Generative artificial intelligence in education

Departmental statement

March 2023

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Summary

This document sets out the position of the Department for Education on the use of generative artificial intelligence (AI), including large language models (LLMs) like ChatGPT or Google Bard, in the education sector.

This statement is informed by Government's White Paper on a pro-innovation approach to AI regulation, and follows Government's recent announcement to create a Foundation Model Taskforce which will consider UK domestic capability in this important technology.

Generative AI refers to technology that can be used to create new content based on large volumes of data that models have been trained on. This can include audio, code, images, text, simulations, and videos.

Key messages for the education sector

- Although generative AI is not new, recent advances and public access to the technology mean that the general public can now use this technology to produce AI-generated content. This poses opportunities and challenges for the education sector.

- When used appropriately, technology (including generative AI), has the potential to reduce workload across the education sector, and free up teachers' time, allowing them to focus on delivering excellent teaching.

- Schools, colleges and universities, as well as awarding organisations need to continue to take reasonable steps where applicable to prevent malpractice, including malpractice involving use of generative AI and other emerging technologies.

- The education sector must continue to protect its data, resources, staff and pupils, in particular:

    o [Personal and sensitive data](#) must be protected and therefore must not be entered into generative AI tools.

    o Education institutions should review and strengthen their cyber security, particularly as generative AI could increase the sophistication and credibility of attacks.

    o Education institutions must continue to protect their students from harmful content online, including that which might be produced by generative AI.

Background

OpenAI's release of ChatGPT in November 2022 increased awareness of and interest in generative artificial intelligence (AI) built on large language models (LLMs) such as ChatGPT and Google Bard. These tools can answer questions, complete written tasks, and respond to prompts in a human-like way. Other forms of generative AI can produce audio, code, images, video and simulations. This technology is not new and can already be found in everyday contexts like email spam filtering, media recommendation systems, navigation apps and online chatbots.

Generative AI tools are good at quickly analysing, structuring, and writing text or turning text prompts into audio, video and images. However the content they produce is not always accurate or appropriate as it has limited regard for truth and can output biased information.

Having access to generative AI is not a substitute for having knowledge in long-term memory, not least because we cannot make the most of generative AI without knowledge to draw on. We can only learn how to write good prompts if we can write clearly and understand the domain we are asking about. We can only sense check the results if we have a schema against which to compare them. Therefore generative AI tools can make certain written tasks quicker and easier but cannot replace the judgement and deep subject knowledge of a human expert.

It is more important than ever that our education system ensures pupils acquire knowledge, expertise and intellectual capability.

The education sector should make the most of the opportunities that technology provides, using it effectively, safely, and appropriately to deliver excellent education that prepares students to contribute to society and the future workplace.

Effective practice

When used appropriately technology has the potential to reduce workload and free up teachers' time. We recognise that teacher workload is an important issue and are committed to helping teachers spend less time on non-pupil facing activities, including through use of generative AI.

The Department is convening experts to work with the education sector to share and identify best practice and opportunities to improve education and reduce workload using generative AI.

It is important to be aware of the data privacy implications when using generative AI tools. [Personal and sensitive data](#) must be protected and therefore must not be entered into generative AI tools.

Generative AI tools can produce unreliable information, therefore any content produced requires professional judgement to check appropriateness and accuracy.

Generative AI returns results based on the dataset it has been trained on. In many cases, a given tool will not have been trained on the English curriculum. It is important not to assume that AI output will necessarily be comparable with a human-designed resource that has been developed in the context of our curriculum.

Whatever tools or resources are used in the production of administrative plans, policies or documents, the quality and content of the final document remains the professional responsibility of the person who produces it and the organisation they belong to.

Schools and colleges may wish to review homework policies, to consider the approach to homework and other forms of unsupervised study as necessary to account for the availability of generative AI.

Knowledge and skills for the future

The best way to prepare for an uncertain future is to develop a strong grounding in the knowledge that has proven most influential in building the world today.

To harness the potential of generative AI, students will need to be knowledgeable and develop their intellectual capability. Strong foundational knowledge ensures students are developing the right component skills to make best use of generative AI. Therefore, a rigorous knowledge-rich curriculum will continue to be crucial in equipping students for the future.

The education sector needs to prepare students for changing workplaces, including teaching them how to use emerging technologies, such as generative AI, safely and appropriately. At different stages of education, this may include understanding the limitations, reliability, and potential bias of generative AI, how information on the internet is organised and ranked, and online safety to protect against harmful or misleading content.

The Office for AI (a unit within the Department for Science, Innovation and Technology) is currently conducting research into the skills that will be needed for future workforce training.

The education system should support students, particularly young pupils, to identify and use appropriate resources to support their ongoing education. This includes encouraging effective use of age-appropriate resources (which in some instances may include generative AI) and preventing over-reliance on a limited number of tools or resources.

The Department will continue to work with experts to consider and respond to the implications of generative AI and other emerging technologies, including supporting

primary and secondary schools to teach a knowledge-rich computing curriculum to children up the age of 16.

Formal assessments

Schools, colleges and universities, as well as awarding organisations need to continue to take reasonable steps where applicable to prevent malpractice, including malpractice involving use of generative AI. There are already strict rules in place, set by exam boards, to ensure pupils' work is their own.

Although generative AI technologies can produce fluent and convincing responses to user prompts, the content produced can be factually inaccurate. Students need foundational knowledge and skills to discern and judge the accuracy and appropriateness of information, so a knowledge-rich curriculum, is therefore all the more important.

It's vital that our system of assessment can fairly and robustly assess the skills and knowledge of those being examined.

The Joint Council for Qualifications have published guidance for teachers and exam centres on protecting the integrity of qualifications in the context of generative AI use. This guidance includes information on what counts as AI misuse and the requirements for teachers and exam centres to help prevent and detect malpractice.

Minimising harm

Generative AI stores and learns from data inputted. To ensure privacy of individuals, personal and sensitive data should not be entered into generative AI tools. Any data entered should not be identifiable and should be considered released to the internet.

All staff in the education sector should be aware that generative AI can create believable content of all kinds. This includes, for example, more credible scam emails requesting payment. Whilst not substantially different from content they might find online, it is worth being aware that people interact with generative AI differently and the content that generative AI produces may seem more authoritative and believable.

It's therefore more important than ever that education institutions are informed and apply their judgement to manage cyber risks effectively by following the Department-issued cyber standards.

Education institutions must ensure that children and young people are not accessing or creating harmful or inappropriate content, including through generative AI.

The Department's statutory safeguarding guidance, Keeping children safe in education already provides schools and colleges with information on what they should be doing to

protect pupils and students online. This includes doing all that they reasonably can to limit children's exposure to risks from the school's or college's IT system.

Schools and colleges should refer to the [filtering and monitoring standard](#) to make sure they have the appropriate systems in place.

Useful links

- [Office for Artificial Intelligence - GOV.UK (www.gov.uk)](#)
- [What is personal data? | ICO](#)
- [Keeping children safe in education - GOV.UK (www.gov.uk)](#)
- [Meeting digital and technology standards in schools and colleges - Cyber security standards for schools and colleges - Guidance - GOV.UK (www.gov.uk)](#)
- [ChatGPT and LLMs: what's the risk - NCSC.GOV.UK](#)
- [Principles for the security of machine learning - NCSC.GOV.UK](#)
- [Meeting digital and technology standards in schools and colleges - Guidance - GOV.UK (www.gov.uk)](#)

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