



ENhance QUICK GUIDE

Artificial Intelligence, Student Learning and Assessment.

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What's the problem?

Artificial intelligence tools, such as, but not limited to, ChatGPT, have significantly developed to the point where they can be used by students to produce plausible texts on topics which they could submit as their own work for assessments.

AI tools work by 'learning' patterns in large data sets, in ChatGPT's case, from much of the open internet and some books. It generates text through predicting the most likely word to come next and can structure paragraphs or whole papers according to patterns it has 'learned'. It can also produce inaccurate information but in such a way that it looks plausible to most readers i.e. it states inaccuracies with confidence. However, it can learn and correct mistakes. The dynamic nature of its 'knowledge' means that it will not produce the same piece of text twice, making it difficult to match a student's text back to a 'source' in the way TurnItIn detects original sources.

Though the text produced can be quite generic, it can look and feel like the work of a human and therefore can be difficult to identify as AI generated. The data set that tools such as ChatGPT are learning from are flawed, often containing limited, biased or inaccurate information, so students who outsource (for whatever reason) their critical thinking and writing labour to such tools risk worse outcomes: in grade, in academic integrity, and, not least, in learning. The wider impact on society of graduates who may not be suitably qualified for their vocations is not inconsiderable.

As all areas of the education sector come to terms with the consequences for student learning and assessment, it is clear that there are both immediate and longer-term consequences for teaching, learning and assessment in higher education.

Why is it important?

AI such as ChatGPT present a user-friendly interface for anyone to generate human-like text which, in many cases, may be 'good enough' to pass an assessment. Additionally, a student can use multiple generated texts as a starting point for their work, edit it to better meet the assessment criteria, correct errors and insert appropriate referencing. However, the submitted assessment cannot be said to be an accurate representation of student learning. This is a threat to the validity

and fairness of assessments, and ultimately the value of degree awards.

AI tools will improve and are already advancing in imaging, video and voice generation. For now, not many AI generators use peer-reviewed literature as a data set, but it is likely this will happen, and texts will be generated which mimic scholarly texts with references.

What can we do now?

The first action is to have an open and continuing conversation with students, not least because most students will already be aware of these tools. It is helpful to remind students about what constitutes 'original work' and the value of fully engaging with the learning opportunities offered to them through conducting their own work. Additionally, it is important to tell them explicitly that misrepresenting the work of AI such as ChatGPT as their own is academic misconduct.

ChatGPT is currently free to use but will most likely be replaced with a paid-for model with more advanced learning and data. The following suggestions may be more suitable in some subject areas than others.

When designing questions for open book online exams:

- Ask students to write about something for which they have a deep interest or curiosity
- Keep away from 'generic' questions, give a specific dataset, scenario or problem
- Provide student with a real-world artefact/example to interpret or evaluate
- Ask students to come up with a design or plan to meet the needs of a client or community
- Ask questions that relate to their personal experiences e.g. where they live/are from, the University, their work/life knowledge, previous studies etc.
- Ask students to take a side in a debate

There are current limitations of ChatGPT which could be used in assessments now to reduce likelihood of students using it rather than submitting their own original work:

- ChatGPT often stumbles when presented with ethical questions, so consider inserting an ethical aspect to an assessment.
- ChatGPT is learning from a data set with limited knowledge after 2021 so include assessments which require up to date knowledge from 2022 onwards.
- Ask students to produce work on a narrow and highly specialised area of knowledge which is not generally available online.
- Require accurate citation and referencing, ChatGPT does generally not generate citations or references, and when it does, they are often fictitious.

- Ask students to conform to a pre-set structure for their work e.g., give headings for sections of an essay. ChatGPT works on more generic structures.
- Ask students not to use bullet points but write in full sentences. ChatGPT frequently uses bulleted lists.

Ideas for the classroom:

- In class set aside time for group/peer discussion of coursework
- Take time in a timetabled session for a classroom exercise where students write in long hand, or using an assistive technology of their choice, to plan for a forthcoming submission which they hand in at the end of the class. The use of AI tools are not permitted during the exercise.

And for using AI tools in the classroom:

- Use an AI tool for assessment literacy e.g., ask students to critique and grade a piece of text produced by an AI tool using the rubric that their own work will be assessed against.
- Ask students to use an AI tool to produce an outline for their coursework.
- Use an AI tool as speaking partner during class 'think, pair, share' discussions .

There may be some grounds for caution in submitting work to an AI tool, both from an ethical and privacy perspective; open discussions with students about whether their input is training AI to benefit of private companies can be a good starting point for developing critical thinking about digital technologies.

The following suggestions could help ensure or verify authenticity of students' work:

- Conduct a short individual dialogue with students about their submission where they talk about the process of producing their submission.
- Ask students to supplement their work with a short personal statement about their learning during the module/coursework e.g., what they found challenging, what helped them learn, what surprised them.
- Ask students to supplement their submission with a visual representation of their work e.g., infographic, drawing, video.
- Ask students to submit documents with 'track changes' enabled so you can see the history of the document's revisions over a period of time.
- Ask students to compile a portfolio throughout the trimester which captures their learning and writing processes e.g., timestamped photos, screenshots, photos of handwritten notes, essay plans etc.

What do we need to do in the longer term?

A longer-term approach to assessment redesign in light of these issues may require revisiting modules' learning outcomes and assessments. Authentic assessment, which requires students to produce a personalised and original piece of work in response to a real-world prompt can be difficult for AI to produce. The veracity of authentic assessment can be strengthened by requiring the student to make their work shareable with others beyond the module team e.g., peers, the university or the wider world.

Looking to the future work environment for our students, it is likely that AI will play a role in many workplaces and learning with modules can be the means for students to develop skills to critique, verify and refine AI-generated outputs. Shifting the focus of learning from the retention of knowledge to uniquely human skills such as working with such tools can help. Assessments which require creativity, original thinking, working across different media and in dialogue with others, whether peers or academics, will help ensure the authenticity of student work.



Further Reading:

Costello, E. & Brown, M. (2022, Sept 27). *Will artificial intelligence be able to write my college essay?* RTÉ Brainstorm, Tuesday, <https://www.rte.ie/brainstorm/2022/0927/1325695-students-ai-algorithm-essays-technology/>

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Learning Design and Teaching Innovation, (n.d). *A Guide for Academics – Open Book exams.* University of Newcastle, https://www.newcastle.edu.au/_data/assets/pdf_file/0006/268980/LDTI-Open-Book-Exams.pdf

McKnight, L. (2022, Oct 14). Eight ways to engage with AI writers in higher education, *Times Higher Education*, <https://www.timeshighereducation.com/campus/eight-ways-engage-ai-writers-higher-education>

Swiecki, Z; Khosravi, H.; Chen, G.; Martinez-Maldonado, R; Lodge, J. M.; Milligan, S; Selwyn, N; Gašević, D. (2022). Assessment in the age of artificial intelligence. *Computers and Education: Artificial Intelligence*, 3, 100075. <https://doi.org/10.1016/j.caeai.2022.100075>.

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Notes