



Australian Government

Tertiary Education Quality and Standards Agency

# TEQSA submission to the Inquiry into the use of generative artificial intelligence in the Australian education system

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**TEQSA**

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# Preamble

TEQSA is highly supportive of this inquiry into the use of generative artificial intelligence in the Australian education system, and welcomes the opportunity to provide input to the inquiry.

As Australia's independent regulator for higher education, TEQSA's purpose is to deliver quality assurance that protects the interests of students and the reputation and standing of Australian higher education. The [Higher Education Standards Framework \(2021\)](#) is the primary legislative instrument that sets out the matters that a higher education provider would ordinarily be expected to address in the course of understanding, monitoring and managing its higher education activities and any associated risks. Providers are expected to be compliant with the Standards at all times.

Noting this inquiry will receive submissions from other agencies with responsibility and deep expertise in other segments of Australia's education system, we have focussed our submission primarily on the use and impacts of generative artificial intelligence in higher education. However, due to TEQSA's engagement with assessment design and artificial intelligence researchers at Australia's universities, we have added brief comments of relevance to the early, primary and secondary education sectors, where we believe this information may be of use to the Committee.

As an overarching comment, TEQSA notes that as the technology will only become more powerful, there is a need to focus not solely on the specific capabilities and limitations of the current generative AI tools, but rather on principles and regulations that we want to apply to a context of rapidly enhancing technological capability. The pace of change will continue to accelerate, and educational legislation, frameworks and institutions will need to become more agile to remain relevant and competitive.

Any discussion on the opportunities and risks of regulating AI in education needs to recognise its place in the global ecosystem of AI regulation. Similarly, it will be important to understand what components of a desired AI regulatory framework are already covered in existing regulation, and whether reducing duplication outweighs the benefits and clarity of a single AI regulatory framework and oversight body.

# 1. The strengths and benefits of generative AI tools for children, students, educators and systems and the ways in which they can be used to improve education outcomes

Generative AI tools offer diverse potential benefits for students, educators, and educational systems. Many of the potential benefits to students and educators at the tertiary level are equally relevant to other segments of the education system, collectively referred to in this paper as the school sector.

## Personalised learning experiences

Generative AI tools can enable more frequent, rapid, and detailed analysis of student outcomes and performance, as well as student engagement. Through a combination of automation and teacher reflection, these tools can help educators provide regular and personalised feedback to help students improve their understanding and performance.

By utilising machine learning, AI tools are capable of acting as tutors for individual students, by identifying concepts that require further explanation or refreshing, and offering different ways of presenting the information to the student to support learning.

Of particular relevance to the school sector, AI can help present the analysis in appropriate ways to different audiences – such as crafting separate summaries for teachers, parents, and students. Such capability would increase the capacity for students to receive immediate and targeted support from both teachers and parents as soon as any concerns arise.

## Reducing administrative burden for educators

Educators can leverage AI for support in designing lesson plans, creating exemplars of course material, providing feedback on assessment tasks, identifying concepts that individuals or groups of students are struggling to master, and analysing performance of students.

By reducing the administrative burden, generative AI tools have the capacity to free up valuable educator time for more meaningful engagement with students, colleagues, and professional development.

## Supporting education systems

The Higher Education Standards Framework sets out requirements for institutions to have processes for identifying individual students at risk of unsatisfactory progress (Standard 1.3.4) and for ensuring that trends in student outcomes are used to enable review and improvement (Standard 1.3.5). Such 'systems level' requirements can benefit from the application of generative AI tools to streamline data analysis and presentation.

AI can also contribute to more effective allocation of resources, whether they are human, physical, or electronic. By leveraging data and analytics, educational institutions can optimise their resource distribution, and potentially move to a shared-infrastructure model, ensuring

resources are utilised efficiently and effectively. In the school sector, this may minimise disruptions caused by teacher absences or discipline-specific shortages.

Generative AI tools also have the potential to facilitate more effective and targeted regulation in education. By analysing vast amounts of data, these tools can identify patterns, trends, and areas for improvement, enabling policymakers and administrators to make evidence-based decisions to enhance the overall quality of education.

## Mitigating disadvantage

Of relevance to the school sector, generative AI tools could provide additional support to disadvantaged cohorts as an “AI butler or buddy”. Acting as a career counsellor, the AI buddy conducts conversations that individuals without social capital often miss out on. For example, these tools can help students understand potential career paths based on their interests and capabilities, as well as the study paths required to pursue those careers, and associated admissions processes. This support bridges the gap in access to valuable information and guidance, empowering disadvantaged students to make informed decisions about their futures.

Generative AI tools could be used to develop augmented reality experiences, which could be particularly beneficial for remote and low socioeconomic status (SES) schools. Virtual field trips could be facilitated, offering students immersive learning opportunities that would otherwise be inaccessible. Given historical challenges with equitable resource allocation, especially with emerging technologies, it would be essential to ensure that those schools most in need receive both the technology and the necessary infrastructure and teacher training to make best use of it.

Further exploration of the potential applications of AI to mitigate disadvantage in higher education access and achievement is provided in response to Question 4.

## 2. The future impact generative AI tools will have on teaching and assessment practices in all education sectors, the role of educators, and the education workforce generally

Generative AI tools are expected to have a significant impact on teaching and assessment practices across all education sectors. However, accurately predicting this impact is challenging, and the focus should be on shaping the future scenario we desire. To do so, we must revisit the fundamental purpose of education for individuals and society and structure an education system that effectively fulfills that purpose.

### The role of educators and the education workforce

It is critical that the policy objective is to use AI to support educators to be more effective, rather than aiming for efficiency gains that could lead to fewer educators. Teachers and academics will remain vital in supporting students’ development of knowledge, skills,

experience, and expertise at all levels of education. While the role of educators may evolve, their importance as conduits for learning must persist.

## Impact of AI on course design and description of learning outcomes

The higher education sector, and the education sector more generally, will need to be engaged in ongoing reflection on the evolving landscape of knowledge. Domain 3 of the Higher Education Standards Framework Standards require a provider to specify the learning outcomes for a course, including demonstrating their consistency with the field of education and level of qualification awarded. These learning outcomes must include generic, employment-related and life-long learning and also be informed by national and international comparators.

The rapid advancement of large language models is forcing educators to think carefully about what knowledge still needs to be taught when so much information can be so readily synthesised by AI. Some courses, particularly in tertiary education and specific disciplines, may quickly become outdated and require regular review and updates. This will only be enabled through the development of more agile systems of governance that are capable of being more responsive to changing context while upholding the integrity of the qualification.

It is critical that the process of course design and review engages carefully setting the learning objectives, to ensure they are contemporary and appropriate in the age of AI, and will produce graduates with both discipline-expertise and the ability to use technology effectively and ethically.

## Impact of AI tools on assessment practices

The emergence of AI tools capable of completing a substantial portion of traditional assessment tasks necessitates a re-evaluation of the purposes of assessment. While AI presents the opportunity to assess students on higher order cognitive skills, it is important to recognise that foundational content knowledge will continue to hold significance, especially in certain disciplines.

It is crucial that the education sector develops new methods of assessment that can ensure learning outcomes in an age of AI tools to prevent an uncoupling of learning and assessment, which could have far-reaching consequences.

The student/AI hybrid model also presents potential challenges for teachers, as they may need to assess the extent to which a student has modified the output of AI-generated work. This could increase the workload for teachers and require additional evaluation measures.

While generative AI tools have the potential to revolutionize teaching and assessment practices, careful consideration of the purpose of education, the role of educators, and the evolving landscape of knowledge will be critical in harnessing the benefits of AI in a way that is inclusive and mitigates potential negative consequences. To effectively navigate an AI-dependent environment, ongoing professional development will be essential for teachers, school support staff, administrative personnel, and policymakers.

### 3. The risks and challenges presented by generative AI tools, including in ensuring their safe and ethical use and in promoting ongoing academic and research integrity

Safe and ethical development and use of AI in educational contexts cannot be assumed by default but must be ensured through effective regulation that recognises and aligns with broader AI regulations. Robust AI governance systems can help ensure that products developed for and used by the education sector deliver on society's goals, rather than serving the interests of ed-tech companies. In being responsive to the risks posed, regulation must be mindful that the threat landscape is evolving rapidly.

While generative AI presents risks that extend beyond the education sector, the education sector has a key role to play in ensuring the rise of AI and increasing acceptance of a human/AI hybrid model of learning does not result in "enfeeblement." This refers to humans increasingly relying on machines, losing the ability to self-govern, question AI outputs, and intervene for the benefit of humanity, resulting in poorer outcomes. The education sector will be a crucial partner in ensuring society is able to strike a balance between the capabilities of AI and the retention of human critical thinking, creativity and decision-making skills.

#### Risks to research integrity

Domain 4 of the Higher Education Standards Framework sets out expectations for all institutions relating to research and research training. In brief, the standards require institutions to carry out research and research training in line with institutional policy frameworks that ensure ethical and responsible conduct of research, management of intellectual property and accurate recording of research outputs.

The increasing sophistication of AI poses diverse risks to research integrity, and TEQSA is engaging with the higher education sector to ensure that these risks are being recognised and reflected in updated institutional policy frameworks and the associated practices.

AI has the capability to generate not just fake data, including false or doctored images, but entirely manufactured studies and journal articles. Images generated by AI are becoming increasingly difficult to detect and can compromise the integrity of research findings.

Additionally, the administrative burden of the scientific peer-review process may result in reviewers outsourcing the review to AI systems to either provide the reviewer with a summary or provide feedback. AI systems do not hold the same level of detailed expertise of a human discipline expert, which may result in fewer erroneous or misleading research findings being identified prior to publication. Decreasing genuine engagement by experts with novel research in their field also presents a risk to innovation and collaboration.

There are significant risks to intellectual property where sensitive pre-published research findings, doctoral theses presented for examination or grant applications are uploaded to a third-party platform, and TEQSA is working with institutions to ensure they are proactively managing these risks through their policies and contracts.

If not appropriately managed, AI has the potential to dilute the quality of published research, obscure genuine research in a sea of AI-generated content and ultimately undermine the public's trust in the scientific process.

## Risks to academic integrity

Standard 1.4 of the Higher Education Standards Framework (HESF) 2021 sets out expectations that methods of assessment are sufficient to enable students to demonstrate achievement of learning outcomes prior to receiving a higher education award. The current crop of large language models can produce many of the artefacts that institutions have historically relied on for that assurance of learning, such as essays, coding tasks and both worded and numerical maths problems. As a result, without a transformation in how institutions assess student achievement of learning outcomes, there is a risk to the integrity of the system.

While some commentators have welcomed the fact that AI can replace lower-level tasks that require content recall and allow for assessment of higher order cognition, there are several fundamental principles to consider.

- The accuracy of current language models is not reliable, and their output needs to be scrutinised for errors. If the education system were to shift entirely to a “Student/AI hybrid” model, it raises concerns about how future students will acquire the necessary content knowledge to effectively evaluate AI-generated output.
- Completion of tasks such as essays holds pedagogical value that is unrelated to assessment purposes. For example, through writing essays, students learn to research, structure and defend arguments, and communicate their ideas in a written form. Motivating students to engage in these tasks may become challenging without the incentive of assessment-based evaluation. Assessing the process of creating the artefact while employing the use of AI tools can provide an effective assessment process, but requires a greater investment of academic time in the marking process. These opportunities and impacts need to be recognised and appropriately resourced by institutions.
- The use of AI in education raises serious concerns about data sovereignty and privacy. It is essential to address these issues and ensure that the use of AI tools does not compromise student, staff or institutional data and intellectual property.
- Humanity will continue to require future generations of creative thinkers with discipline expertise. Because generative AI is trained on data, and all data is by definition historical, an over-reliance on AI may limit innovation, insight, and discovery. It is therefore crucial that society scaffolds in the introduction of AI tools through a student's education journey, to ensure all students develop critical thinking skills and to defend the pipeline of students who can reach expert levels.
- There is a risk of AI systems becoming self-contained and self-referential. An illustrative example is an educator using AI to write the lesson plans, design the assessment task and marking rubric. The student then uses AI to produce the assessment tasks, and the educator then uses AI to grade the assessment and provide feedback. In such a situation, the limited human involvement in the process undermines not just the educational experience but the very process of learning.

Ultimately, AI is necessitating a rethink of how institutions of higher education can assure themselves that students have met the learning outcomes of a degree when the artefacts that have historically been relied on in current forms of assessment can be completed to a passing level with minimal student engagement.



TEQSA is engaging closely with the higher education sector to ensure that this risk is being recognised and mitigated. It is clear from these interactions that institutions are undertaking intensive work to understand and address this risk, and TEQSA is supporting the sector to enable this transformation in the description and assessment of learning outcomes.

## 4. How cohorts of children, students and families experiencing disadvantage can access the benefits of AI

Standard 1.3 of the Higher Education Standards Framework sets the expectation that providers of higher education enable student success through the provision of “orientation programs that are tailored to the needs of student cohorts and include specific consideration for international students adjusting to living and studying in Australia”. As outlined briefly in our response to Question 1, there is tremendous scope for AI to benefit the educational journey of students and families experiencing disadvantage, and to create efficiencies for institutions in delivering tailored services.

By leveraging the concept of social capital, AI can provide invaluable support to students from disadvantaged backgrounds through the provision of an AI buddy or butler. These AI companions can answer their questions and provide guidance and support, offering personalised assistance that helps level the playing field.

AI can contribute to better cataloguing and linkages for lifelong learning. Through intelligent algorithms and appropriate data input, individuals can access a vast array of resources, courses, and knowledge, tailored to their specific needs and interests, enabling continuous learning throughout their lives.

A significant potential benefit of AI in education is the provision of tailored, instant support that is not constrained by geographical limitations or fixed timetables. Students can receive personalised assistance and guidance whenever they need it, enhancing their learning experience. However, targeted AI interventions that “speed up” or “slow down” content delivery based on student achievement could inadvertently widen achievement gaps.

AI has the potential to offer relatively low-cost individual support, which can be highly beneficial. However, it is crucial to acknowledge that there is a risk of price differentiation (reflecting differences in the sophistication and reliability of the algorithm) becoming part of the AI ecosystem, potentially exacerbating existing disadvantages and further entrenching inequality.

Realising the potential benefits for disadvantaged cohorts requires a strong commitment to and regulation of AI towards the goal of equity and inclusivity. Current large language models are reflective of the enormous data sets they are trained on, resulting in a reflection of the biases and discrimination already present in those data sets. AI also has the potential to reinforce bias and disadvantage when algorithms are misused or poorly designed. Further, the risk of automation bias, with humans tending to place higher trust in an automated decision-making system, must be recognised and mitigated.

In short, careful regulation and oversight is needed to ensure that AI systems do not perpetuate inequalities.

## 5. International and domestic practices and policies in response to the increased use of generative AI tools in education, including examples of best practice implementation, independent evaluation of outcomes, and lessons applicable to the Australian context

In addition to ensuring adherence to [Australia's AI Ethics Principles](#), a number of thoughtful documents that have been produced in other jurisdictions:

- U.S. Department of Education (2023) [Artificial Intelligence and the Future of Teaching and Learning](#)
- The European Union (2023) [The Act | The Artificial Intelligence Act](#)
- European Commission (2022) [Ethical guidelines on the use of artificial intelligence \(AI\) and data in teaching and learning for educators](#)
- UNESCO (2021) [AI and Education – Guidance for Policy Makers](#).

## 6. Recommendations to manage the risks, seize the opportunities, and guide the potential development of generative AI tools including in the area of standards

Safe and ethical development and use of AI in educational contexts should not be assumed by default but must be ensured through effective regulation that recognises and aligns with broader AI regulations. Robust AI governance systems can help ensure that products developed for and used by the education sector deliver on society's goals, rather than serving the interests of ed-tech companies.

In being responsive to the risks posed, regulation must be mindful that the threat landscape is evolving rapidly and therefore principles-based regulation that avoids being overly proscriptive will provide the best chance of remaining relevant and enforceable as the technology continues to advance.

TEQSA notes that In May 2023 the European Parliament advanced its move towards passing the [Artificial Intelligence Act](#), which provides a set of rules to ensure “human-centric and ethical development” of artificial intelligence systems. The draft legislation also prohibits certain applications of artificial intelligence, where the AI system presents an unacceptable risk to human rights. TEQSA is supportive of an approach such as this, that provides clear human-centric regulation of current and future AI applications, and recognises the differential risk posed by different applications.

Within the field of education, the crafting of any regulatory framework should be mindful of specific risks and impacts for educational uses, such as:

- the need for transparent disclosure of the training data and algorithms that underpin educational products so that they can be genuinely evaluated by government and educational institutions to ensure they are free of bias. The onus should be on EdTech developers to make this information intelligible
- a requirement for humans to remain accountable for all AI-assisted decision making. That is, AI can provide input and information and even recommendations, but decision making and accountability can not be delegated to a non-human and recommendations must be able to be over-ridden by a human
- an absolute requirement to respect and protect student and staff privacy, with clear legal requirements for appropriate data handling, storage and disposal to be applied in all models and uses. This requirement should be crafted in such a way as to also provide protection against surveillance usage
- intellectual property considerations, particularly as they relate to sensitive research data and proposals as well as assessment design
- the need for developers to ensure that they are mindful of, and seek to eliminate, bias and discrimination through the data the model is trained on, the design of the model and its suggested applications
- a requirement for educational administrators and institutions to ensure models and their applications are evaluated for bias and that their use is governed by institutional policies, and that adherence is monitored.

As a final point, TEQSA notes that consideration should be given the data on which AI is trained to ensure local contexts are adequately represented. This is important to avoid erasing Australian and indigenous culture in a sea of US-centric internet content. Setting down requirements for those creating AI models to be purposeful and considered about the training data can help create inclusive and diverse AI systems.

The image features a diagonal split background with orange in the top right and blue in the bottom left. In the bottom left corner, the text 'TEQSA' is written in a large, white, bold, sans-serif font. Below it, the website address 'teqsa.gov.au' is written in a smaller, white, lowercase, sans-serif font.

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