Use of GENAI for education and research within the 4EU+ Alliance

An opinion paper produced by the AI Working Group on behalf of the 4EU+ Academic Council

Version 1.0
July 2024

4eu+

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The working group would also like to thank Marvin Möhler (Heidelberg University) and Mélodie Tran Thuan (Sorbonne University) for their input during the group's initial discussions and the 4EU+ Academic Council members for their review and feedback on the document.

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1. Introduction

A generative pre-trained transformer (GPT) is an artificial intelligence (AI) system that generates material based on large data sets that were fed into this system as part of its training. These tools can propose solutions, design platforms, plan educational courses, develop curricula, draft study protocols, write essays, generate audio-visual aids, help refine thoughts, translate, or edit manuscripts, and much more, in a few seconds – and they can do so at a very low cost or even free to the consumer.

Generative AI (GenAI) systems are powerful tools that have made a significant impact on our daily personal and professional lives and this impact will probably get bigger by time. However, together with the opportunities provided by GenAI, there are several challenges and drawbacks.

GenAI systems are as good as the data used for their initial training. Hence, there is a risk that such systems can inherit biased or misleading data and perpetuate them. Furthermore, the data used in training some of these systems might not reflect the diverse world we live in resulting in worsening of some existing inequalities. AI can also "hallucinate" and generate wrong information which can lead to serious consequences if taken at face value and disseminated as "factual" information.

Finally, the way some of the AI systems have been developed might pose several ethical challenges particularly when there is lack of clarity about the rightful and ethical use of data to train such systems.

2. Aim

In view of the current wide-spread use of AI tools, the potential benefits, and strengths of GenAI and the risks that such technology poses, the Academic Council of the 4EU+ convened a working group (WG-AI) tasked with producing an opinion paper on behalf of the council regarding this issue. Therefore, the main aim of the WG was to generate an "Opinion Paper" on the use of generative artificial intelligence (GenAI) by students, teachers and the wider 4EU+ community in education and research within 4EU+ related activities. The Working Group comprised a multidisciplinary group of academics and PhD students from different 4EU+ member universities.

3. Methodology

In developing this document, members of the Working Group gathered and reviewed information and guidance relating to the use of GenAI generated by key stakeholders. These stakeholders included 4EU+ member universities, UNESCO, academic publishers and their regulators. Therefore, the opinions presented in this document dovetail with guidance already generated by other organisations and not items generated de novo by the Working Group.

Moreover, we appreciate that the field of AI in general is still in its early developments, and it is progressing at a very fast pace. Hence, it is expected that any document generated to discuss this matter will get outdated very quickly. Therefore, this opinion paper is developed as a living document that will be reviewed and, if needed, updated, at least, annually by the 4EU+ Academic Council.

All provided links were archived through https://web.archive.org/. Policies and guidelines used to compile this document that are only available internally are available in the relevant working group AI channel on teams. We recommend that these documents are saved in an archived folder even when outdated for audit and governance purposes.

4. Use of GenAI in education

Background

GenAI has a varied and huge potential in education both for teachers and students. These systems are able to propose teaching programs, learning outcomes and curricula. For teachers, they can suggest innovative and complex learning activities, propose assessment criteria and prepare lectures. For students, such systems have the ability to prepare assignments, presentations, static images, videos and diagrams. They can also be used to refine ideas. However, these possible opportunities can come with many drawbacks. In the following section we outline our views on the potential opportunities and guidance for teachers and students regarding the use of GenAI in educational activities.

Use of GenAI by teachers

Opportunities

GenAI can help create a more efficient educational environment for teachers by freeing up their time from several administrative tasks, so that they can focus on active relevant tasks like lesson preparation and organisation. AI systems can foster creativity in educational content, methodology and delivery, which can help with pedagogical innovation. They can also facilitate cross-disciplinary approaches and generate innovative assessment methods, among many other things.

Recommendations

- Educators should ensure and set a role model with regard to academic integrity by declaring the use of GenAI in the preparation of their course plans, educational materials, or assessments. Linked to this, teachers

should strive to create an environment of mutual trust with the students regarding the use of GenAI to avoid creating an environment of suspicion and accusations.

- Teachers should try to monitor developments in GenAI tools and actively attempt to use AI tools, where appropriate, to have first-hand experience of what they can offer and their limitations. Teachers should also make use of available training opportunities and resources within their organisations.
- Educators always strive to explore innovative and effective teaching methods and they should consider promoting the concept of using AI as a pedagogical skill. Therefore, it would be considered good practice to encourage students to use AI tools while respecting the students' varying skills and accessibility in using them and try to help them overcome such barriers whenever feasible. However, it would be prudent for teachers to clearly formulate to students the conditions under which GenAI can be used at the outset of their course or assignment.
- Teachers should take into consideration that access to paid GenAI may be a factor perpetuating and deepening social inequalities.
- When reviewing assignments with the help of GenAI, educators should only provide the models with 'open data', meaning data that is not confidential, sensitive, personally identifiable (GDPR data), or protected by copyright.
- Teachers should strive to raise awareness about the problem of intellectual property in the context of employing GenAI in the academic setting.
- Availability and accessibility of GenAI is an opportunity for teachers to revisit assessments focusing on those that assess domains that humans can do better than GenAI (e.g. human values, compassion, communication, creative solutions to complex problems, technical skills, and critical appraisal).
- Teachers should be aware of the environmental issues related to the widespread use of GenAI including data storage.

Use of AI by students

Opportunities

AI can provide students with personalised tutoring that is available for them anytime, anywhere and can be tailored to support their education and meet their individual needs. Having the required skills to use AI and understanding its potential and applications is now perceived as digital literacy. Such skills will be sought after in future jobs in any discipline and hence useful for students to harness. AI can be a useful tool to strengthen inclusivity. AI tools can be of great help for some students who might have to tackle language barriers for students who have visual, hearing or speech difficulties.

Recommendations

- Students should always ensure they meet the standards of academic integrity, the basic requirement of which is acknowledging the information source. Hence it is imperative that students understand and appreciate the importance of declaring the use of GenAI in any aspect of their work. Students should also have clarity and awareness of how and where to declare such information. This can be achieved by early and open discussion with their tutor(s) to ensure that the use of GenAI is acceptable, regulated and does not interfere with the organisational code of conduct.
- Use of AI should also be proportionate based on the level of study and the task. This is a matter that will vary between courses and hence should be discussed and agreed on a course, or even individual student, basis with their teacher / tutor at the outset.
- It is highly recommended that students are aware of the ethical issues related to the development and use of AI systems including the legitimate use of data, sample representation, impact on human development and interaction as well as the current and future implications on our environment.
- When reviewing assignments with the help of GenAI students should only provide the models with 'open data', meaning data that is not confidential, sensitive, personally identifiable (GDPR data), or protected by copyright.
- It is the student's responsibility to ensure- the accuracy of the information generated and they should take full responsibility for the generated content. Declaring the use of AI does not alleviate such responsibility. Students should be aware that although some of the material produced by GenAI might sound or look factual, plausible, interesting, or professional, it could be fake, wrong, or mere system hallucination.

5. Use of GenAI in research

Background

Ethical transparency, methodological replicability, generalizability, and innovation are basic principles in research. AI has a huge potential to enhance, refine and maximise research efficiency from its conception to the dissemination of its findings. Nonetheless, it can also compromise the fulfilment of some, or all, of these components. In the following section, we list our opinion on the potential opportunities and guidance for researchers regarding the use of GenAI in research activities. Unlike education, where there is clear distinction between the roles and responsibilities of a teacher

and a student, the research process is a collaboration of different partners that results in unified outcomes. Hence the opportunities and recommendations in this section are provided overall rather than being categorised under the subheadings of a research student and a supervisor.

Opportunities

Overall, AI can relieve researchers from some of the administrative tasks enabling them to use their academic time more efficiently to enhance their academic outputs. For example, AI can automate the generation of text for project design purposes, routine tasks in data analysis, including data cleaning, data transforming, and datasets visualization. AI can also help in completing tedious and time-consuming tasks, e.g. writing machine access codes or estimating some indirect costs for a research proposal that would otherwise be arrived at by guesswork or conjecture. AI can also provide support in the process of medical writing by aiding with translation, grammar checks, sentence structure and editing.

Recommendations

- The use of GenAI systems during work on a diploma thesis must be agreed upon between the thesis supervisor and the student writing it *a priori*. Both parties should ensure that such agreement does not interfere with the code of conduct and requirements of the university or organization that will be granting the course degree. Furthermore, if the use of AI is agreed upon between the student and supervisor, the supervisor should regularly monitor the student's progress to ensure that the student is achieving the required learning outcomes related to the thesis/course and submission requirements.

- The use of AI systems does not discharge the student writing the thesis/manuscript, or any other form of dissemination, from their responsibility to ensure content accuracy and absence of any copyright infringement, plagiarism, prejudices, or the use of language violating the principles of equality.

- Researchers should specify in their research methodology, in a transparent manner, how and where AI has been used with a view to future research replicability. The International Committee of Medical Journals Editors' (ICMJE) guidance states that if AI was used for writing assistance, this should be stated in the acknowledgment section. In relation to this, Elsevier suggests the following statement (Statement: During the preparation of this work the author(s) used [NAME TOOL / SERVICE] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.). In our opinion, a similar statement could also be used by students within their thesis to ensure that this information is clearly visible and communicated to the reader. This is particularly important given that most of the theses submitted to universities are publicly accessible. It would also be good

practice to add such information as an acknowledgement when related research outputs are presented either orally or as a poster.
- ICMJE recommends that if AI was used for data collection, analysis, or figure generation, the authors describe this use in the methods section.
- Researchers should consult their university data protection guidelines and/or data processing agreements as they might only apply to a specific commercial GenAI licence. Universities should ensure their staff is made aware of such agreements when purchasing a licence for an AI system.
- Research supervisors should clearly formulate to their students the conditions under which AI can be used at the outset and make them aware of journals' and publishers' guidance on the use of AI.
- AI should not be listed as an author.
- With the exponential increase in the number of AI resources and their continued development, it is important for the researchers to ensure that the AI tool used does not infringe upon ethical regulation of data collection, usage and interpretation. We appreciate that this might require seeking an expert professional opinion about the tool to be used prior to using it.
- Researchers should be aware of the potential social, societal and ecological impact of the widespread or inappropriate use of GenAI in research design, conduct, interpretation and dissemination.

6. GenAI resources for students, teachers and supervisors

Reference to 4EU+ resources and members policies

- Use of generative artificial intelligence at UNIGE: https://www.unige.ch/en/university/politique-generale/use-generative-artificial-intelligence-unige/
- Survey on genAI at UW: https://en.uw.edu.pl/survey-on-genai-at-uw/
- Online module "Thinking AI: Bringing together ethical, legal and social aspects of AI": https://scai-education.sorbonne-universite.fr/

Generic resources

- AI Tools Directory: https://aitoolsdirectory.com/
- Future Tools: https://www.futuretools.io/
- European Commission: High-level expert group on artificial intelligence: https://digital-strategy.ec.europa.eu/en/policies/expert-group-ai

7. Good practices for 4EU+ to consider for the future

- Providing training opportunities for students, teachers and researchers on the use and understanding of AI tools.
- 4EU+QUALITY should consider adding the use of AI in education and research by students and teachers as an auditable standard.
- The 4EU+ Management Committee should discuss means of ensuring availability of an equitable infrastructure that enables students to have access to the necessary infrastructure.
- The 4EU+ Alliance should consider establishing generic AI competencies to maximise benefits of AI and mitigate its risks.
- Recommend to member universities to develop AI toolkits.
  - Please refer to **UCL toolkit** as a good example of such a toolkit.