



July 2023

**House of Representatives Standing Committee on Employment, Education and Training:
inquiry into the use of generative artificial intelligence in the Australian education system**

Dear Committee members

The Australian Industry Group (Ai Group) Centre for Education and Training welcomes the opportunity to provide a response to the inquiry into the use of generative artificial intelligence (AI) in the Australian education system. The disruptive potential of generative AI has become reality with the release of GPT-4 and other frameworks which show promise of being the foundation for future developments of generative AI.

In these early stages, industry has already found tangible benefit in leveraging large language models (LLMs) to solve day-to-day problems and complete tasks in the workplace. These models are spurring on new ways of working: roles are more likely to span collaborative activity, analysis and multi-media involvement in addition to any technical specialisations. Working requires both the capability to work purposefully with technology, and have well-developed human skills. In many cases technology in organisations is now about relationships – concentrating on how work is organised and managed. Greater autonomy coupled with interdependence with other humans and machines in the workplace means those entering the workforce must be equipped with these capabilities through their education and training.

The best way to harness the positive momentum of these new technologies is to ensure the education and training system keeps pace with and embraces these developments. Australian businesses will continue to look to the skills ecosystem to develop 21st century skills, knowledge and capabilities that prepare Australians to use cutting edge tools to help them work productively in the modern workplace. Industry will need to be confident that new entrants have acquired the necessary knowledge and skills within the new generative AI environment.

The potential gains (most notably productivity) of generative AI are not without cost and come with genuine risks and challenges that must be appropriately mitigated. As with any tool in a workplace, it is essential that guardrails and safety mechanisms to manage risk and reduce harm are explored during education and training. This will ensure that, in adopting these new technologies, the Australian education and training system remains safe and ethical, while the learning by students as they interact with the tools is maximised for today's changing work environments.

Ai Group believes that new ways of unlocking the potential of the Australian education and training system, in a time of rapidly increasing skills disruption, is a welcome prospect. Embracing generative AI and the technology developed downstream from it may well transform knowledge and skill development and deliver other benefits in the national interest.



Exploring the advantages

The precise benefits of generative AI in the education and training system are difficult to quantify and qualify – especially with the technology landing in the market less than twelve months ago. While forecasting the potential upsides is an important task, it is vital for long term growth that emphasis and adequate space is given to exploring all avenues of possible application of this new technology. Potential benefits apply very broadly: to educational administration, teaching, learning and research in the education system.

To make the most of the opportunity, the education and training system (at all levels) should remain focused on equipping Australians to think creatively and productively about these new tools and, ideally, provide experiences that prepare them to apply these tools to the real-world problems they can expect to face in the workplace.

Indeed it is important that education providers regard the use of generative AI as a way to develop higher order skills in students: that they are encouraged to synthesise information produced by the tools, to think critically and to use comparative judgement in relation to their own activities. The disruption moves best practice learning from a process of simply being taught, to a process of navigating ambiguity and questioning. The OECD's Director of Education and Skills, in a discussion on ensuring education systems keep up with generative AI, recognised that people must engage in 'probabilistic thinking' to frame many of the challenges that humans now face.

The developments have major implications for educators. Generative AI tools can be regarded as timesaving tools that enable the gathering of basic data that can be interrogated and create further human inquiry. Learning design and the planning of teaching and assessment practices should equip students with the ability to interrogate, critically question information, and collaborate with others, including across disciplines, to discuss answers. These are increasingly important aspects of educators' roles. They must consider *how* they equip students to stay ahead of AI; to create work that is of a higher quality than ChatGPT for example and how to demonstrate this.

Within generative AI environments, work-integrated learning (WIL) provides a model that can develop the capabilities to use generative AI productively. WIL provides crucial experiences and relationships that help students, educators and businesses apply and adapt learning to a rapidly changing world. WIL champions closer industry-education provider partnerships at a time when a step change is needed to embed co-involvement cultures: co-design, co-location, co-delivery, co-assessment.

Many educators are likely to need professional development and support to adapt their teaching and learning; to introduce and maintain innovative, ethical and quality practices relating to generative AI. The development of frameworks on working with generative AI will support and guide the education and training system.

Managing the risks

Notwithstanding the potential of generative AI, there are very real risks from its use, many of which directly affect the education and training system. Currently, for students and educators alike, veracity of the data produced by generative AI tools poses a risk. As discussed above, managing this can be assisted by the commitment to a pedagogy that fosters questioning and synthesis, thereby encouraging good judgement. The disruption caused by generative AI moves best practice learning to a process of navigating ambiguity, curiosity and collaboration. The risk of student cheating is one consequence of generative AI capabilities which has been widely raised. The management of, or counter to this, is an education workforce that nurtures innovative assessment practices, where students use the tools as complementary to their learning, and where they are taught to question the integrity of data, and where they are provided guidance on what academic and research integrity is. Monitoring systems and detector tools are also needed.

While it is obvious that generative AI tools are useful in quickly gathering literature for academic and research roles, in 'scoring' identified papers and indicating studies that deserve attention, risks have been identified. An example includes fictitious lists of cited papers produced by ChatGPT. However new AI tools are quickly entering the market (such as the AI-updated version of Bing) which are providing more reliable answers on research articles indicating useful advances to manage this risk.

A coordinated program of national and state activity that establishes risk frameworks will create an environment for the education and training system in which the risks can be anticipated and managed. Important initiatives are underway. At the broader level, the Department of Industry, Science and Resources' Discussion paper, *Safe and responsible AI in Australia*, includes in its draft risk management approach for managing AI risks, an example of the use of generative AI in educational settings to assess the performance of teachers and students. The Paper's sound suggestions propose that humans should self-assess and implement appropriate and meaningful points of human involvement commensurate with the risk; ensure that a specific explanation of decisions are made available to users; that recurring training takes place for users; and that there is internal frequent monitoring and specific documentation on the design and functionality of the relevant system.

At the secondary education level, a significant initiative through the Department of Education is the February agreement by Education ministers to develop a best practice framework to guide schools in using AI tools to support teaching and learning. Ai Group believes the framework's four aims are important in regarding generative AI as a positive development that can be managed through changed practices:

- safe and ethical use of generative AI tools
- best practice implementation of generative AI tools in the classroom to lift student outcomes
- reducing workload burden and administration using generative AI tools
- establishing education-specific standards and governance to meet the needs of Australian schools.



In higher education, the regulator, the Tertiary Education Quality and Standards Authority (TEQSA), has made available a wide range of advice and good practice guides from various universities on AI for teachers and students which can inform this Inquiry. TEQSA includes some international approaches.

Another international initiative is the OECD's PISA High Performing Systems for Tomorrow (HPST) project, with which Australia is involved. It is establishing a comprehensive international framework for the future development of education systems, and includes the implications of AI for the purposes of education.

The European Union regards AI that is used in the education sector as high risk. Its principles call for high-quality training, validation and testing of data; transparency; documentation and design; robustness, accuracy and cybersecurity. It obligates education providers to establish and implement quality management; to keep up-to-date technical documentation; to monitor and to collaborate with market surveillance authorities; and to ensure human oversight in AI usage.

Ai Group's own involvement with the opportunities and risks brought about by the fast-changing AI landscape are providing an avenue to advocate broader business needs and influence developments and umbrella frameworks that can also guide generative AI usage within the education and training system. Ai Group is a Knowledge Partner of the Australian Government's National AI Centre's Responsible AI Network (RAIN), coordinated by CSIRO as a gateway for Australian industries to uplift their practice of responsible AI, by bringing together a national community of practice, guided by world leading expert partners, and enabling Australian businesses with best practice guidance, tools and learning modules.

RAIN is also supporting the commercial sector with the major disruption coming through the AI standards, including the AI Management Systems standard being launched in July this year. The 5 pillars are: law, standards, principles, governance, leadership. Ai Group's major line of effort is exploring the role of AI in the workplace.

The challenge, and the ultimate goal for the Committee, will be to reach recommendations that strike the balance between managing all risks appropriately without stifling innovation and continued experimentation that may be the key to unlocking productivity gains upon which our economy depends. The Australian education system must develop governance frameworks that embed principles and standards, while at the same time encouraging cultures that embrace emerging tools and the educational advantages that they can bring to teaching, learning and research.

Yours sincerely,

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References

Campus Morning Mail, What the Accord must provide for student success, Liz Johnson, Sally Kift, Jason Lodger and Siobhan Lenihan, May 2023

<https://campusmorningmail.com.au/news/what-the-accord-must-provide-for-student-success/#:~:text=It%20will%20create%20a%20recognised,profound%20investment%20in%20the%20future.>

Jennifer Rose, University of Manchester, ChatGPT as a teaching tool, not a cheating tool

<https://www.timeshighereducation.com/campus/chatgpt-teaching-tool-not-cheating-tool>

National Artificial Intelligence Centre's Responsible AI Network

<https://www.csiro.au/en/work-with-us/industries/technology/national-ai-centre>

Department of Industry, Science and Resources, Safe and Responsible AI in Australia, June 2023

https://storage.googleapis.com/converlens-au-industry/industry/p/prj2452c8e24d7a400c72429/public_assets/Safe-and-responsible-AI-in-Australia-discussion-paper.pdf

OECD Education and Skills Today, June 2023

<https://oecdeditoday.com/chatgpt-and-pisa-ensuring-our-education-systems-keep-up/>

Safe and Responsible AI in Australia: discussion paper, June 2023

https://storage.googleapis.com/converlens-au-industry/industry/p/prj2452c8e24d7a400c72429/public_assets/Safe-and-responsible-AI-in-Australia-discussion-paper.pdf

TEQSA resources

<https://www.teqsa.gov.au/guides-resources/higher-education-good-practice-hub/artificial-intelligence#teqsa-resources>

Times Higher Education, Five ways AI has already changed higher education, May 2023

https://www.google.com/search?q=five+ways+ai+has+already+changed+higher+education&rlz=1C1GCEB_enAU930AU930&oq=five+ways+AI+has+already+changed+higher+education&gs_lcrp=EgZjaHJvbWUqBwgAEAAyGAQyBwgAEAAyGAQyCggBEAAyhgMYigUyCggCEAAyhgMYigUyCggDEAAyhgMYigXSAQkxNjMyNGowajSoAgCwAgA&sourceid=chrome&ie=UTF-8