we want a genuine learning experience? Relevant to learn sound arguing. Learn how to assess the quality of AI-generated text- take responsibility for the truth value of your assignment – AI has no concept of truth.
- Reduce the weighting of seminar papers, strengthen the weighting of other, also oral performances / use different types of assignments.
- Important and helpful: Explain to students why you have to do something yourself in order to be able to then use AI – so that you can take responsibility for the content (even if there is AI).
- How useful is AI in answering a research question? Most times it lacks the necessary depth.
- Possible to stick to old formats and make explicit what the learning experience will be; e.g. if I never synthesized existing research, I cannot authenticate / take responsibility for what the machine has produced
- Discussion about whether oral contributions (participation) should be assessed. Cases where students have presented texts from AI. Cons: Assessment criteria not clear, implementation not verifiable, performance level difficult to compare. Didactics does not recommend it. Pro: Incentive for active participation. Counterargument: There are other good ways to encourage active participation.
- Fairness/moral considerations: - arms race among students to produce ChatGPT perfectly worded text; on the plus side: equalizes inequalities in expressing themselves
- Continue to use the old formats, but as ungraded assignments?
- How can we use it for feedback? You can define criteria and check whether they are fulfilled.
- Student's view: alternative to multiple choice exams could be an in-class discussion without access to AI among students, which is then graded afterwards
- the university should expand the opportunities for computer rooms where the computers don't have access to wifi or some other softwares
- Trade-offs: many AI proof assessments are work intensive

Open questions

- Oral defenses of assignments as opportunity for the students to explain themselves and show their thinking. Focus not on the writing itself, but rather on the reasoning behind it. Creativity and innovation. Oral exam on the written essay, e.g. 5 minutes of questions or a short presentation (not in front of the group). In 5 minutes, you can easily tell whether students wrote it themselves. Problem of practicability: Deadline at the end of the semester, no possibility to check, Erasmus students have already left. Legal issues: assessor ("Beisitzer"), recording, verifiability?

- What is the evidence for the use of AI: Stylistic break? How can this be proven? - Use of Turnitin / AI detection (25%). References not properly listed (not cited or not listed in the index). Cumulative evidence. But generally, not 100% provable whether AI was used or not.

- Effort Turnitin (checking every thesis is time-consuming). Examination basically only on suspicion or voluntarily for final theses (students submit a declaration). Only look at the seminar papers in Turnitin that appear problematic in order to minimize the effort. Problematic to give access to the students (HiWis).

- Dilemma for students: When everyone is using AI, you don't want to be worse/behind.

- Evaluation using AI → Perusal: intransparent – AI talking to AI, but opportunity, to reduce MC exams, could have more essay questions if grading and feedback can be AI supported; should it be allowed? If yes, how can students assess quality?; Assessment by AI (Perusal) very problematic (especially from the students' perspective). Assessment criteria not entirely clear.

- Writing tasks – which ones remain useful under AI conditions and how can the results be evaluated?

Experiences – practice tips

- Let students discuss autogenerated arguments: Do the premises hold? Does the conclusion follow from premises?

- Research Design Papers (AI can't do that so well yet)

- Book reviews comparing the insights from several books and discussing them against each other (difficult for AI)

- Term papers with own argument, own justified RD, own empirical analysis

- If literature review: summarise genuine knowledge= true and justified belief; review how justified claims of papers are in light of the evidence used, not just summarize claims made by the author, but evaluate claims against empirical part.

- Proseminar: basic blocks of writing is needed, task could be: 'tell me whether the claims within the paper are well founded in the evidence'; maybe more ungraded assignments during the semester would reduce the pressure/motivation for students to use AI and encourage them to focus on the learning experience (rather than trying to optimize a grade)

Defined aims

- Proseminar I and II (BA) and master programme (Grundlagenseminar?) need building block on using AI.
- Question about purchase of Uni-license for ChatGPT (GPT4) / using free sources
- Double check feasibility and legal issues connected with an orial examination (a defense) for the seminar papers (assessor, video recording, etc.)
- add a sentence to the declaration of independence stating exactly what the lecturer has allowed (in blue, each lecturer should add this themselves)
- integrate information on dealing with AI-Tools in the department’s standard syllabus
- further discussion on evaluation with AI /teachers using AI to support grading and feedback (legal question?)
- collect best practices on using AI and make them available to teachers