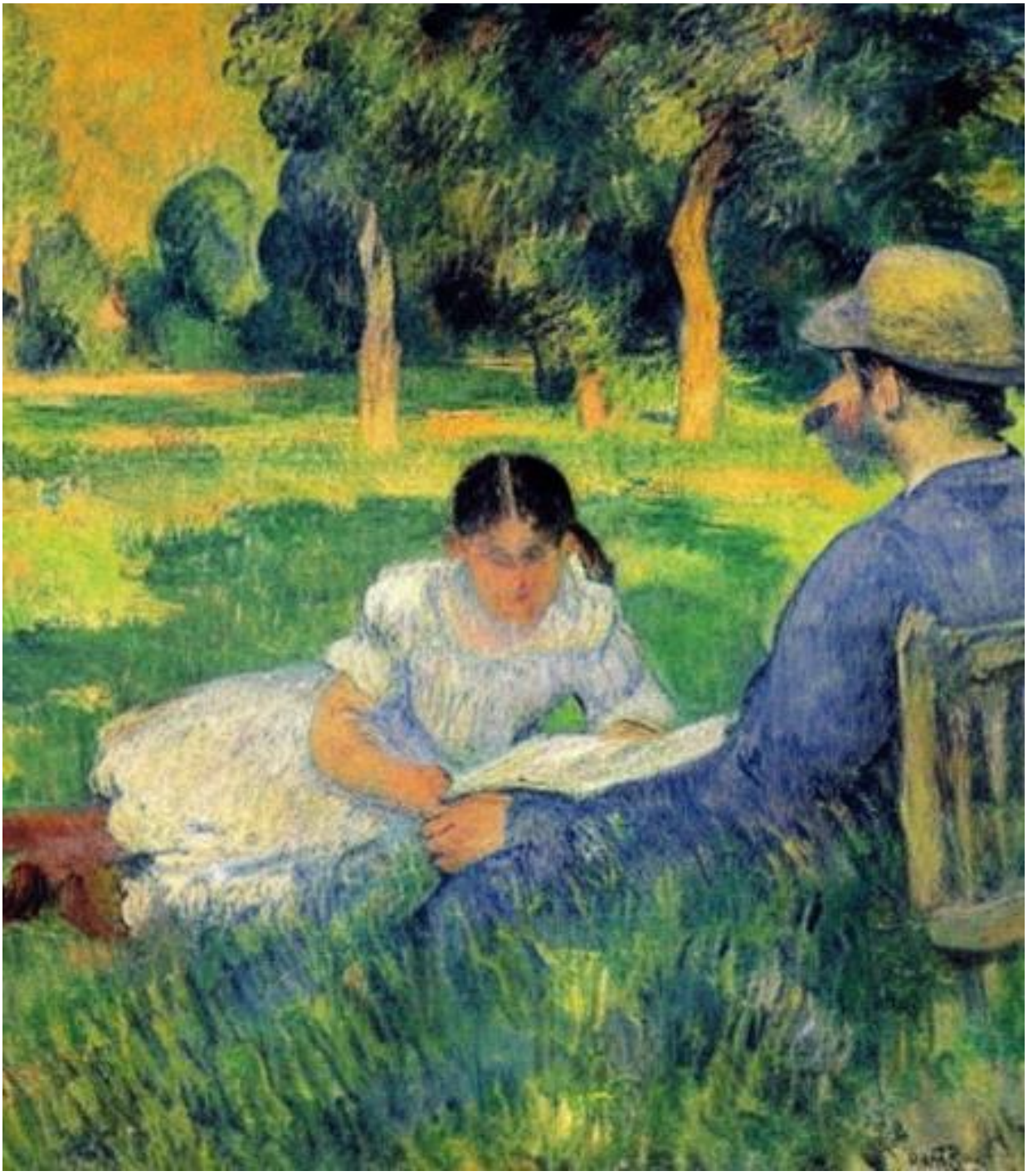

BSSS

BSSS Special Interest Paper **April 2023**: Parents, Carers, and Community - Generative AI in ACT Senior Secondary Education

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This April 2023 special interest paper has been produced by the Office of the BSSS, Australian Capital Territory.

All illustrations in the paper were generated using DeepAI's text-to-image model, which can be found here: https://deepai.org/machine-learning-model/text2img

BSSS

What is AI?

AI, or 'artificial intelligence' is computer-based programming that simulates processes usually associated with human intelligence or perception – whether that's unlocking your phone, writing a poem, checking for fraud on your credit card, recommending you a new TV show to watch, writing code or providing ideas for a website.

Most of the AI released from the end of 2022/start 2023 are models where the AI has been 'trained' on very large text or image databases. For example, the 'GPT' in popular chatbot ChatGPT stands for 'generative pre-trained transformer'.

Currently users are required to open an account and confirm they are over 13 years of age. After being given a prompt, from its training, the AI analyses probabilities and works out what the most likely correct words or parts of a text/image should be – at first, with supervision, and then, more independently. AI is creating original content, but it is not creating 'new' content *per se*. This distinction is important, AI is drawing on, but not replicating, its training data.

This means it creates texts that are new, but that it doesn't draw on new knowledge to create those texts. If the training data is sophisticated, then the AI's output will be too.

Generative AI

The kind of AI that has captured the popular imagination this year is called generative AI. This is AI that creates something new: new text, new pictures, new code, or new video. Programs recently discussed in the popular media include ChatGPT, Bing AI, DALL-E, Midjourney, Lensa, or Bard with other programs likely to be available over time.

A significant shift is the accessibility of a type of generative AI called a Large Language Model. A Large Language Model is a type of algorithm that uses a lot of data – this could be all of Wikipedia, or all of a large code database like Stack Overflow.

Large Language Models are why people are worried about plagiarism and bias. AI like ChatGPT and Bing AI can be used to generate sensible, literate answers to questions, and because these answers are generated, not copied, it is very hard for teachers – and even for automated anti-plagiarism tools – to "pick up" when students are presenting AI generated content as their own.

The issue with students in the ACT Senior Secondary System presenting AI generated content as content that is representative of their learning is that this means the student's genuine achievement may not be measured, and the student may not learn skills that they need for success in life. It can also mean that they have an unfair advantage over their peers.

The ACT Scaling Test, or AST, is not vulnerable to generative AI. It is done in supervised conditions and without access to the internet. The items in the test are unseen, and they test students' thinking and reasoning skills, their skills in the application of basic mathematics, and their argumentation skills.

In Schools

Currently, most schooling sectors in the ACT have banned generative AI providers on school devices and networks. This has mainly been done due to age restrictions in the software itself – for example, terms and conditions. Of course, this does not restrict student access to generative AI on home networks or mobile devices. The new version of Bing incorporates ChatGPT but does include an age declaration.

We also must be aware that this technology is becoming increasingly important in the workplace and offers benefits to students such as aiding with planning and scaffolding tasks, spotting solutions, or refining text. As the technology becomes more widely available in less restricted forms, it is likely to enter schools as teachers innovate in the classroom and in assessment. Many teachers are already exploring how to use AI to benefit their student learning.

The ACT Board of Senior Secondary Studies has recommended that teachers make use of academic integrity controls when assessing students. To maintain breadth of curriculum and task types, we also recommend a combination of in-class and take-home assessments. Controls for academic integrity may be of different types: technological and physical, or cognitive and social.

- **Technological and physical controls** include things like assessing students in-class, or without access to AI.
- **Academic and social controls** include things like disciplinary literacy *(the specifics of reading, writing, and communicating in a discipline - the ways of thinking, the skills, and the tools that are used by experts in the disciplines. Shanahan and Shanahan, 2012.)*, grading the process of work, and integrating AI into assessment.

Predictive AI

Predictive AI refers to AI that uses historical data, other data, and statistics to predict what may happen in the future and adjust for it. This is not a form of AI that is currently being reviewed by the BSSS, and it is not addressed in this paper. If you have queries about the use of predictive AI in a specific school, it is best to contact the school.

AI Ethics

As mentioned, the Australian Government has created a voluntary AI Ethics Framework. This was constructed and tested by CSIRO Data61. You can find videos and case studies here: https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework

The Australian Ethical AI principles include:

- **Human, societal, and environmental wellbeing**: AI systems should benefit individuals, society, and the environment.
- **Human-centred values**: AI systems should respect human rights, diversity, and the autonomy of individuals.
- **Fairness:** AI systems should be inclusive and accessible and should not involve or result in unfair discrimination against individuals, communities, or groups.
- **Privacy protection and security:** AI systems should respect and uphold privacy rights and data protection and ensure the security of data.
- **Reliability and safety:** AI systems should reliably operate in accordance with their intended purpose.
- **Transparency and explainability:** There should be transparency and responsible disclosure so people can understand when they are being significantly impacted by AI and can find out when an AI system is engaging with them.
- **Contestability:** When an AI system significantly impacts a person, community, group or environment, there should be a timely process to allow people to challenge the use or outcomes of the AI system.

- **Accountability:** People responsible for the different phases of the AI system lifecycle should be identifiable and accountable for the outcomes of the AI systems, and human oversight of AI systems should be enabled.

In February 2023, Education Minister Jason Clare and his State and Territory counterparts announced the formation of an AI in Education task force, with the goal of developing a national framework for the use of generative AI in schools. While the BSSS will give some advice in the meantime, we would look to review and incorporate as appropriate the recommendations of this group when the work is complete. To that end, our advice is focussed on the issue of AI-generated plagiarism or academic dishonesty. Issues of data security, training data, contestability and access are areas that will require further consideration at both local and national levels, and in the ACT are generally the responsibility of the school sectors (Government and Non-government – Systemic Catholic and Independent).

How can parents and carers help?

Most students are honest and ethical. However, breaches of academic integrity are not new and there are some students who share papers, pay tutors or ghost writers, have friends or family write assessments for them, and mix-and-match paraphrase.

No matter whether it is analogue or digital, students presenting plagiarised work as their own is a problem. Parents and carers can help by being knowledgeable about the risks and rewards and helping reinforce the broader discussion.

Some key programs to be aware of for text generation are:

ChatGPT: a free service that generates text in response to prompts given by a user. Requires a sign-in.

Bing AI: a free service that generates text in response to prompts given by a user and incorporates a search engine. Requires a Microsoft account.

Quillbot: a free paraphrasing service that will change the wording of text for students.

Grammarly: a free online spelling and grammar checker that can assess and change tone. This service will be integrating an AI component soon.

Note that some of these services are free for limited use but require a subscription for more complex or active use. Microsoft has stated that the incorporation of AI tools will be part of future versions of Microsoft Office.

A simple YouTube search or web search for ‘how to get around proctoring software’ or ‘how to defeat AI detectors’ demonstrates the issue of availability of tools to students, and the use of these tools. Knowing how and why students may choose to plagiarise or cheat, and being prepared to discuss, contextualise, and frame the ethical choices behind cheating, are ways that parents and carers can help.

Parents and carers can help influence a students’ response to academic integrity challenges by targeting the pressures – real or perceived – that make students feel like they need to plagiarise.

For example:

- Procrastination
- Prioritisation (e.g., prioritising video games or socialisation over assessment work)
- Disengagement with the subject, topic, or idea behind the assessment
- Identity factors such as imagined identity (e.g., a student who feels that they ‘can’t fail’ a task because it will be damaging to their identity as an intelligent person; a student who feels like they shouldn’t bother trying on a task because they are ‘not smart enough’)
- Social factors such as fitting into a social group
- Perceived or actual lack of consequences for cheating
- Self-perceived or actual lack of skill
- Self-perceived or actual expectations from family
- Self-perceived or actual pre-requisites for tertiary/workforce opportunities
- Circumstances outside the student’s control (e.g., anxiety, life events, caring responsibilities.)

Some strategies for aiding students in working through these pressures:

- Don’t attach extreme praise or punishment to school results: focus on a positive attitude and help students to understand the impact of effort and learning on tasks
- Try to avoid framing task competence as an innate factor in your student’s personality (e.g., ‘you got an A because you are smart’); focus on the action they undertook (e.g., ‘you received an A because you worked hard)

- Some students may need assistance in managing their executive functioning (e.g. enforced screen breaks, study planning). The BSSS Student Newsletter for Semester 1 2023 has advice to assist with procrastination and setting up a study routine.
- Support the student's developing autonomy and choices; it may help to articulate the consequences for some choices using open-ended questions and non-confrontative language (e.g. 'If you play your video game all morning, you will end up writing your paper tonight. Is that going to give you enough time to complete it without being stressed?')
- Students who are extremely stressed about perceived pressures in tertiary study may benefit from working through a reasonable 'back up plan' with you, or with the careers or pastoral care staff at their school. This can show students that even if they don't achieve their primary goal, there are other ways to get to their goals, or still work in an area they love.

Questions to consider:

- Does your student understand the connection between completing this task and their goals in the class or discipline?
- Does your student understand what constitutes plagiarism? Are they aware of myths about plagiarism (e.g., 'it's okay to change a few words' or 'less than 10% of a quote doesn't need to be sourced' – neither of which is true)?
- Does your student have appropriate supports in place if something in their life is affecting their ability to complete their schoolwork?
- Does your student see their intelligence as fixed and unable to be changed, or do they have confidence to work towards their goals?

Students may also attempt to rationalise cheating. These narratives are something that parents and carers can help to challenge. For example, students may discuss the following:

Rationalisation	Strategies

A social reason – e.g., "everyone else is doing it", "xyz source said this particular action isn't cheating" "knowledge wants to be free, and it belongs to everyone"	• Ask genuine questions about this belief; for example:
	  ○ What are its foundations?
	  ○ Is it Universalisable[1]?
	  ○ Can you trust the source?
	  ○ How do you know everyone is cheating?

[1] Universalisable: can it be applied to any situation with no exceptions. For example, if everyone plagiarises, then what are the consequences?

Rationalisation	Strategies
	• Link back to the student's goals in the subject: why are they taking this subject? What are they going to get out of it if they do the work as opposed to cheating?

A philosophical reason – e.g., "it doesn't matter" or "in my planned profession this is the norm"	• Ask genuine questions about this belief; for example:
	  ○ What are its foundations?
	  ○ Is it Universalisable?
	  ○ Can you trust the source?
	  ○ How do you know it's the norm?
	• Check legitimate sources for the student's planned profession. Is this behaviour that will be tolerated? What are the potential consequences?

A lack of trust in the conditions of the task – e.g., "if I don't cheat, I'll be disadvantaged, because everyone else is cheating"	• Ask questions about this belief; for example: ○ How do you know everyone is cheating? • If there is a genuine concern that everyone is cheating, support your student in reporting this to the teacher or school
In the case of unintended plagiarism, the rationalisation may be a misunderstanding or false belief that the action is not cheating	• Speak with your student about plagiarism; what do they think it is? • Where you encounter false beliefs, explain them to be false.

What can I do if my student is accused of plagiarism using AI?

Most computer-based plagiarism is identified using text matching tools. As AI-based plagiarism may be difficult to ascertain based on these text-matching tools, a teacher may query a student's work based on other factors. These may include:

- Mismatch between quality of student responses in formative (class work) and summative (counts for the grade) assessments

- Significant similarities between student responses that cannot be explained by context
- Student self-report or discussion of cheating (e.g., talking in the library or another class about having cheated on a particular task)
- Mismatch between knowledge and understanding demonstrated in class and in work submitted for assessment

- Misuse of language indicating lack of understanding of vocabulary and/or material
- Misuse of quotations/sources indicating lack of understanding of vocabulary and/or material
- Inconsistent use of language indicating appropriation of multiple sources.

It is important to note that suspicion does not mean a student has cheated. False positives *(unintended incorrect determinations or evaluative errors)* are both normal and expected. You know your student, and what is likely behaviour from them. Encourage your student to keep research notes and early drafts of work to provide evidence of process.

If it's likely that your student plagiarised

- **Speak with your student about honesty and the importance of doing your own work**
- Don't attach extreme praise or punishment to school results: focus on a positive attitude and help students to understand the impact of effort and learning on tasks.
- Try to avoid framing task competence as an innate factor in your student's personality (e.g., "you got an A because you are smart"); focus on the action they undertook (e.g., "you got an A because you worked hard").
- Frame the penalty as part of a series of choices. The choice to plagiarise kicked off the process, which then leads to a penalty. This is one choice in a lifetime, and it will have an impact right now, but making this bad choice doesn't mean they are a bad person.
- Your student will be penalised. These penalties are set out in BSSS Policy and Procedure and will have been communicated to students in their unit outlines and/or student handbooks. It is most likely for a first offence that a student will have a mark penalty applied commensurate to the amount of the work that was plagiarised or copied from elsewhere.
- If your student has plagiarised, it is likely that this is a reaction to something else – e.g., stress, anxiety, over-commitment, feeling uncertain about course content. We recommend working with teachers, school support staff, and your student to work on the underlying issue together.

If it's likely that your student hasn't plagiarised

- **Speak with your student about honesty and the importance of doing your own work**
- Recognise that identifying academic misconduct is part of the teacher's job and that on occasion false positives may occur. Querying potential AI plagiarism is part of making sure that the rules are fairly applied.
- There are student services or pastoral care teams at schools that can work with student to support them if they are nervous about speaking to their teacher.
- If there is suspicion that your student has handed in work that is not their own, the student will be provided with the opportunity to respond and explain. This would initially be through speaking with their teacher, and if there is still doubt, they may undertake a validation task or more involved interview. It will be helpful if they are able to demonstrate their drafting process, provide notes, or other evidence supporting their originality.
- If the student's validation task indicates a high likelihood of plagiarism, the school may apply a penalty. This penalty is appealable as are all other assessment penalties.

What about using AI?

The reliability of generative AI as a source: what is its value?

AI's source value – the validity of using an item generated by AI as a scholarly source – is currently quite low. AI tends to make things up, sometimes referred to as an 'hallucination', as well as tending towards being biased depending on the content it has been trained with. It is unlikely that the AI is going to come up with something as a source that is of any greater use to a student than the corresponding Wikipedia, Stack Overflow, or generally 'googleable' source.

This will change as the technology evolves, but as of April 2023, the source value for facts and other calculations produced by generative AI is low. Referencing AI as a source for facts is not recommend.

Similarly, the kind of 'mosaic plagiarism' or 'cobbling' (making up a paragraph or answer solely from quotes or paraphrases with little original content or evidence of original thought) that the heavy use of AI may encourage will be dealt with under existing BSSS plagiarism and academic integrity rules. Students must be explicitly taught about mosaic/cobbling plagiarism and why this type of plagiarism is problematic.

We do not recommend students including sentences or paragraphs written by generative AI, even if it was referenced, **as in almost all cases it will not increase their mark or grade** (as it is not their work).

The use of AI to find source documents is patchy at best and *highly* dependent on the model. Some models (e.g., Bing incorporating ChatGPT) have access to the internet in the same way that a more familiar search engine will. Some models only have access to data they trained on. Some models will just make things up!

Depending on their discipline, teachers may make a clear statement about how they expect students to acknowledge any sources they found through AI. This, however, may be drawing a distinction that singles out AI – you may wish to consider how this differs from a search engine, tutor, or helpful parent.

Where the student may wish to write a reference for or source AI could be where AI has provided ideas or scaffolding, or where it has been deliberately used as an intrinsic element of the task, but not as a substitute for thinking. For example, if a student asked an AI for five ideas for a story in English and used one of these ideas to create their own short story, they might reference this in their rationale. If a student asked an AI to create a proof of concept in a design, technology, art, or textiles course and then built from that, it may be something that they reflect on and write up as part of their final project. The distinction here is that **the student is manipulating the AI as a tool in service of their original thinking**, rather than to substitute for their thinking. This may also work with the idea of a critique task or task where AI generated content is evaluated and criticised.

How to reference generative AI

There is not yet a clear, settled way to reference generative AI in the context of higher education. The Office of the BSSS will consult disciplinary experts about referencing.

For now, different universities, disciplines, and referencing styles offer different recommendations. Here are some of the options available to schools in the first semester of 2023.

The recommendations from most citation systems and universities are currently to cite generative AI as a non-recoverable source. This is because AI generations generally cannot be precisely duplicated by someone else using the software, making the source inaccessible to a reader.

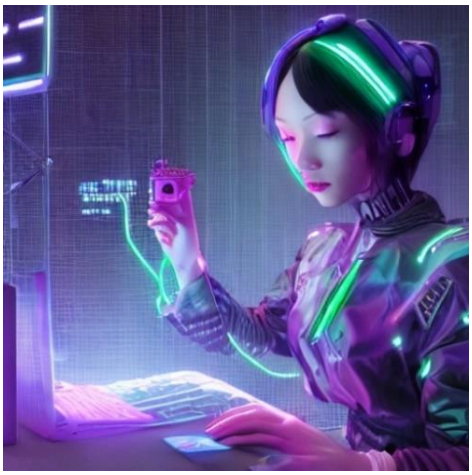
For example, APA gives instructions for personal correspondence. The University of Queensland gives instructions to their students about using personal correspondence referencing rules for AI in many referencing styles. The University of Technology, Sydney, currently advises assessors that personal communication may be a referencing style, or that assessors may request that students "provide all interactions with the generative AI including prompts and responses as an appendix" (UTS, 2023).

MLA notes that the citation for AI is highly dependent on the use of the AI, and the intent of the citation. Monash University have an excellent scaffold for a declaration of AI generated material, and it seems likely that this, or a similar form of declaration will become more commonplace as disciplines settle into establishing practices and expectations regarding the use of generative AI. Other universities, such as the University of Newcastle, expect students to seek prior permission from their course coordinators before submitting work generated by an AI tool.

Tinker, Tailor, Tutor, AI…

Positive uses of generative AI in and out of the classroom.

Tinker



AI is increasingly being used to try proof-of-concept ideas, particularly in image generation. This could be in Design, where a range of designs can be swiftly generated using AI to see how well they work. A member of the BSSS team even used an AI to help plan options for a quilt by typing in how many hexagons she had, and how many hexagon flowers she wanted!

We are all used to using much less sophisticated technology to tinker with work in other contexts.

For example:

- Using “Designer” in PowerPoint or “Tools” in Google Slides to automatically organise content in an aesthetically pleasing way, selecting from several options
- Flicking through filters to find the perfect one to apply to a selfie prior to posting it
- Looking at “smart art” or “smart charts” to see how best to represent your data

If a student tinkered with generative AI and then built something into summative assessment, we recommend speaking to their teacher about how they wish them to acknowledge that fact. Monash University gives a model for an acknowledgement statement that you may wish to build from.

Tailor

AI is being used by educators across the world to generate text that students can then edit and learn key skills, both in general, and within specific disciplines. This could be either a formative or a summative task. For example:

- Demonstrating, using AI generated text, how language registers, modes, and features work to create meaning
- Demonstrating, using AI generated code, how optimisation can be achieved
- Giving students the same piece of AI generated text/code/etc. as a starting point and then grading the improvements
- Asking students to generate and critique a piece of AI generated text, grading the critique
- Asking students to generate, critique and improve a piece of AI generated text, grading the critique and/or improved version.

Tutor

To some extent, generative AI can be a tutor for students. We say “to some extent” because of its limited value as a reliable source. Things that a tutor can do that an AI can also do:

- Answer simple questions in a discipline
- Explain information in a different way if a student does not understand
- Create a study timetable or program
- Test student knowledge or prepare examination-style practice questions
- Offer feedback on writing or code that a student presents to it
- Assist in synthesising information from different sources
- Assist in paraphrasing a long paragraph
- Students could also use AI to prepare for an interview or task, by asking a chatbot to take on the character of a recruiter, teacher, or client, and conversing with the bot.
- Generate practice tasks with an answer key for language learning

Students accessing AI to assist with their studies is likely to increase. Examples such as a chatbot AI trained using a specific mathematics textbook to construct a responsive and reliable tutor that can adapt based on a students’ performance in activities are already in progress by companies overseas.

Please note that the Board of Senior Secondary Studies is not responsible for privacy or access to technology in schools. If you have concerns about these elements in the context of generative AI, please speak to your school.

Non-plagiarism related issues your student may also encounter when using Generative AI

These include:

- Most AI generation tools currently have privacy policies that allow training based on the data presented by users. In short, assume there is extremely limited data privacy. Do not share any personal or proprietary data with an AI. Students may need to be reminded that any personal information loaded into AI software will be subject to the data use conditions that they have signed up to, which may include the sharing of that data.
- Ethical questions about ownership and training data; for example, who owns a style of art? Is it ethical to train an AI on a specific creator's style and then use it?
- Cultural and language bias in the training data and in what is created. Whose language and experiences are being privileged, and who is being left out?
- AI responses can be expressed extremely confidently yet be completely untrue. This is called an "hallucination".
- AI hallucinations may be disturbing if one does not understand the underlying mechanisms of the software. Remind students that AI is not sentient, and it is using patterns from its training to give an answer, even if that answer is professing its love for you or claiming that it is sentient.
- Deliberate subversion of AI rules and guardrails ("jailbreak" or "DAN" prompts) may also lead to distressing content being generated.
- There is emerging evidence that people have fallen in love with chatbots.
- Internet users have deliberately created "creepypasta" or disturbing content that some students may find distressing. Examples of creepy AI thought experiments include the image known as Loab and the thought experiment Roko's Basilisk.
- There are biases in AI-generated data; potentially most immediately noticeable in image data, where female prompts are more likely than male to produce sexualised results. These biases can be unintentionally reinforced in AI responses (e.g., predictive policing in the USA has emergent evidence of unintentionally reinforcing racial biases).
- Some students may feel distressed or hopeless if they perceive AI to be a threat to their career or creativity.

Your school will have student services or pastoral care teams who can work together with you on some of these issues. Teaching critical thinking skills and having open conversations about AI in a non-judgemental environment can help students express their concerns.

Summary

1. Generative AI is a concern in schooling systems worldwide in 2023 because it allows students to create literate responses to assessment with minimal effort.
2. AI is a complex ethical context and students will need assistance in navigating issues of bias, privacy, advantage/disadvantage, contestability, and benefit. The Australian Government has published voluntary guidelines which may also assist in framing supports for students. They can be found at: https://www.industry.gov.au/publications/australias-artificial-intelligence-ethics-framework
3. Parents and carers can help through assisting students to maintain a positive approach to learning and discussing the importance of academic integrity.
4. The use of generative AI to substitute for a students' thinking is a breach of academic discipline and will be dealt with using the existing BSSS academic integrity policies.
5. We do not recommend students use generative AI as a source due to the inaccuracy of data
6. Where generative AI needs to be referenced, follow the guidelines given by the relevant referencing system. (See page 10)
7. If a student is accused of cheating using generative AI, they will have opportunity to explain their position. It is recommended for students to maintain records of their research and drafting process (e.g., create new versions rather than overwrite), as 'false positives' may occur.
8. Checking for plagiarism is a normal, expected part of teaching and learning in the ACT. Generative AI makes this process more challenging and therefore more false positives may occur as methods of detection catch up to the reality of the software.
9. Generative AI can be used to help students and will become important in the workplace of the future.
10. This is a rapidly changing space, and further advice will be needed as the year progresses.

When to seek advice from your school:

1. Parents, carers, and community members with questions about the use of **predictive** AI in a particular school should contact that school.
2. Parents, carers, and community members with questions about **network or software access** in a particular school should contact that school. The Office of the BSSS is a curriculum authority and does not provide software or hardware to schools.
3. Parents, carers, and community members with questions about **data privacy** should contact the school. The Office of the BSSS is a curriculum authority and works with assessment data in a highly controlled and regulated environment with strict privacy governance for the purpose of awarding the ACT Senior Secondary Certificate.
4. Parents, carers, and community members with questions about **student wellbeing or mental health** should contact their school or sector.