Inquiry into the use of generative artificial intelligence in the Australian education system

The National Catholic Education Commission (NCEC) is pleased to provide a response to the inquiry of the House of Representatives Standing Committee on Employment, Education and Training (the Committee) into the issues, opportunities and risks presented by generative Artificial Intelligence (AI).

Background

The NCEC is the peak body for Catholic Education in Australia and is responsible for the national coordination and representation of Catholic schools and school authorities.

Working collaboratively with state and territory Catholic Education Commissions, the National Catholic Education Commission advocates through effective liaison with the federal, state and territory governments, and key national education bodies. Our role is to ensure the needs of Catholic schools are served through funding, legislation, and policy.

Our work is to foster a thriving Catholic Education sector that offers parents a choice of, and affordable access to, faith-based education for their children. Catholic Education continues to advocate for fair and inclusive funding that sustains both government and accessible faith-based schools across Australia.

Catholic schools are universal in reach and open to all families who seek a Catholic Education. Australia's 1,759 Catholic schools educate one in five, or over 794,000 students and employs over 104,500 Australians. This makes Catholic schools the nation's largest provider of education outside government.

Our schools' welcome students from a range of backgrounds including an increase in Aboriginal and Torres Strait Islander students (up 168% since 2000). Students with disability represent around 19% of attending Catholic schools and 40% of students experience socio-educational disadvantage.

Terms of Reference

The House of Representatives Standing Committee on Employment, Education and Training will inquire into the issues and opportunities presented by generative Artificial Intelligence (AI), and comprehensively explore current and future impacts on Australia's early childhood education, schools, and higher education sectors.

The inquiry will include consideration of:

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

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

Response

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.

NCEC recognises a broad range of potential strengths and benefits that generative AI tools bring to improve education outcomes.

Children and students

AI tools can provide intelligent, virtual, 24/7 tutors for personalised, differentiated instruction and learning opportunities as well as learning efficiencies. Such benefits include explaining concepts in more than one way and in varying detail which may support a sense of autonomy and competency.

AI tools may also support learning processes generally and reduce cognitive load when completing tasks. Students could use AI tools to source ideas for writing activities, refine written work, access real time data to inform progress, critique model responses to questions, design and create new forms of media, summarise collaborative conversations and outputs, and utilise as part of feedback processes to check for understanding.

In summary,

- A strength of generative AI for students is the ability to personalise learning and information to suit individual needs.
- Providing autonomy and differentiation for learners of all ages to have content and concepts presented in multiple ways.
- Generative AI tools have the capacity to act as virtual tutors and coaches for students to be complementary in learning.

Educators

There are a range of potential benefits for educators in using AI tools for curriculum, assessment, administration and generally supporting improved student outcomes. These benefits may include supporting curriculum planning processes such as developing lesson plans and generating a range of pedagogies, learning activities and resources to increase variety and differentiation for students.

AI tools could also support the creation of new course specific content including development of reading lists, study materials and content summaries. AI tools could support the updating of curriculum resources and thus improving the quality of outdated materials such as documents, images, and video by providing more interactive and dynamic learning experiences.

In assessment, AI tools could support the analysis of student performance and the provision of feedback including real-time data analysis with recommendations for next steps for students' development. Assessment instruments such as rubrics and quizzes could be created. Automating tasks and responses to common student questions could also be considered as well as analysing students' writing and providing feedback.

AI tools have the potential to assist with administrative support processes to reduce workloads. AI may also be used to support professional learning about educational theories, models, frameworks as well as the identification of learning trends and new ways to collaborate from local to global perspectives. There are also opportunities for the technology to support the development of communications to parents, the school community, and other key stakeholders.

In summary,

- With appropriate prompting, AI tools have the potential to reduce administrative tasks for teachers.
- Assistance with ideation of learning tasks, catering to individual needs, curation of resources.
- Whilst it will not replace the human element of teaching, it has significant promise to enhance the role of educators and reduce administrative burden.

Systems

AI has a range of potential uses in education systems including for data analysis, interrogation of internal datasets and applications to improve system effectiveness and efficiencies.

There are many potential benefits that also are yet to be realised and it is important for students, teachers, and systems to have a growth mindset as well as a critical and ethical lens when utilising AI tools.

In summary,

- Systems will have multiple benefits from leveraging generative AI within their own ecosystems, examples include, machine learning and analysis of data, creation of co-pilots and internal chat bots to assist staff and students.

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 have already shown significant impact to teaching and assessment practices in a brief time. Some of the impact has been disruptive and has forced systems and schools to respond to assessment validity and innovate practices. As the market continues to produce new and refined AI tools the impact will continue to be seen in education.

The emphasis on teachers connecting students with the process of learning, rather than the simple acquisition of content knowledge, is one area that might see the greatest growth. A focus on pedagogy with the development of enterprise skills in the learning process and leveraging AI as a pivotal tool.

There is opportunity to reshape the education workforce with AI tools working for teachers. A strong and flexible framework will help to reduce administrative burden, develop creativity and ideation, personal learning, and support precise and analytical assessment of learning.

The future impact that generative AI tools will have on teaching and assessment practices in all education sectors is likely to include:

- deeper consideration of issues related to academic integrity
- ethical use of AI tools and age appropriateness

- nuanced and targeted pedagogical approaches e.g., in-class versus flexible and hybrid modes of learning and assessment
- allowing for learning to occur in collaborative classroom designs with automation supporting some tasks
- assessment practices being more focussed on the assessment of deep learning of concepts
- allowing more opportunities for teachers and students to co-facilitate learning
- potential to both check and verify information whilst noting that AI tools can also generate misleading, biased or inaccurate information

Generative AI has the potential to disrupt education and revolutionise the way teaching and assessment is conducted in all education sectors. The personalised learning that AI can generate means that teaching and learning could be more effective and engaging. Curriculum and assessment are likely to be impacted significantly and education systems, authorities and governments will need to respond appropriately.

In terms of the role of educators and the workforce generally, generative AI tools have the potential to provide personalised support for teacher capability and staff development. Generative AI tools also have the potential to provide an avenue to address some workload and workforce issues by saving time with tasks such as reviewing students written work and creating lesson plans.

Real-world applications for generative AI will become more sophisticated over time and are likely to seamlessly integrate into the online tools that are used daily in schools. Generative AI is becoming more prevalent outside of the ChatGPT experience, for example through global search engine tools and productivity applications.

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.

NCEC supports national collaboration to provide a framework for the use of AI in educational settings. There are a range of risks and challenges presented by generative AI tools including possible risks to the learner-teacher relationship, the ethical use of data and assessment results, and the data privacy and security of data using AI. These risks are exacerbated by the rapid evolution of AI tools and accessibility at a global level in a short timeframe.

As with any technology added into the Education sector, evaluation against frameworks for security and privacy are required and will have to be reviewed constantly for changes. The Safer Technology for Schools (ST4S) project has a national standard framework that provides all education sectors with a reliable and consistent base to extend into their own decision-making process. Principles of data privacy and security must continue to remain at the forefront when using or making decisions around the use of AI.

Student privacy is an important consideration. Generative AI tools must be closely monitored to ensure data is being collected and handled securely, ethically, and in accordance with any applicable laws or regulations. Equity of access to AI tools is also an issue in terms of not only access to devices and internet but also where access to higher performance AI tools is only available via a subscription model.

Generative AI tools also present a challenge for ongoing academic and research integrity, as they raise questions about the data collected, the potential for bias, and the impacts on research methods and results. The tools may produce imaginative responses if they lack sufficient context or parameters. These tools also pose a risk of generating incorrect information and can be influenced by inherent biases. It is crucial to recognise the importance of positioning and context while utilising these tools to create content.

AI presents a threat to using some forms of essays for assessment and for online exams that require recall and explanations. It can be challenging for users and AI detection tools to accurately determine academic authorship, distinguishing student-created text, images, and music from AI-generated content. Managing academic integrity will be an important focus going forward.

The question arises as to whether AI can foster creativity or whether it is the antithesis of creative and original thought. Human instruction is more sophisticated and responsive, currently AI lacks an understanding of the context of learning. Obtaining the right balance of the use of AI will be critical. Some would see great opportunities for cognitive offloading provided by AI, whilst other others see danger. Issues arise as to how do we enable students and teachers to grapple with questions of control, responsibility, ethics, values, and standards. AI potentially reduces the social aspect of learning and the agency of educators. There is a need to develop AI literacy strategies to separate reliable knowledge from unverified information.

Time spent on AI tools has the potential to become a distraction and reduce a productive focus on effective teaching and learning. AI responses can be convincing, and accuracy of information assumed. Over reliance on AI may reduce opportunities for critical thinking and problem solving, and creativity. Such a position may promote laziness and lack of independent thought as well as limit the development of deep knowledge. The use of mobile phones and other devices in school education over the last decade may provide a useful illustration of the educational and other concerns which may arise if AI technology is not implemented appropriately.

There are likely significant benefits of AI for society, but we need to ensure the benefits do not compromise the human capacity to think, learn, speak, analyse, synthesise, form judgements, and behave ethically.

NCEC has concerns about the degree to which the use of AI will impact student cognition and meta-cognition. Higher order thinking skills such as analysis, synthesis, and evaluation as outlined in Blooms educational taxonomy may be impacted in children. Research into this area is urgently required.

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

The benefits of AI to students and families experiencing disadvantage are underpinned on the premise that these students and families have adequate and equitable access to technology. As well as access these students and families require appropriate support to build their digital literacy skills and baseline capacity towards digital inclusion.

With the appropriate ethical and responsible design, there is potential for AI tools to assist those experiencing disadvantage by custom-designed tools to assist with complex learning or social problems. This would require extremely considered co-design, cultural and social consultation. Further to this, a critical function of AI is accessibility, end users need to consider the accessibility features offered by the tool and any associated gaps in functionality.

Governments and school systems need to advocate for and/or build the infrastructure where possible to ensure equity of access for all to these emerging technologies. In some cases, AI is becoming available in emerging generative AI search engines and productivity suite applications that may be provided by education authorities and/or schools to their school communities. In other cases, some students/families may have the capacity to pay for subscriptions to access more sophisticated AI tools.

There is also the broader issue of the digital divide where students and families without internet access, devices and the knowledge or capacity of being a digital citizen are unlikely to be able to fully leverage the potential benefits of AI without appropriate support.

There are many challenges in bridging this digital divide. A recent example is the Broadband initiative led by the NBN, which aimed to supply 30,000 broadband connections to disadvantaged families. This target was not met due to a number of factors, including perceptions of disadvantaged families and an over-rigorous application process.

The natural language models of generative AI do have the potential to support those experiencing disadvantage. As such, it will be important to remove whatever barriers may exist so that the benefits of AI are accessible to all on an equitable basis.

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.

Many countries have begun to recognise the potential of generative AI tools in education and are developing strategies and policies in response to the emerging technologies.

While it may be somewhat premature to suggest best practice implementation, independent evaluation of outcomes, and lessons applicable to the Australian context, a national approach to developing a framework for policy, practice, and potentially legislation will be important.

Catholic School Authorities and Catholic schools nationally are currently exploring practical applications of generative AI for staff and students in teaching, learning and administration. While there is a range of research both at the international and domestic level, this is still considered an emerging area.

Leadership and agreement across key education stakeholders on a framework surrounding the use of AI in education will assist in establishing the criteria to identify best practice implementation, underpinned by evidenced-based research.

The national Safer Technologies for Schools (ST4S) project may have a role in the future in evaluating AI tools in terms of security and safety. Potentially the Australian Education Research Organisation (AERO) would lead research to inform lessons applicable in the Australian context.

Best practice implementation will require collaboration between governments, educators, researchers, and industry to ensure AI tools are employed responsibly and ethically. Agreements must be made between stakeholders on data standards, the use of AI to benefit students, and ways to ensure safety and security.

Catholic School Authorities are monitoring developments with global technology companies so that they are informed regarding potential AI tools specifically designed for education to assess the implications and applications for their own contexts.

The Catholic sector is awaiting further guidance and advice from government education authorities and the outputs of the national AI education taskforce to inform future policies and applications of AI.

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

Increasing awareness and understanding of what AI tools are across the education sector will encourage appropriate use and innovation. An essential element to mitigating risks is ensuring that systems, schools, and end users are aware of data, privacy and security risks when entering data into third party solutions.

The growth of AI technology and tools offers significant opportunities for education. These opportunities and innovation should be encouraged and explored within responsible and ethical use considerations. Establishing a baseline for end users of associated risks might mitigate against potential risks. Organisations and systems would benefit from early adoption and engagement with industry leaders to create custom solutions with appropriate security principles and understanding of context.

NCEC on behalf of Catholic sector school authorities, provides the following suggested recommendations to manage the risks, seize the opportunities, and guide the potential development of generative AI tools including in the area of standards:

- research the impacts of AI on children's cognition and meta-cognition
- design pedagogies and learning experiences that respond to a changing world with AI
- help students to use AI responsibly and with care in life and learning
- implement strategies for developing academic integrity
- reconsider acceptable use of AI in assessment, for example, tasks with no access to AI, and tasks where AI is explicitly integrated
- changes to assessment cognitions used in online exams such as those directly related to student's experience and/or case and scenario-based activities that are directly related to key learning experiences
- reconsider how creativity is defined and assessed
- develop policies about fair, responsible and ethical use of AI
- articulate the social implications of AI integration into society
- provide useful frameworks for schools and systems to evaluate and make decisions on which tools are fit for purpose such as due diligence processes for third party applications

- collaborate with relevant programs and agencies (e.g., ST4S and the eSafety Commissioner's Office) to provide targeted information on Australian data security standards noting standards should encompass safety, security, privacy, ethical use, and responsible handling of data
- provide positive messaging for parents and the wider community on how AI is helping students to learn and grow, without taking from the important connections and relationships they build in their school life
- provide schools with worked examples including lesson plans on how teachers have used AI to enhance learning outcomes
- provide teachers with secure options for reducing their workload through harnessing AI
- consider any implications of AI for the Australian Institute for Teaching and School Leadership Professional Standards for Teachers
- continuously review and assess whether generative AI tools are meeting the needs of users and are being used in an effective and ethical manner
- undertake independent research and gather feedback from students, educators, researchers, and industry to develop actionable insights and ensure best practices are adopted

Conclusion

Generative AI tools have the potential to improve education outcomes. There is opportunity to reshape the education workforce, reducing administrative burden, developing creativity and supporting analytical assessment of learning.

However, we need to ensure the benefits do not compromise the human capacity to think, learn, speak, analyse, synthesise, form judgements, and behave ethically.

There are a range of risks and challenges presented by generative AI tools including the ethical use of data and assessment results, and the data privacy and security of data using AI.
Research into this area is urgently required.

Best practice implementation will require collaboration between governments, educators, researchers, and industry to ensure AI tools are employed responsibly and ethically.
NCEC supports national collaboration to provide a framework for the use of AI in educational settings and welcomes the opportunity to contribute to this inquiry.

Should you have any further questions in relation to this submission, please contact me via phone 02 8229 0808 or via email jacinta.collins@ncec.catholic.edu.au.

Yours sincerely

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