UNIVERSITY OF LIVERPOOL

A spotlight on...

Generative Artificial Intelligence (GAI) Technology

Centre for Innovation in Education & Centre for Higher Education Studies

Overview

Generative Artificial Intelligence (GAI) technology provides textual, visual or audio content based on simple user prompts. The technology can create content, paraphrase or explain concepts behind existing material, use different voices or personas, and even code programs. Examples include Generative Pre-trained Transformer (GPT) apps such as OpenAI's 'ChatGPT', Google's 'Bard', and the AI-chat function of Microsoft's 'Bing', or DALL-E apps that create visual content.

Benefits

Automatic content generation has a number of potential benefits:

- It can help with users' accessibility requirements by allowing them to quickly digest vast quantities of content, through consolidating and rephrasing information in simply terms.
- It allows users to create structures, plans, or drafts.
- It acts as a sounding-board for ideas for creative projects.
- It can generate scenarios or situations.

Putting it into practice

There are a huge number of measures staff can take to begin thinking about how to incorporate the use of GAI into their teaching, learning and assessment. The following is not an exhaustive list, just some initial ideas:

- The content that GPT-based technology generates requires criticism, analysis and deconstruction, and this can be a worthwhile exercise to perform with students (especially in a formative assessment situation), and can help students to flex and improve their critical muscles. It is worth encouraging students to use GAI apps to engage with complex content, and critique the results in a discursive forum.
- In more specific terms, students might also find it useful to critique the responses to different prompts in disciplinary terms. Asking ChatGPT to generate a summary of, say, Freud's concept of the Id, Ego and Superego could quickly become a class discussion about how accurate, fair or nuanced the response from the app actually is.

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- Consider discussing the technology itself in the context of your discipline as part of teaching– your students may have ideas about how it will affect the future of the subject area, and participatory discussion to explore the impact technology, in particular, has been shown to particularly help students to conceptualise 'the future' (Carvalho et al, 2022).
- Relatedly, a discussion on the technology itself could also revolve around its ethical implications, such as copyright (who owns the generated content?), misuse (such as the creation of 'deepfakes'), transparency (the process of building these systems), privacy (ChatGPT saves inputs, prompting questions about data storage), sustainability (there is an environmental cost these apps), job-automation, and equity of access.
- Consider the use of Generative AI in providing students with examples of assessments that they themselves will come to do later, and ask them to critique them against the marking criteria as a formative exercise.
- Consider using Generative AI to provide scenarios for students to respond to in an assessment situation. For example, ChatGPT can be asked to generate a brief for a project, with particular parameters such as budget and timescale, for students to then complete (Saunders, 2023).
- The previous point could be further extended by asking students to use ChatGPT to generate the brief for themselves (as opposed to you providing one for them). This way, every student's project is different.
- Consider getting students to use ChatGPT to generate exercises for each other. For example, students could ask it to write a short quiz on a given topic, which they then swap with their peers. This could become quite an entertaining exercise if students try to adapt their prompt to make the quiz deliberately difficult for their peers, which may deepen their understanding of the technology itself and how it works.
- Consider getting students to use ChatGPT to generate writing prompts or starter sentences. This can be really useful in creative project contexts.
- It may be worth focusing more on the process of engaging with GAI apps, rather than the output. Exercises that focus on the relationship between prompt and response are interesting, and can highlight particular biases in the system that warrant critical exploration.

Going Further

Concerns about plagiarism and academic integrity are understandable (Eke, 2023), but there are some measures you can take to ensure the software is used responsibly and better understood in terms of its limitations. Consider the following:

- ChatGPT has been trained on a selective dataset, and selecting this data is a biased process. Algorithmic biases compound this, as it selects what it deems most 'relevant' data to return (Gašević, Siemens & Sadiq, 2022).
- ChatGPT's dataset is static (although prompts entered do update it). Consequently, ChatGPT in particular cannot reference subjects from beyond 2021.
- Most GAI apps do not consider whether the information it generates is actually correct.
- ChatGPT cannot accurately reference primary or secondary sources, but it can replicate references and bibliographies and gives no indication that sources are fabricated.
- GAI software is oblivious to the marking criteria and/or the parameters of specific assessments. Consider asking students to examine GAI responses in the context of the marking criteria to highlight its weaknesses.

Additional Resources & References

Can you help us improve this resource or suggest a future one? Do you need this resource in an alternative format? Please contact us at cie@liverpool.ac.uk

A full list of references are available on the Centre for Innovation in Education website.

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